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ORIGINAL PAPER

# The Trust Triangle: Laws, Reputation, and Culture in Empirical Finance Research

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## Abstract

We propose a construct, the Trust Triangle, that highlights three primary mechanisms that provide ex post accountability for opportunistic behavior and motivate ex ante trust in economic relationships. The mechanisms are (i) a society's legal and regulatory framework, (ii) market-based discipline and reputational capital, and (iii) culture, including individual ethics and social norms. The Trust Triangle provides a framework to conceptualize the relationships between trust, corporate accountability, legal liability, reputation, and culture. We use the Trust Triangle to summarize recent developments in the empirical finance literature that examine how trust is formed and how trust, or its absence, affects financial markets, firm performance, and the incidence of financial fraud. To date, most studies examine only one leg of the Trust Triangle in isolation. The evidence, however, indicates that all three legs of the Trust Triangle have first-order effects on a wide range of financial outcomes and that they are interrelated. Attempts to model trust and trustworthiness that do not incorporate all three aspects of the Trust Triangle will therefore miss essential aspects of the basic economic problem of how counterparties overcome the risks of moral hazard, asymmetric information, and opportunism to engage in mutually beneficial exchange and production activities. We focus especially on culture-related mechanisms, a recently developed area in empirical finance research that has potential to influence the more established research on laws and reputation.

**Keywords** Trust · Accountability · Opportunism · Fraud · Reputation · Culture

**JEL Classification** A13 · G38 · K40 · Z10

*Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence…*
*– Kenneth Arrow (1972, p. 357)*

## Introduction

Trust lies at the core of nearly all economic transactions. Without some amount of trust, customers—who know very little about the supply chain that brings food to their tables—would eschew restaurants and grocery stores to grow their own food. Without trust, employees would not accept employment without prepaid wages, while employers would not pay wages until after the job is complete. Trade credit would disappear, financial capital would dry up, and partnerships would dissolve. Much cooperative economic activity would halt and we would live in autarky and penury.

The concept of trust thus plays a central role in economic theory. The importance of trust in business relationships also is emphasized in the business ethics literature, e.g., Bews and Rossouw (2002), Caldwell and Hansen (2010), and Pirson et al. (2017). Only in recent years, however, have financial economists made substantial gains in exploring empirically the importance of trust in overcoming the deleterious

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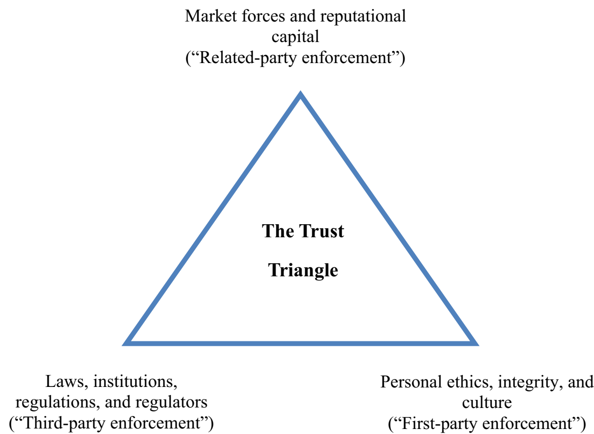


**Fig. 1** The trust triangle. The trust triangle provides a framework to summarize three main pathways by which counterparties develop trust to engage in mutually beneficial exchange and production activities

threat of opportunism on financial activity (e.g., see Zingales 2015; Amiram et al. 2018). This empirical research connects measures of individual, firm-level, or societal trust to a variety of financial outcomes, including investment, firm performance, fraud, and financial market activity. The goal of this paper is to propose a framework to organize and better understand recent empirical research in finance that highlights the importance of trust. We call this framework the Trust Triangle (see Fig. 1). The Trust Triangle is a complement to the well-known Fraud Triangle.[1] But whereas the Fraud Triangle describes the conditions that lead a person to commit fraud, the Trust Triangle describes the forces that encourage people to overcome the risks of opportunism and engage in mutually beneficial economic exchange.

In addition to synthesizing several seemingly unrelated threads of the finance literature, the Trust Triangle provides a framework to conceptualize the relationships between trust, corporate accountability, legal liability, reputation, and culture. In our framework, accountability refers to ex post consequences to firms and individuals for opportunistic, fraudulent, or unethical behavior. The prospect of accountability forms the basis for trust between counterparties, which is an ex ante probabilistic belief that one's contractual counterparty will avoid opportunism and perform as explicitly or implicitly promised. Legal liability, reputation, and personal ethics—which describe third-party, related-party, and first-party sources of accountability, respectively—are the three main channels by which firms face accountability and that therefore build ex ante trust.

The Trust Triangle offers a new perspective on several threads of the business ethics literature. For example, it enumerates the factors that affect perceptions of trustworthiness and the choice to trust in economic transactions—what Caldwell and Hansen (2010) call the "mediating lens" by which counterparties balance "…personal, organizational, relational, and environmental factors" in judging trustworthiness. The Trust Triangle offers an alternative gestalt to other theoretical models of trust formation, e.g., as in Bews and Rossouw (2002), Rodgers (2009), Pirson et al. (2017), Hain et al. (2016), and Fassin and Drover (2015). For example, the Trust Triangle operationalizes Bews and Rossouw's (2002) "factors of trustworthiness" into third-party, related-party, and first-party mediators of trust. Like Rodgers (2009), we offer a threefold vision of trust formation, although unlike his system, the three legs of the Trust Triangle can be complements and are not strictly substitute processes of trust formation.[2] Rather, these three legs—legal processes, reputational capital, and culture—provide both incentives and means by which counterparties build Pirson et al.'s (2017) "trustworthiness signals." The Trust Triangle also clarifies and enriches the interaction between "relational trust" and "institutional trust" proposed by Hain et al. (2016). In their framework, institutional trust is the ex ante mechanism that allows parties to transact initially, and relational trust is gained ex post through repeated interactions (p. 747). By comparison, we view trust as a multi-dimensional (personal, relational, and institutional) prerequisite to contracting—both in one-off or initial transactions and in repeated games—and accountability as the ex post enforcement mechanism, the prospect of which supports each counterparty's assessment of the other's trustworthiness.

The perspective provided by the Trust Triangle also addresses a concern raised by Bernardi et al. (2008), who discuss an apparent "… dearth of ethics research in the finance discipline…" compared to research in accounting and marketing. As we show below, the dearth is less severe when we consider finance research that examines the role of third-party and related-party enforcement for the formation of trust in contracting. Bernardi et al.'s (2008) discussion, however, accurately highlights how empirical finance researchers have only recently emphasized the influence of ethical and cultural norms on the operations and characteristics of firms and financial markets. Because the empirical

[1] The Fraud Triangle states that frauds occur when a person has sufficient (i) perceived gain, (ii) perceived opportunity, and (iii) self-rationalization for the fraudulent behavior. See Albrecht (2014) for a discussion of the historical development of the Fraud Triangle.

[2] Rodgers (2009) uses a throughput model of trust formation. Our Trust Triangle is based on empirical proxies for trust used in the existing literature. There is, however, overlap between Rodgers's model and ours. For example, his "rule-based" category of trust formation overlaps with third-party enforcement in the Trust Triangle.

research that explores the connections between culture and financial outcomes is relatively new and not yet surveyed in other papers, our discussion of the culture leg of the triangle is relatively detailed.

Our contribution to the existing literature, then, is a comprehensive yet flexible framework that characterizes trust as a prerequisite for commercial interaction and highlights accountability as the ex post enforcement mechanism that (i) disciplines trust violations and (ii) provides the incentive and means for the formation of ex ante trust. We illustrate how the Trust Triangle's three channels of accountability—legal enforcement, reputational capital, and culture—work in practice by summarizing a wide range of empirical finance findings about the role of trust. Our review of the finance literature also shows that trust and accountability provide a coherent theme to synthesize this otherwise disparate set of findings. As Zingales (2015) points out, the malleability of the concept of "culture" has relegated it to sideshow status in much of the finance literature. The Trust Triangle highlights how ethics, social norms, and culture are not a sideshow, but rather, are central to our understanding of how firms and markets operate.

We begin in the "Accountability and Trust" section by describing the concept of accountability and trust that underlies, and provides a coherent structure to, most empirical research on trust and finance. "The Trust Triangle" section describes the three legs of the Trust Triangle, which relate to third-party enforcement of a society's laws and regulations, related-party reputational incentives for honest dealing, and first-party or cultural motives for ethical and honest behavior. Subsequent sections summarize finance-related empirical research related to each leg of the Trust Triangle. Empirical research that explores the connections between culture and financial outcomes is relatively new, so our discussion of that leg of the triangle is relatively detailed. The "Connections Between the Three Legs of the Trust Triangle" section discusses the ways in which the three legs of the Trust Triangle interact. "Breaches of Trust and Trustworthiness Clienteles" examines several extensions of our analysis, including breakdowns in trust and how firms develop reputations to meet demands for varying levels of trustworthiness.

## Accountability and Trust

Economists long have recognized the importance of trust for markets to function. In Akerlof's (1970) lemons problem, buyers demand discounts to compensate for their risk of being taken advantage of by sellers who have an informational advantage about the quality of the good to be exchanged. Sellers who are willing to sell in the face of such discounts signal that their products are relatively inferior, causing buyers to demand even larger discounts. The problem goes the other way, too, as buyers can opportunistically take advantage of sellers. In the end, trade breaks down, as buyers infer that only sellers of the lowest quality products remain in the market at the low prices that buyers are willing to pay.

Information asymmetry and the lemons problem are pervasive and affect virtually all exchange and production activities. Despite this fact, however, buyers and sellers do get together—billions of times each day. Viewed in light of the lemons problem, the observation that billions of trades occur *every day* in *all parts* of the world is extraordinary. Counterparty risk is an ever-present threat to every contract and every exchange, as buyers can cheat sellers and sellers can cheat buyers. How, then, do trades occur? By what leap of faith do people trust each other enough to enter into contracts and agree to trade? Why is fraud not running rampant in the streets? Fraud does occur, but why is it the exception and not the norm?

To answer these questions, finance researchers frequently rely on a backward induction concept of accountability and trust in which the threat of ex post accountability fosters ex ante trust, which facilitates economic contracting and exchange.[3] In this concept, accountability is the ex post settling up that occurs when a person acts opportunistically, illegally, or unethically. Settling up can take many forms, including regulatory fines, lawsuit settlements, jail time, lost sales, lower income, job loss, or social ostracism. The key is that accountability represents an ex post penalty for behavior that deviates from a prior implicit or explicit agreement.[4] Trust, by comparison, is the ex ante belief that one's counterparty will perform as promised in the implicit or explicit agreement. It arises when the economic agent—a customer, investor, employee, or supplier—believes that her counterparty faces a sufficient prospect of ex post accountability to encourage honest dealing.

People require such trust to contract and trade with others. Trust enables the leap of faith required whenever we make ourselves vulnerable to others by engaging in an economic transaction. The implicit agreement when I go to a coffee

[3] Backward induction refers to the logical process that ties the economic outcome – in this case, contracting and exchange behavior – to the sequence of decisions that produce the outcome.

[4] For theoretic formulations of repeated game interactions that emphasize ex post penalties as the source of accountability, see Klein and Leffler (1981), Fudenberg and Maskin (1986), Diamond (1989), and Kreps (1990). Researchers variously use such terms as opportunism, cheating, fraud, and misconduct to denote behavior that deviates from an explicit or implicit agreement. Such terms imply intent to deviate and not perform. Intent plays an important role in most legal definitions of fraud, and whether intent is involved frequently affects the size of ex post legal penalties. In some formulations, however, including models of reputational capital discussed here, what matters is that the behavior deviates from the prior (frequently implicit) agreement, whether or not the deviation is intentional.

shop, for example, is that I will get a drink that somewhat matches my expectations of quality, including the expectation that it is not tainted with salmonella or *E. coli* bacteria. Similarly, investors expect a company's financial filings to not be fraudulent, employees expect a safe workplace, and suppliers extending trade credit expect their customers to pay their bills. Economic contracting and exchange occurs when counterparties trust each other enough to overcome the threat and cost of negligent or opportunistic behavior, and trust arises when counterparties believe each other face sufficient accountability for negligence or opportunism.

This backward induction concept of accountability and trust offers a flexible tool to structure and synthesize the empirical research we summarize. In this concept, neither trust nor accountability needs to be treated as binary outcomes, but rather, as probabilistic. Different firms face different expected penalties for fraud depending on their likelihood of detection and legal penalties, their reputational capital at stake, and their corporate cultures. So the likelihood and size of the ex post accountability are not certain. Similarly, customers' trust in a coffee shop's food quality is not absolute, but rather, can vary across coffee shops and over time. Indeed, one dimension along which firms and people compete is the degree of assurance that they will not act opportunistically, facilitating greater trust and willingness to risk in some transactions than in others.

It also is useful to note that, even though accountability refers to ex post penalties, trust can arise through mechanisms that appear ex ante in nature. For example, regulators not only impose penalties on firms that misrepresent their financial statements; they also provide rules for financial reporting and disseminate firms' financial information to investors. Common law practices rely relatively heavily on ex post determination of the facts surrounding a dispute, whereas civil law practices rely heavily on the specific ex ante articulation of laws to guide behavior. Customers may rely heavily on advertising and brand name guarantees, which appear ex ante in nature, without explicit regard for the firm's reputational capital losses if it provides faulty products. The concept of accountability and trust emphasized here, however, treats such practices as manifestations of the threat of ex post penalties. For example, firms follow the ex ante rules for financial reporting to the extent there are ex post penalties for failing to do so (this is an example of third-party enforcement). Similarly, brand name guarantees are valuable precisely because they represent firms' losses in reputational capital if the guarantees are violated (related-party enforcement). We use this construct even when interpreting empirical findings about first-party enforcement related to culture and finance. That is, cultural forces engender trust to the extent that they impose penalties (e.g., social ostracism or loss of self-esteem) for opportunistic behavior.

To be sure, our backward induction concept is not the only way to conceive of accountability, trust, and their relation to each other. Lys et al. (2015), Brennan and Solomon (2008), and others treat accountability as a process by which firms credibly disclose their activities, especially regarding CSR and governance practices. Bendell (2005) and Utting (2008) argue for greater accountability in the sense that firms should place greater weight on the interests of their non-financial stakeholders. Keating and Thrandardottir (2017) consider the relation between accountability and trust, but argue that the threat of ex post penalties can undermine, rather than support, social bonding and trust. In discussing the financial crisis, O'Neill (2014) considers (and rejects) an argument that accountability and trust are not complements, but rather, substitute mechanisms to decrease opportunistic behavior.

Our definitions of accountability and trust are closer to the discussions in Caldwell and Hansen (2010) and Hardin (2002). Caldwell and Hansen (2010, p. 174), write that "… trust is the relinquishing of one's personal control or power to another in the expectant hope that the other party will honor a duty or social contract inherent in the relationship."[5] Hardin (2002) proposes that trust can be summarized as "encapsulated interest." Our definition extends the argument that accountability requires reporting or ex post verification of the firm's claims and promises. In particular, our backward induction concept links the mechanisms of accountability—which include reporting and monitoring—to the ex ante belief in the degree of a firm's or individual's trustworthiness. We use this concept to characterize how customers, investors, employees, and suppliers overcome informational asymmetries and the risk of opportunism to engage in wealth-creating production and exchange activity.

## The Trust Triangle

A key aspect of the backward induction concept of accountability and trust is that agents face the prospect of ex post penalties when they act opportunistically. The nature of such accountability falls into three broad categories. These categories identify three channels by which economic agents develop the trust required to overcome the lemons problem and engage in production and exchange activity. Figure 1 illustrates these three channels, which together we call the Trust Triangle.

[5] Caldwell and Hansen (2010), however, emphasize first-party ethical considerations in the formation of trust and do not consider the roles of third-party and related-party incentives, i.e., the first and second legs of the Trust Triangle as discussed below. They also apply the formation of trust to manager–employee relationships, whereas we emphasize the importance of trust in all contractual relationships.

One leg of the Trust Triangle refers to *third-party enforcement* of a society's laws and regulations, which impose restrictions and ex post penalties for sloppy, opportunistic, or cheating behavior and can therefore align counterparties' ex ante incentives. Such third-party enforcement includes regulatory requirements and enforcement actions, government monitoring and penalties for misconduct, criminal law enforcement, and private lawsuits. One reason I trust that my morning coffee is minimally decent—e.g., at least not going to make me sick—is that I trust my society's legal framework to impose some accountability for illegal behavior that may harm me, and I trust that my barista does not want to get sued, face fines or closure, or go to jail.

The second leg of the Trust Triangle refers to *related-party incentives* to behave honestly. Even in a society with no third-party contractual enforcement, firms and individuals that behave honestly attract more customers and have lower costs than those that lie, cheat, and steal. I trust that I will get a decent, even good, cup of coffee because my barista will lose customers if she gets a reputation for serving bad coffee.[6] The concept of trust arising from my counterparty's self-interest dates at least to Adam Smith's characterization of the Invisible Hand (e.g., see Jaffer et al. 2014), and most game-theoretic models of trust rely on the prospect of ex post penalties for opportunistic behavior to enforce equilibria in repeated interaction frameworks (e.g., Fudenberg and Maskin 1986; Diamond 1989; Kreps 1990). In the "Market Forces and Reputation: Related-Party Accountability and Formation of Trust" section below, we propose that recent empirical findings on the consequences of financial fraud can be fruitfully interpreted using a framework such as Klein and Leffler's (1981) model of related-party contractual performance. Karpoff and Lott (1993) call this market-based foundation for trust "reputation," and we refer to the quasi-rent stream that accrues from honest dealing, and is lost when a firm or person cheats, as "reputational capital."

The last leg of the Trust Triangle refers to the personal, moral, religious, societal, and cultural values that encourage other-regarding behavior and discourage cheating even in the absence of penalties imposed by third parties and related parties. An additional reason I trust my barista is that I believe her to be a moral person who desires to do the right thing and takes pride in her skill in pulling a shot. If the other legs of the triangle refer to third-party and related-party incentives and enforcement, this third leg can be thought of as *first-party or self-enforcement*. It reflects the sum of a person's motivation to avoid opportunism and perform as promised even in the absence of the threat of external legal or market penalties. To capture the fact that such motivation reflects a society's social norms and nonpecuniary rewards and punishments, we call this the culture leg of the Trust Triangle.

Although the formation and role of trust in interpersonal interactions has deep roots in other social sciences, financial economists have focused on such issues in their empirical research only in recent years. The development of this research tracks closely with a rise in the appreciation and measurement of qualitative, relationship-based, and informal contracting in the finance literature, beginning with the law and finance work of LaPorta et al. (1997) and continuing with current attempts (e.g., for example Sapienza et al. 2013) to define and measure the effects of culture on financial contracting and firm performance. The following sections use the Trust Triangle to conceptually organize and interpret recent empirical attempts in the finance literature to measure the importance of trust as it plays out in financial markets and business organizations. Financial contracting is particularly susceptible to concerns about information asymmetry and opportunism, so the formation of trust is central to the operations of markets and firms. Why, for example, would investors invest money in an enterprise that is controlled by other people (i.e., managers) unless they trust that they will see a return on their investment?[7] Indeed, the subfield of corporate governance deals with the formal and informal rules that control managers' activities and assure investors that they will not be ripped off. So, finance researchers are particularly sensitive to the importance of trust in contracting and governance.

A secondary objective of this paper is to survey the recent rise of finance research that examines the importance of cultural factors in financial outcomes. We propose that this relatively new area of empirical research is a counterpart to the more established literatures regarding law and finance and reputational capital. The three literatures together highlight the primary channels by which trust is formed, undergirding financial contracts and improving financial outcomes.

[6] A reader of a prior version of this paper suggests that we illustrate the importance of trust in most transactions by citing the case in which some Chipotle customers contracted salmonella poisoning. We use the coffee example because it illustrates the importance of trust in even the most mundane transactions, and it highlights how such trust is justified in most cases. Chipotle's experience, by contrast, illustrates the outlier case in which customers' trust turns out to be unfounded. As emphasized throughout this paper, the fact that trust is sometimes broken (intentionally or not) highlights how ex ante trust and trustworthiness are not binary outcomes, but rather, reflect probabilistic assessments of the likelihood of satisfactory contractual performance.

[7] This is a central question of firm organization involving specialization in the provision of financial capital and managerial efforts, as discussed by Alchian and Demsetz (1972), Jensen and Meckling (1976), Demsetz (1983), and Fama and Jensen (1983).

## Laws and Regulation: Third-Party Accountability and Formation of Trust

Third-party enforcement plays a primary role in the law, economics, and finance literatures. In the U.S., the environment in which firms raise funds and report to their investors is shaped by such federal legislation as the 1933 Securities Act, 1934 Securities and Exchange Act, 1977 Foreign Corrupt Practices Act, 2002 Sarbanes-Oxley Act, and 2010 Dodd-Frank Act. The law and finance literature—which shows how a country's legal institutions affect the development of its financial markets, capital formation, corporate governance, and economic growth—demonstrates how third-party enforcement plays a primary role in creating the trust that is required when investors cede day-to-day control over their financial capital to company managers. To answer the question of what keeps managers from systematically defrauding their investors—and therefore, what keeps fraud from running rampant—many people are likely to default to the view that third-party enforcement plays a primary role.

The finance literature that highlights the importance of third-party enforcement for controlling financial misconduct is the topic of several detailed surveys, so in this section we offer a brief overview.[8] Beginning with LaPorta et al.'s (1997) seminal paper, the law and finance literature represents financial economists' most sustained attempt to empirically investigate the role that laws and regulations—or third-party enforcement in general—affects trust among investors and managers, and therefore determines the formation, structure, operations, and value of business organizations.

La Porta et al.'s thesis is that a country's laws and regulations arise from one of a small number of legal traditions. They emphasize two broad families of law: common law countries, which derive their legal traditions from British common law, and civil law countries, which derive their legal traditions from Roman law. Civil law traditions, in turn, have distinct French, German, and Scandinavian versions. La Porta et al. argue that the source of a country's legal tradition affects its commercial laws and processes for resolving legal disputes, leading to systematic differences in how firms are structured and do business. Common law countries generally offer more investor-friendly legal protections and civil law countries offer fewer investor protections. In a series of papers, La Porta et al. and others show that such differences affect the growth and development of financial markets, as well as firms' ownership structures, investment, payout policies, leverage, operations, and value.[9]

Underpinning these discoveries is the insight that a country's legal system affects the trust that is required to overcome the risk of opportunistic behavior and to encourage financial transactions. Firms that operate in countries with strong investor protections find it easier to raise capital because investors have greater recourse for managerial misconduct and therefore have more trust that managers will not steal or mismanage their invested capital. Such trust is essential for the size and growth of capital markets and therefore firms' ability to finance new projects and create value. Further studies underscore the connection between a country's legal environment and investors' ability to trust managers. For example, Statman (2009) shows that the enforcement of insider trading laws is affected by a country's legal tradition. Nahata et al. (2014) find that countries with strong legal rights and enforcement have more venture capital investment. Dyck and Zingales (2004) show that legal protections help deter managers from extracting private benefits at investors' expense. Moreover, Johnson et al. (2000b) and Djankov et al. (2008) show that fraud and tunneling—in which majority owners steal from minority shareholders—is less frequent in countries with strong legal protections for investors.

The law and finance thesis is subject to criticism, as researchers have debated La Porta et al.'s characterizations of the common and civil law traditions, their classifications of individual countries within this framework, their definitions and measurement of investor protections, and the confounding influence of other factors that affect financial outcomes.[10] Nonetheless, there is strong empirical support for the broader notion that trust among economic agents is strongly affected by a community's legal system and third-party enforcement. For example, Brown et al. (2017) find that small businesses that operate under Native American tribal law have weaker access to credit markets than otherwise similar firms that also fall under state law jurisdiction because the legal environment affects lenders' trust that they will be repaid. Gu et al. (2017) use data from the corporate bond market in China to examine the value of trust when rules regarding contract enforcement are still under development. Ang et al. (2015) also use data from China to examine the impact on technology investment of expropriation risk for intellectual property when legal enforcement is uncertain. Together, this branch of finance research strongly supports the inference that the first leg of the Trust Triangle, which identifies the importance of legal institutions and third-party enforcement in

[8] For surveys, see Shleifer and Vishny (1997), Denis and McConnell (2003), Malmendier (2009), and Leuz (2010).

[9] See, for examples, LaPorta et al. (1997, 1998, 1999, 2000, 2002, 2006), Demirgüç-Kunt and Maksimovic (1998), Claessens et al. (2000), Beck et al. (2000), Johnson et al. (2000a), Booth et al. (2001), and Beck et al. (2003).

[10] See, for examples, Coffee (2001) and Cools (2005).

helping to create trust among counterparties, plays a primary role in such financial outcomes as firm value, agency problems, fraud, financial market development, and economic growth.

## Market Forces and Reputation: Related-Party Accountability and Formation of Trust

The second leg of the Trust Triangle consists of related-party discipline for misconduct and reputational investments that provide incentives to act honestly. To isolate the importance of reputation, Klein and Leffler (1981) and Shapiro (1983) develop models in which there is no legal system or other third-party system to enforce contracts.[11] Indeed, many potential disagreements, e.g., over the quality of a cup of coffee, cannot easily be adjudicated by a third party such as a court of law. In these models, reputation—and reputation alone—encourages good behavior and disciplines bad behavior. Individuals or firms develop reputations for honest dealing, and good reputations are valuable because they foster trust that yields favorable terms of contract with customers, investors, employees, and suppliers. Firms can therefore build trust with their counterparties by investing in reputation, just as they might invest in property or equipment. Reputational capital is the present value of the improvement in net cash flow and lower cost of capital that arises when the firm's counterparties trust that the firm will uphold its explicit and implicit contracts and will not act opportunistically to their counterparties' detriment. It is the threat of decreases in reputational capital—that is, an increase in costs or decrease in revenues—that disciplines and discourages misconduct.

Empirical research shows that reputation plays an important role in financial contracting.[12] As examples, Beatty et al. (1998) and Fang (2005) find that investment banks with better reputations obtain higher fees for their services, and Atanasov et al. (2012) find that venture capitalists who are sued by their counterparties—an indication of opportunistic behavior—experience severe business cutbacks. A challenge for empirical research in this area, however, is that it is difficult to measure a firm's reputational capital, and we have little evidence on its size or value for most firms. Some researchers measure a firm's reputation based on surveys (e.g., Pevzner et al. 2015), CSR-based or other index-based rankings (El Ghoul et al. 2011; Baselga-Pascual et al. 2018), or firms' written materials (e.g., Guiso et al. 2015), but such measures typically reflect "reputation" as a general opinion about the firm rather than as a capital asset. That is, survey results and CSR rankings may have little relation to the concept of reputational capital as defined here and as represented in the Trust Triangle.[13]

To address this measurement challenge, many researchers examine instances in which trust is broken and reputational capital is lost. The idea is that, while it is difficult to measure a firm's stock of reputational capital, it is easier to measure the change in reputational capital when the firm or its managers lie, cheat, or steal. A well-established result is that firms lose value, on average, upon the revelation of financial misconduct (e.g., see Amiram et al. 2018, Sects. 3 and 4). In reasonably efficient markets, share prices reflect investors' expected values of future cash flows to equity, changing when expectations change. This implies that changes in share values upon the revelation of the firm's misconduct provide a measure of investors' expectations of the ex post costs the firm will suffer. The losses can include direct costs imposed via the first leg of the Trust Triangle, including regulatory fines, class-action settlements, and increased legal expenses. They also likely include a decline in share value as investors realize they had been relying on incorrect financial information to forecast the firm's future cash flows, that is, a reversal of the share price inflation attributable to the previously incorrect financial information. In addition, the losses often include lost reputational capital. This is the loss in value if the firm faces a higher cost of capital, lower sales, or higher operating costs as the revelation of misconduct changes the terms by which counterparties are willing to do business with the firm.

Several papers have attempted to isolate the portion of the total loss in share values that is attributable to each of these types of penalties. In samples that include both financial and other types of misconduct, Karpoff and Lott (1993) and Alexander (1999) estimate that very little of firms' total losses in share values—as little as 7%—is attributable to direct costs such as fines and legal settlements, and that most of the loss in share values represents lost reputational capital. In a sample consisting only of financial statement misconduct, Karpoff et al. (2008b) estimate that 25% of the loss in share values represents the reversal of the artificial price inflation that accompanies such misconduct. Another

[11] Other papers that model how relational contracts and the prospect of future interactions can decrease the threat of opportunism include Fudenberg and Maskin (1986), Bull (1987), Baker et al. (1994), Board (2011), and Halac (2012).

[12] For surveys of this literature, see Karpoff (2012) and Amiram et al. (2018). Parts of this section follow closely from Sect. 4 of the Amiram et al. (2018) paper.

[13] If a firm's counterparties give favorable terms based on a generally favorable opinion about the firm, as reflected in surveys or CSR rankings, this would be an example of how firm culture can help build trust. That is, it reflects the culture leg of the Trust Triangle, not the reputational capital leg.

9% represents such direct costs as legal fines and penalties, and the remaining 66% represents lost reputational capital. Consistent with this conclusion, Beneish (1999) finds that only a small portion of firms' losses around the announcements of GAAP violations is attributable to settlement costs, and Armour et al. (2016) find a similar result for violations of financial regulation and listing rules undertaken by the U.K.'s Financial Services Authority (FSA).

An alternative approach to measuring the empirical importance of the second leg of the Trust Triangle for disciplining financial misconduct is to examine directly whether the revelation of misconduct is associated with an increase in firm costs or a decrease in firm revenues. Hribar and Jenkins (2004), Kravet and Shevlin (2010), and Chava et al. (2010), for example, find that the cost of equity capital increases for firms that misrepresent earnings or following a securities class-action lawsuit. Graham et al. (2008), Chava et al. (2018), and Yuan and Zhang (2015) find that restating firms and firms targeted by class-action lawsuits face higher borrowing costs and tighter non-price terms of their loan contracts, especially for firms that restate due to fraud. These results show that one channel by which dishonest behavior affects firm value is through an increase in the cost of capital.

A second channel by which firms lose reputational capital is through a decrease in earnings. Autore et al. (2014) and Yuan and Zhang (2016) find that firms that are targets of securities-related lawsuits subsequently reduce their external financing and investment activity. Palmrose et al. (2004) show that analysts forecast lower future earnings for restating companies, and Murphy et al. (2009) find that misconduct firms experience both a higher cost of capital and a decrease in cash flows from operations. Barber and Darrough (1996), Karpoff et al. (1999), and Johnson et al. (2014) document wide-ranging operational losses for firms targeted by lawsuits or other charges related to product market frauds, as these firms experience higher operating costs and lower sales.

Overall, these results indicate that reputational capital—the second leg of the Trust Triangle—plays an important role in disciplining financial misconduct and, therefore, forming the trust among firms and investors that is essential for the corporate form or organization. As Karpoff (2012) points out, however, the second leg of the Trust Triangle does not work to discipline all types of firm misconduct. On average, firms do not lose value due to lost reputational capital when they are caught violating environmental or anti-bribery rules. We infer that these firms' counterparties do not change the terms with which they are willing to do business with polluters or bribers because the illegal activities do not directly affect them. These results imply that reputational capital works to build trust only with the firm's direct counterparties, but not with outside or third parties.

## Culture, Personal Ethics, and Integrity: First-Party Accountability and Formation of Trust

As noted, Adam Smith's Invisible Hand is an early articulation of the importance of reputational capital—the second leg of the Trust Triangle. Smith, however, also strongly advocated for the importance of culture and first-party enforcement as well. Indeed, the opening paragraph of Smith's *The Theory of Moral Sentiments* (1759) posits that people have a natural tendency to care about the well-being of others. Offer (2014) argues that Smith's concept of trustworthiness relies on such personal motivations and not only on a selfish desire for high reputational capital. Since Smith, economists have philosophized about and attempted to model the effects of non-pecuniary desires, personal morals, and social norms on exchange and production activity.[14] In theory, such factors—which we broadly label as "culture"—play a large role in the formation of trust. Only recently, however, have financial economists begun to systematically incorporate cultural considerations in their empirical work. This section summarizes this recent empirical research.

To date, the finance literature that emphasizes the impact of culture yields two broad takeaways. The first is thematic, as cultural values—whether at the level of the community, firm, or individual—have large and measurable effects on four particular types of economic outcomes: financial misconduct, financial market participation, M&A performance, and firm financial performance. The second takeaway is methodological, as researchers have developed several ways to measure culture and its influence. We group these empirical measures into four categories that rely on personal characteristics, religion, geography, and connectedness.

Table 1 presents a $4 \times 4$ matrix that summarizes the various combinations of measures and outcomes reflected in recent finance research. Each cell is populated with representative citations that illustrate what Zingales (2015) calls a "cultural revolution" in financial economics, i.e., an increased awareness of cultural influences and attempts to incorporate such influences in our understanding of firms, markets, and the creation of wealth. We first elaborate on the empirical measures used to measure various aspects of culture, and then summarize the main empirical findings regarding the impact of culture on financial outcomes.

### Empirical Measures of Culture

To group together a growing number of seemingly disparate papers, we define "culture" as the set of non-pecuniary

[14] See, for examples, Alchian and Demsetz (1972), Stigler and Becker (1977), and Bénabou and Tirole (2006b).

**Table 1** Summary of the four major types of proxies used to examine the impact of culture in finance literature, and the most frequent types of outcomes examined

| | Outcomes examined | | | |
|---|---|---|---|---|
| | Financial misconduct | Financial market participation | Governance and acquisition performance | Firm activities and performance |
| Characteristics used to construct a proxy for cultural differences | | | | |
| Personal characteristics | Biggerstaff et al. (2015)<br>Benmelech and Frydman (2015)<br>Davidson et al. (2015)<br>Liu (2016)<br>Ali and Hirshleifer (2017)<br>Cline et al. (2017)<br>Griffin et al. (2017) | Barnea et al. (2010)<br>Duarte et al. (2012) | | Brown et al. (2012)<br>Kaplan et al. (2012)<br>Duarte et al. (2012)<br>Benmelech and Frydman (2015)<br>Pan et al. (2017)<br>Cline et al. (2017) |
| Religion | Guiso et al. (2003) | Stulz and Williamson (2003)<br>Guiso et al. (2003, 2006)<br>Kumar et al. (2011) | | Hilary and Hui (2009) |
| Geography | Statman (2009)<br>Parsons et al. (2014)<br>DeBacker et al. (2015)<br>Parsons et al. (2018) | Guiso et al. (2004, 2008, 2009)<br>Ang et al. (2015)<br>D'Acunto et al. (2017)<br>Giannetti and Wang (2016)<br>Karolyi (2016)<br>Cline and Williamson (2016)<br>Gu et al. (2017)<br>Gurun et al. (2018) | Nahata et al. (2014)<br>Ahern et al. (2015)<br>Lim et al. (2016) | Dougal et al. (2015)<br>Pevzner et al. (2015)<br>Boubakri and Saffar (2016)<br>Dudley and Zhang (2016)<br>El Ghoul and Zheng (2016)<br>Frijns et al. (2016)<br>Burns et al. (2017) |
| Network relationships | Bizjak et al. (2009)<br>Khanna et al. (2015)<br>Dimmock et al. (2018) | Hong et al. (2004) | Schonlau and Sing (2009)<br>Fracassi and Tate (2012)<br>Bargeron et al. (2015) | Hochberg et al. (2007)<br>Kuhnen (2009)<br>Engelberg et al. (2012) |

considerations that influence an agent's decisions and that would operate even in the absence of any threat of third-party legal intervention or related-party reputational losses. Cultural values impose accountability because they impose disutility from cheating one's counterparties even if the cheating leads to zero legal or reputational penalties. It is the prospect of such accountability that works to form bonds of trust that facilitate exchange and production activities.

The challenge in empirical research is to construct measures that plausibly reflect cultural values and motivations. To date, a distinguishing aspect of finance research is the type of proxies researchers use to measure ethical norms and values. Research in the business ethics literature, for example, frequently uses survey responses to measure ethical values and attitudes.[15] Finance research frequently also uses proxies based on externally observable measures such as personal characteristics, religion, geography, and network relationships.

[15] See, for examples, Clouse et al. (2017), Fang and Foucart (2014), Van Hoorn (2014), and the papers surveyed by Cumming, Hou, and Lee (2016).

### Personal Characteristics

To address the measurement challenge, several papers use information on managers' personal characteristics to infer systematic differences in their willingness to violate social norms or act opportunistically toward others. For example, Kaplan et al. (2012) find that a measure of executive integrity can predict the success of a private equity acquisition. Duarte et al. (2012) show that perceptions of trustworthiness can be drawn from personal characteristics such a borrower's self-presentation and picture in a peer-to-peer lending portal. Benmelech and Frydman (2015) find that CEOs with military backgrounds display conservative investment tendencies and are less likely to be involved in corporate fraud. Brown et al. (2012) show that disclosures

of hedge fund managers' previous factual misrepresentations increase operational risk and the probability of fund failure.

Several papers find that managers' willingness to act unethically in their personal affairs is associated with the likelihood of financial misconduct at their firms. For example, Davidson et al. (2015) use a CEO's illegal activities such as traffic tickets, Griffin et al. (2017) use a manager's seeking extramarital affairs via the Ashley Madison website, Biggerstaff et al. (2015) use a CEO's options backdating, and Ali and Hirshleifer (2017) use insider trading as indicators of managers' personal willingness to violate social norms or act opportunistically. All such indicators are positively related to the likelihood of financial misconduct at these managers' firms.

### Religion

Religious teachings express, and seek to form, shared values among adherents (e.g., the Ten Commandments or the "Golden Rule"). Researchers therefore use religion to proxy for different attitudes toward tolerance and the formation of trust in financial decisions. To date, culture measures based on religion have been developed at both the country and individual levels. At the country level, Stulz and Williamson (2003) find a link between a country's predominant religion and its level of investors' rights. Hilary and Hui (2009) show that firms located in U.S. counties with high religious participation experience relatively low variability in operating returns and stock returns. Firm risk measures are negatively related to the numbers of both Protestants and Catholics in the country, although the relation is stronger for Protestants.[16] Kumar et al. (2011) conjecture that the Catholic church's relatively lenient views toward gambling, relative to many Protestant denominations, will lead to greater risk-taking behavior in regions with high concentrations of Catholics relative to Protestants. Consistent with this view, they find that U.S. counties with higher ratios of Catholics to Protestants are characterized by a greater propensity among investors to hold risky or lottery-like stocks, more employee stock ownership plans, and higher initial day IPO returns.

At the individual level, Guiso et al. (2003) examine six major religions (Catholicism, Protestantism, Judaism, Islam, Hinduism, and Buddhism) and show that an individual's religion is related to attitudes toward markets, legal rules, thrift, tolerance, and trust. They also find that cultural shocks within a religion (such as the Second Vatican Council in Catholicism) sometimes change members' attitudes (such as tolerance toward gender equality). Religious belief can also simultaneously impact personal decisions and social policy choices. For example, Bénabou and Tirole (2006a) develop a model in which social norms, such as religion, help explain both personal effort at work (whereby more religious people choose higher effort) and voting preferences regarding wealth redistribution through taxation (more religious agents choose less wealth redistribution via taxation).

### Geography

Religion and legal systems (the first leg of the Trust Triangle) both tend to be affected by, and endogenous to, geography. In many countries, religious traditions shape the national culture and social norms, implying systematic differences in attitudes toward trust that are related to geography. Becker (1974) shows that social norms also are spread through co-location and interaction, which also implies that attitudes toward trust and opportunism are related to geography.

Researchers exploit such tendencies by using survey responses from different geographical locations as proxies for cultural values. Guiso et al. (2006) use data from the World Values Survey and find a strong effect of ethnic origin on an individual's willingness to trust. Pevzner et al. (2015) use the World Values Survey to measure trust levels in different countries ("societal trust") to examine investors' reactions to earnings announcements. Several papers use country-specific culture measures based on Hofstede's (1983, 2001) survey-based measures to examine such firm characteristics as cash holdings, payout policy, trade credit, and venture capital investments (e.g., Boubakri and Saffar 2016; Dudley and Zhang 2016; El Ghoul and Zheng 2016). And several papers use measures of bilateral trust, which is the tendency of people in one country to trust people from another country, to examine cross-border trade, international portfolio holdings, venture capital investments, and cross-border merger activity (e.g., Guiso et al. 2006; Karolyi 2016; Ahern et al. 2015; Bottazzi et al. 2016; Lim et al. 2016). Similarly, Ang et al. (2015) find that foreign companies' investments in Chinese entities are affected by a measure of the trustworthiness of the province in which the entity is based.

Another geography-based measure of culture uses attitudes toward corruption in the country from which a CEO or her ancestors emigrated. Liu (2016) shows that such (plausibly) inherited attitudes are related to the CEO's firm's likelihood of financial misconduct. Similarly, Pan et al. (2017) find that a measure of Hofstede's (2001) "uncertainty avoidance" that is based on a CEO's (or her ancestors') country of origin helps explain the firm's risk-taking behavior.

Although survey responses are a popular method to measure cultural differences across countries, not all research that

[16] These findings are consistent with Blau (2017), who finds that a country's religiosity is negatively related to stock price volatility and conjectures that lower volatility is associated with higher levels of economic output.

uses geographical differences relies on survey responses. For example, Burns et al. (2017) show that tournament effects on CEO pay varies between countries and cultures. Smith (2016) shows that local corruption impacts firms' cash and other liquidity holdings. Using data from major metropolitan areas in the United States, Parsons et al. (2018) show that several measures of local corruption are systematically related to geography. In a related paper, Parsons et al. (2014) report evidence of geographically related spillovers, as even innocent firms experience an increase in financing costs when other firms in their locales are caught in financial misconduct.

#### Networks

Recent empirical papers have also used social, professional, and geographic network connections as a proxy for cultural values and their transmission across people and firms. For example, social network connections contribute to individuals' stock market participation (Hong et al. 2004), informal borrowing (Karlan et al. 2009), and CEOs' pay (Engelberg et al. 2013). Network connections also affect firm activity and performance. For example, personal relationships between counterparties facilitate larger and better-performing loans (Engelberg et al. 2012), venture capitalists' performance (Hochberg et al. 2007), and merger performance (Schonlau and Sing 2009).

The inference from these applications is that network connections can economize on costly information and offer better monitoring, and that network connections affect, and can serve as proxies for, social or cultural influences that work over and above any direct incentives provided by the legal system or reputational concerns. The direction of effect, however, can be ambiguous, as Fracassi and Tate (2012) find that social connections between managers and board members are associated with lower firm values and lower takeover premiums. Similarly, Khanna et al. (2015) show that an increase in a CEO's personal and professional connections with the firm's other senior managers and directors increases the likelihood of financial fraud at the firm. Such findings indicate that the impact of network measures on financial outcomes depends on the application. In all of these uses, however, the underlying view is that network connections pick up some aspect of the culture leg of the Trust Triangle.

### Financial Outcomes Affected by Culture

The previous section outlines four primary types of empirical measures that recent finance papers use as proxies for cultural influences on financial decision-makers. In this section, we focus on four primary types of financial outcomes that these papers find are affected by cultural influences: financial misconduct, financial market participation, governance and acquisitions, and firm performance. The common theme across these papers is that they isolate determinants of trust—and therefore, financial outcomes—that plausibly reflect cultural values and are not related to legal or reputational penalties (i.e., the first two legs of the Trust Triangle). Some of the papers cited in this subsection are also cited in the previous subsection. Whereas we previously cite papers to illustrate the different empirical measures of culture, here we emphasize the outcomes associated with these measures.

#### Financial Misconduct

As one might expect, a culture of trust within and around the firm impacts the propensity to commit financial misconduct or fraud. Bizjak et al. (2009) show that a firm is more likely to engage in stock option backdating when the firm's directors are linked to firms that have already committed stock option backdating. Dimmock et al. (2018) find that misconduct among financial advisors spreads between colleagues who have shared or share advising offices. Biggerstaff et al. (2015) show that firms that engage in option backdating are more likely to commit other types of financial misconduct. Liu (2016) finds that firm insiders' inherited "corruption scores" correlates with firm financial misconduct, while Benmelech and Frydman (2015) show that firms whose CEOs have a military background are less likely to engage in fraud.

Several papers find that managers' willingness to act unethically in their personal affairs is associated with the likelihood of financial misconduct at their firms. As noted above, Davidson et al. (2015) use a CEO's illegal activities such as traffic tickets, and Griffin et al. (2017) use a manager's seeking extramarital affairs via the Ashley Madison website as indicators of a personal willingness to violate social norms or act opportunistically. These indicators are positively related to the likelihood of financial misconduct at these managers' firms.

These results show that there is a link between illegal or unethical behavior at the personal and firm levels, suggesting that indicators of a manager's personal integrity are a pathway by which a firm's counterparties, especially its investors, can develop trust in the firm's financial reporting. Cline et al. (2017) also document a link between a manager's personal indiscretions and his firm's tendency to commit fraud, but further show some pathways by which personal misconduct has a real impact on firm performance and value. The main inference is that managers' personal indiscretions affect firm value and operations primarily when they directly influence the firm's contracting with counterparties. As an example, a manager's poor personal behavior can increase a strategic partner's concern that the manager will cheat on their business relationship. Thus, not only are personal

characteristics a potential indicator of firm-level misconduct, but such indicators are important because they affect a firm's contracting with counterparties that are exposed to potential losses from the manager's willingness to violate social norms or act opportunistically.

Geographic measures and religion-based measures of cultural attitudes are also related to the incidence of financial misconduct. For example, Statman (2009) shows that the likelihood of insider trading and the enforcement of insider trading laws vary across countries. DeBacker et al. (2015) find that owners of U.S. firms who originate from relatively corrupt countries are less sensitive to tax reporting requirements and more likely to illegally evade taxes. These findings complement Guiso et al.'s (2003) results that religious background and practice is a significant factor in people's willingness to pay taxes and trust institutions such as government. Parsons et al. (2018) show that several measures of corruption vary across U.S. metropolitan areas. Areas with high indicators of corruption also exhibit higher rates of financial misconduct among their local firms.

### Financial Market Participation

Culture also impacts peoples' participation in financial activities and markets. Guiso et al. (2003, 2006) show that religion helps predict an individual's trust in counterparties and willingness to engage in risky activities such as entrepreneurial endeavors. Stulz and Williamson (2003) find that a country's dominant religion impacts creditor rights. For example, predominantly Catholic countries have relatively weak creditor rights, which frequently translate into less developed lending markets. Guiso et al. (2008) find that investors from countries where trust is high, according to World Values Survey data, participate more in the stock market even controlling for individual risk tolerance. Relatedly, Cline and Williamson (2016) show that country-level trust is positively associated with financial market development. Guiso et al. (2009) also find that trusting attitudes toward other countries increases investors' participation in the foreign country's stock market. Karolyi (2016) documents that cultural distance helps explain why international portfolio holdings are tilted away from stocks in foreign countries, helping to explain why many portfolios are underdiversified.

Rather than relying on survey data to measure the level of trust, Giannetti and Wang (2016) and Gurun et al. (2018) use corporate and investor frauds to identify incidents in which investor trust decreases. They find that fraud events negatively impact stock market participation among investors in the same locale. Ang et al. (2015) offer a parallel finding, as Chinese firms that are based in more trustworthy provinces receive more foreign investment. Trust also impacts the kind of foreign investment, as firms in trustworthy Chinese provinces are more likely to be involved in joint-venture type investments with their foreign partners.

### Governance and Acquisition Performance

A link between culture and acquisition activity is suggested by Guiso et al. (2009)'s finding of an effect of trust between countries ("bilateral trust") on trade and foreign direct investment data between the countries. The impact of cultural differences on acquisition performance, however, is unclear. On one hand, Ahern et al. (2015) find that cultural differences negatively impact cross-border merger activity and that greater cultural similarity leads to better financial performance in cross-border mergers. On the other hand, Nahata et al. (2014) find that cross-country venture capital investment performance is positively related to cultural distance. This latter result could reflect a truncation effect in which firms avoid marginal investments when cultural differences are large. If so, the inference from these studies is that cultural similarity facilitates trust, thus increasing the opportunities for wealth-creating transactions.

Culture effects also manifest at the firm level. For example, Bargeron et al. (2015) find that firms with a strong culture of trust between employees and management, as measured by the Great Place to Work Index, engage in more, albeit smaller acquisitions. Schonlau and Sing (2009) and Fracassi and Tate (2012) find that firms with CEO-director ties engage in more value-destroying acquisitions. Overall, both national- and firm-level measures of culture are related to the amount, type, and performance of firms' merger transactions.

### Firm Performance

Finally, a firm's culture affects, or is at least correlated with, its financial performance. Guiso et al. (2015) show that a survey-based measure of corporate integrity is positively related to Tobin's q. Boubakri and Saffar (2016) find that some Hofstede (1983, 2001) measures of culture, such as individualism, affect firm growth. Bargeron et al. (2015) find that firms with a strong culture of trust between employees and management exhibit better financial performance. Similarly, Brown et al. (2012) find that hedge funds judged by investors to be untrustworthy are more likely to fail.

Culture also affects firm financial policy. Pan et al. (2017) find that managers' culturally inherited attitudes toward uncertainty affect firm-level risk taking. El Ghoul and Zheng (2016) show that cultural measures of collectivism, masculinity, power differential, and risk aversion are tied to higher trade credit provisions for the firms in countries exhibiting these traits. Consistent with the view that agency problems are exacerbated in low-trust environments, Dudley and Zhang (2016) find that firms in low-trust countries pay

out more of their excess cash in dividends rather than investing or holding the cash internally.

Social and business connections affect some of these outcomes. Hochberg et al. (2007) show that the extent of a venture capital firm's social connections in the venture capital industry leads to better financial performance for the VC firm. Engelberg et al. (2012) show when bank and firm executives have a previous connection (e.g., they attended college together), firms benefit from lower interest rates from the bank in questions. This is especially true for firms with ratings in the B-BBB range. These firms also see their credit rating improve compared to peers in non-connected lending relationships.

Several other economic outcomes are correlated with various proxies for cultural influences. Benmelech and Frydman (2015) find that former military CEOs use relatively little debt and spend less on investment and research and development, suggesting that military experience is associated with less risk taking. Pevzner et al. (2015) find that investors' reactions to earnings announcements are significantly greater in countries that have higher levels of societal trust. And Duarte et al. (2012) find that individuals whose appearance is judged trustworthy pay lower rates on peer-to-peer loans. There are even spillover effects associated with proxies for local culture, as Parsons et al. (2014) find that firms headquartered in U.S. cities with waves of financial misconduct have higher borrowing costs, even though there is no indication of misconduct at the firm itself.

The empirical investigation of cultural influences on financial outcomes is still relatively new. These results, however, indicate that measures that serve as proxies for cultural or non-pecuniary aspects of a firm's management team, location, and network connections have significant correlation with, and perhaps effects on, financial outcomes. We propose that a common aspect to these papers is that they point to the relevance and importance of the third leg of the Trust Triangle, which posits that personal moral codes and social norms—jointly, "culture"—have first-order effects on trust, thereby facilitating financial transactions and increasing wealth creation.

### Culture and Reputation

Our argument that cultural determinants are one leg of a Trust Triangle has several implications. It implies that personal and cultural inducements for contractual performance use a mechanism that is similar to that for third-party (legal) and related-party (reputational capital) inducements. Each poses a threat of ex post penalty for non-performance, and it is this threat that encourages a person's counterparties to trust they will not be cheated. Ex post penalties imposed by third parties (e.g., fines) and related parties (e.g., lost sales) are easy to conceive and observe. Penalties imposed through the culture channel, in contrast, can be less obvious, as they include such difficult-to-measure consequences as social ostracism and inner psychological conflict (e.g., Milhaupt and Liebman 2008; Nichols 2012a).

The culture leg of the Trust Triangle also highlights an additional pathway by which individuals and firms can establish reputational capital. To this point, we have emphasized Karpoff and Lott's (1993) notion of reputational capital as the present value of a firm's (or person's) quasi-rent stream from the higher prices and lower costs they earn when their counterparties trust them. But reputational capital can include streams of non-pecuniary benefits as well. Thus, people are more likely to trust counterparties who credibly convey that they would suffer large cultural penalties for misconduct, i.e., that they have large social or cultural capital at stake. This can explain why businesses advertise that their owners adhere to certain religious beliefs and why family and social networks facilitate trade and borrowing (e.g., Karlan et al. 2009). It also helps to explain why personal characteristics, and even countries' reputations, are associated with different levels of trust and financial outcomes (e.g., Guiso et al. 2006, 2008, 2009). Viewed broadly, reputational capital consists not only of the pecuniary quasi-rent stream from contractual performance that is emphasized by the second leg of the Trust Triangle. It also includes the primarily non-pecuniary benefits of continued social status and self-esteem that is reflected in the culture leg of the triangle.

## Connections Between the Three Legs of the Trust Triangle

Our paper's main objective is to introduce the Trust Triangle and to synthesize and provide a coherent framework for the large and growing literature about trust and finance. The applications of legal concerns, reputational capital, and cultural concerns to financial outcomes share a central theme, as each highlights a unique channel by which trust is formed across economic agents. To date, most studies examine only one leg of the Trust Triangle in isolation. Surely, however, the three legs work in concert and affect each other. In this section, we discuss three ways in which the three legs of the Trust Triangle interrelate.

### Overlap

The first way in which the three legs of the Trust Triangle interrelate is that they overlap with each other conceptually and definitionally. Conceptually, the three legs of the Triangle overlap in the sense that the forces they capture can be grouped in different ways. This is evident by comparing the Trust Triangle to other theoretical constructs of trust.

Fukuyama (1995), for example, refers to culture as contributing to "social trust," which facilitates exchange and production activity. We propose that social trust is best understood as the common component of trust across individuals in a given society. It greatly overlaps with our culture leg of the Trust Triangle because it reflects social norms and societal tendencies toward ethical behavior. But social trust also arises from a society's legal structures and reliance on reputational capital, as emphasized by the other legs of the Trust Triangle.

In another example of conceptual overlap, Cohen and Dienhart (2013) emphasize a distinction between amoral and moral conceptions of trust, with amoral conceptions being analogous to the first and second legs of our Trust Triangle. Carlin et al. (2009) develop a model in which "public trust" arises from agents' private decisions to invest in trustworthiness. Carlin et al.'s notion of public trust includes the portion of the culture leg of the Trust Triangle that arises from social norms and social capital, and their notion of private trust captures part of the market-based discipline that we characterize as reputational capital. As yet another example, Kreps (1990) and Dasgupta (1988) emphasize a concept of trust as an informal but transactional mechanism that arises from repeated interactions. This concept underlies the second leg of the Trust Triangle, which emphasizes an amoral foundation for trust based on one's counterparty's long-run interests. But it ignores cultural or first-party motivations to be trustworthy.

As these examples illustrate, there are many ways to conceptualize the relationships between trust, accountability, legal penalties, reputation, and cultural forces that build trust and facilitate economic activity. In our view, the concepts of trust and accountability and the three channels of accountability summarized by the Trust Triangle provide a comprehensive and flexible framework to synthesize empirical research on trust in finance and, together, offer a useful framework for future research.

Overlap between the three legs of the Trust Triangle is also, in part, a definitional issue. For example, suppose a manager who is convicted of financial fraud loses his country club membership. To the extent that country club membership is important for the manager's social standing and self-esteem, we might consider his loss a type of cultural discipline. Alternatively, if his membership was revoked because of a legal conviction, his loss could be viewed as a type of third-party enforcement. Or it could be a type of related-party enforcement if we view his conviction as decreasing his social capital and his country club associates' willingness to do business with him. As this example illustrates, some of the culture measures summarized in Table 1 might also pick up legal or reputational effects.

## Substitutes or Complements?

The three legs of the Trust Triangle not only overlap, but they also likely affect each other. In a static framework, the three legs must operate as substitutes because an increase in accountability from, say, legal penalties will decrease the reliance on reputational or cultural forces to achieve a given level of accountability and fraud deterrence. Consistent with this conjecture, Ang et al. (2015) and Pevzner et al. (2015) find that in countries with weak legal institutions and poor investor protections, firms rely heavily on informal networks, personal connections, and societal trust—what we broadly label as culture. Similarly, we would expect that firms with weak legal institutions would rely heavily on reputational capital to bond their promises and encourage counterparty trust. Karpoff and Lott (1993) argue that an increase in legal penalties for business misconduct will lead to a decrease in reliance on reputational capital to build trust among counterparties. Consistent with this argument, Cline and Williamson (2016) show that trust and regulation are substitutes when it comes to limiting corporate self-dealing by managers, and Green (1989) argues that deregulation in the banking industry places a greater responsibility on managers to rely on their personal ethics to guide decision-making. Similarly, Graafland and van de Ven (2011) argue that legal and reputational concerns are insufficient to prevent a future financial crisis, requiring greater reliance on adherence to a code of personal virtues in the financial industry.

In a dynamic setting, however, the development of one leg of the Trust Triangle could affect the development of the other legs as well. For example, communities with strong cultural prohibitions against fraud may develop strong legal institutions that monitor and deter fraud (e.g., Greif 1993). Or the development of strong legal institutions could affect cultural attitudes toward opportunism and fraud. This latter possibility frequently is cited as a rationale for laws that penalize foreign bribery, namely, that legal penalties can change a culture of corruption and facilitate economic growth (e.g., Nichols 2012b; Zeume 2017). These considerations suggest that, over time, the three legs of the Trust Triangle can act as complements, with a greater reliance on one fostering an increase in the use of another.

The question of whether the three legs of the Trust Triangle work as substitutes or complements highlights a host of questions about how the legs interact. In practice, many types of misconduct are disciplined through a combination of legal, reputational, and cultural influences. For example, managers who have been involved in financial frauds face a combination of related-party and third-party penalties, as they typically are fired and face significant likelihoods of criminal prosecution (Karpoff et al. 2008a). Many of these managers surely also face penalties via the culture leg of the Trust Triangle, including a loss of prestige and

social standing, ostracism, personal and family disruption, and even psychological crisis (e.g., see Nichols 2012a). To date, however, most finance research focuses on only one leg of the Trust Triangle at a time, thus limiting the inferences that can be drawn from this work. For example, to judge the total consequences faced by these managers, and to assess whether the penalties are too large or too small relative to a benchmark such as in Becker's (1968) optimal penalty framework, it is necessary to consider how accountability is meted out via all three legs of the Trust Triangle. As another example, LaPorta et al. (2006) argue that financial market development is facilitated by private rights of enforcement, such as the right to sue companies for financial fraud. Jackson and Roe (2009), in contrast, conclude that public enforcement via regulatory agencies is more important than private enforcement. The relative importance of public versus private legal enforcement is an important matter for economic policy. But, to measure their relative importance, it is imperative to measure and control for the effects of related party and cultural forces—two other legs of the Trust Triangle—that also deter financial fraud and facilitate financial market development.

### Endogeneity and Joint Determination

Several theoretical models have been developed to characterize the joint determination of ethics, culture, and institutions. For example, Noe and Rebello (1994) develop a model in which opportunistic behavior is controlled via social norms. However, increased ethical behavior increases the rewards for unethical behavior, leading to an equilibrium that reflects the strength of social norms and the effects of ethical behavior on rewards. Carlin and Gervais (2009) show how a manager's work ethic affects the firm's compensation, risk, and organizational structure. Karlan et al. (2009) model the rise of trust based on social networks, which in turn affects lending and information sharing. To date, however, there is little theoretical or empirical research that seeks to understand the endogenous determination of a society's relative reliance on all three legs of the Trust Triangle (third-party enforcement, related-party enforcement, and culture) as the basis for trust in economic relationships. This remains another matter for future research.

## Breaches of Trust and Trustworthiness Clienteles

As noted in the "Accountability and Trust" section, most economic contracts and transactions—literally billions every day—proceed without a hitch, indicating that most counterparties' trust in each other was justified. But trust also is frequently misplaced and violated. In our framework, cheating, opportunism, and fraud occur when the person who behaves opportunistically expects the benefits of cheating to outweigh the combined costs of cheating. This can occur when the expected combination of ex post accountability imposed by third-party, related-party, and first-party discipline is lower than the perceived benefits to the perpetrator.

At first appearance, our formulation of ex ante trust arising from the prospect of ex post accountability appears similar to a simple transactional conception of trust and misconduct, e.g., as in Becker (1968). The difference, however, is the conceptual flexibility and comprehensiveness afforded by the three legs of the Trust Triangle. This framework easily accommodates and helps to highlight the potential importance of (i) behavioral biases, (ii) out-of-equilibrium beliefs and changes that lead to breaches of trust, and (iii) trustworthiness clienteles. As a result, the framework helps explain a wide range of opportunistic behavior, including unethical home lending practices before the 2007–2009 recession (e.g., see Scalet and Kelly 2012; Buchanan 2016), financial fraud (Burnes and By 2012; Amiram et al. 2018), foreign bribery (Zeume 2017), and environmental violations (Karpoff et al. 2005).

### Behavioral Biases

Trust is violated when the perpetrator perceives the benefits from cheating to exceed the costs. This does not require, however, that counterparties are coldly calculating, or even that they are consciously calculating at all. Indeed, much bad behavior appears to reflect misconceptions about the consequences, or a lack of consideration of the consequences altogether (e.g., see Steinbauer 2012). Economic agents may display confirmation bias, regret aversion, and disposition effects. They may overweight small likelihood events, see patterns in random sequences, attribute causality to correlation, or react to fight-or-flight impulses—all possibly leading to poor choices. Such behavioral effects increase the difficulty of predicting the size of any individual's perceived costs and benefits of opportunistic behavior. Behavioral biases can increase the likelihood that a person mistakenly trusts her counterparty (leading to more fraud than otherwise) or mistakenly distrusts her counterparty (interrupting an otherwise fruitful interaction). But behavioral biases are perfectly consistent with our backward induction framework that ties ex ante trust to the perceived prospect of ex ante accountability.

An innovation of the Trust Triangle is that we characterize motives for honest behavior that arise from other-regarding values as imposing costs if a person acts opportunistically. It is relatively easy to observe costs imposed by third parties (fines, penalties) and related parties (lost sales, higher cost of capital). We acknowledge that the nature of the costs imposed via one's personal, societal, and institutional ethics

and social norms can be difficult to observe and measure, and that there are other ways to characterize how such cultural and personal values influence trust (e.g., see Milhaupt and Liebman 2008; Nichols 2012a). The conceptual benefit from treating such personal motives as a third leg of the Trust Triangle is that we are able to highlight how they are distinct from, and interact with, third-party and related-party inducements to act honestly.

### Out-of-Equilibrium Beliefs and Changes that Lead to Breaches of Trust

Given the prospect of ex post accountability for opportunistic behavior, it nonetheless will arise when the perpetrator implicitly perceives the expected benefits to exceed the expected costs. Ex ante trust, in contrast, requires that the counterparty believes the perpetrator's costs from cheating exceed their benefits. Agreements that end in opportunism and fraud, then, are those in which the perpetrator's perception of the net benefits differs from the trusting counterparty's perception. That is, opportunistic behavior is characterized by a mismatch between the two sides' views of the perpetrator's costs and benefits from cheating.

There are many potential sources of such mismatch, including the behavioral biases discussed above. Another potential source of mismatch is asymmetric information about dynamic changes in the costs and benefits. As Amiram et al. (2018) discuss, for example, the short-term benefits of cheating can increase in ways that the counterparty is not aware. Or the trusting party may overestimate the importance of self-enforcement and other-regarding values to the perpetrator, thereby underestimating the cheating party's disutility from acting unethically.

A potentially significant source of mismatch between the trusting party and the perpetrator of fraud is about the perceived likelihood of getting caught and facing accountability. As Amiram et al. (2018, Sect. 5(i)) discuss, enforcement of violations of financial misconduct depends on the violating party getting caught. But enforcement is costly and imperfect. Dechow et al. (2011) and others estimate that the probability of facing enforcement action for financial misconduct is significantly less than 100%. The uncertain nature of accountability and its impact on trust formation raise many questions for future research, including the probability that individuals and firms face consequences for misconduct, the nature of the consequences, whether the consequences include all three legs of the Trust Triangle, and how to design better mechanisms to catch and discipline misconduct. Such mechanisms are likely to include a combination of legal penalties, ethics, societal and firm culture, compliance systems, and disclosure such as in CSR activities (e.g., see Woiceshyn 2011; Dzuranin et al. 2013; Brown-Liburd et al. 2016).

### Trustworthiness Clienteles

Uncertainty about dynamically changing costs and benefits of opportunism underscores the fact that trust and accountability are not automatic and are rarely absolute or binary outcomes. Returning to our coffee example, there is always a positive probability—however small—that the coffee my barista serves me is over roasted, foul-tasting, or even tainted with bacteria that will make me sick. That is, there is a non-zero probability my trust in my barista will turn out to be mistaken. When I enter an agreement, there is some chance my counterparty will fail to perform as promised in some manner.

Viewed this way, trustworthiness is also not a binary concept, but rather, a probability of contractual performance. Karpoff and Lott (1993) propose that different firms will invest in different levels of reputational capital and that, in doing so, they offer varying levels of trustworthiness. Most people who purchase a used automobile through a Craigslist ad, for example, pay lower prices than if they bought from an established dealer. But they also face a higher likelihood of buying a lemon for which they have little or no recourse. That is, they engage in a relatively low-trust transaction in which they face a relatively high likelihood of being cheated.

This is not to say that such people are mistaken or that they should have bought from an established dealer. Rather, people who buy through a Craigslist ad simply place a relatively low value on the quality assurance—i.e., the trustworthiness—that is available from an established dealer. Perhaps they have independent means to assess the car's quality (e.g., the buyer has a friend who is a mechanic), or they face income constraints and choose not to pay the cost of the extra trustworthiness.

Such trustworthiness clientele effects are pervasive in business and markets. Examples include brand name versus generic pain relievers, franchised versus local restaurants, and Big 4 versus regional auditors. In each case, we observe a range of offerings to consumers not only in product characteristics, but also in quality assurance, or trustworthiness. Different clienteles of trustworthiness survive and persist presumably because there are different clienteles of demand for trustworthiness. This is not to say that some buyers want their counterparties to be untrustworthy. Rather, additional trustworthiness can be costly and some buyers prefer not to pay the extra cost.

The existence of trustworthiness clienteles implies that different firms will invest in different levels of reputational capital that signal different degrees of trustworthiness. Firms lose reputational capital if they act opportunistically, so firms with high investments in reputational capital face relatively high accountability for opportunistic behavior. The perception of high accountability makes such firms more trustworthy in the sense that the likelihood they will

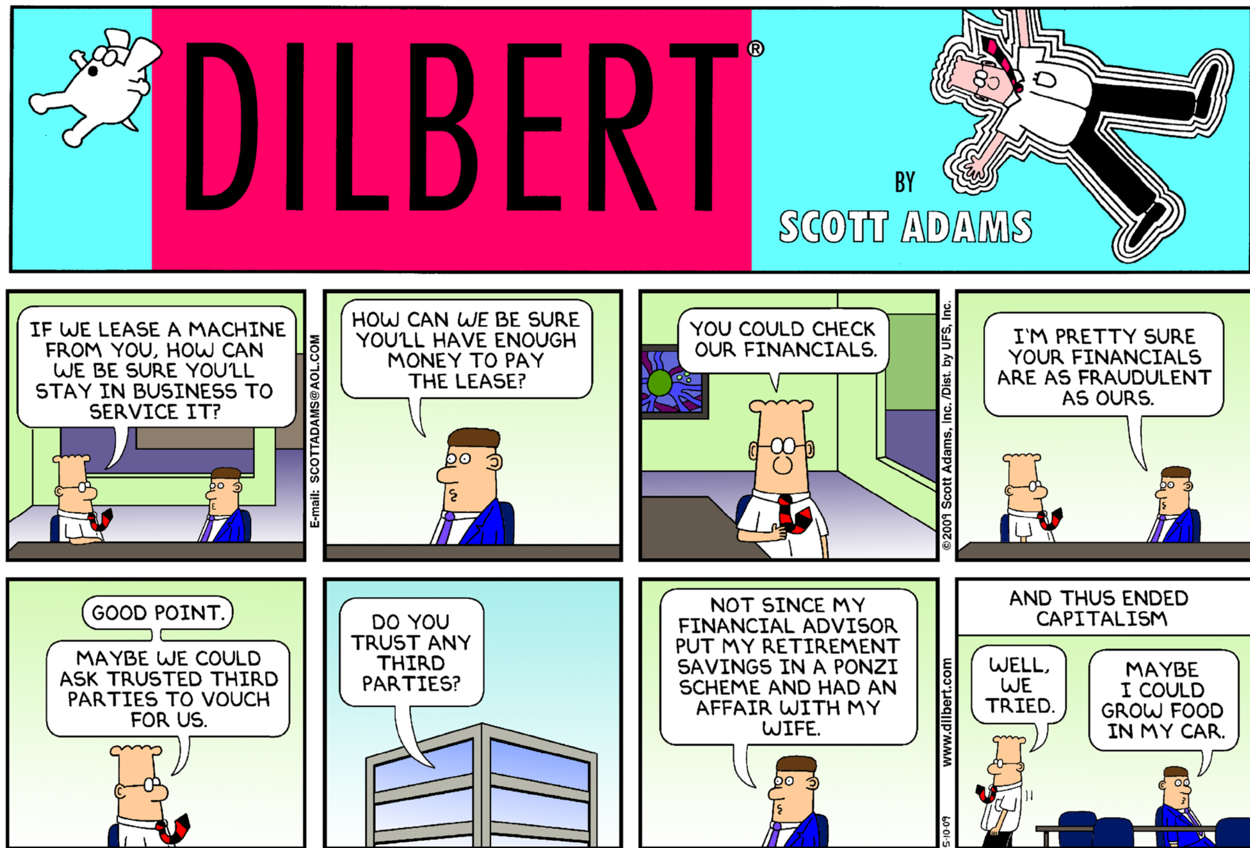


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**Fig. 2** A comic strip illustration of the breakdown of trust. DILBERT © 2009 Scott Adams. Used By permission of ANDREWS MCMEEL SYNDICATION. All rights reserved

act opportunistically is relatively small. (Clearly, the likelihood is not zero even for firms with large investments in reputational capital, as illustrated by instances of high reputational capital firms having ethical problems, e.g., Wells Fargo or Volkswagen).

The ability of firms to invest differentially in reputational capital is well rooted in research that we summarize as related to the second (related-party) leg of the Trust Triangle (e.g., Klein and Leffler 1981; Karpoff and Lott 1993). However, firms also can work to establish reputations for ethical behavior that is motivated by the other-regarding values that we summarize in the culture leg of the Trust Triangle. This notion is well established in the business ethics literature. For example, Green (1989, p. 631) argues, “The perceived ethics of a company affect its reputation. Good reputations ensure long term success. With them you get better people, better sales and a better bottom line…” To date, finance research that explores the impact of reputational investments in firm culture and ethics has focused on CSR activities and rankings (for example: Borghesi et al. 2014; Dimson et al. 2015; Ferrell et al. 2016; Krüger 2015; Lins et al. 2017) as well as the survey and textual analysis-based papers surveyed in the “Culture, Personal Ethics and Integrity: First-Party Accountability and Formation of Trust” section. How firms invest in and establish reputations for ethical behavior, how such reputations affect firm performance and other financial outcomes, and the consequences for violating such investments in trustworthiness are rich topics for future research.

## Conclusions

A comic strip by Scott Adams captures the fundamental challenge of nearly all economic transactions: trust. In the strip (see Fig. 2), Dilbert asks a vendor’s sales representative, “If we lease a machine from you, how can we be sure you’ll stay in business to service it?” The sales rep replies, “How can we be sure you’ll have enough money to pay the lease?” The two sides’ skepticism of each other’s trustworthiness grows with each panel until the deal breaks down

and Dilbert walks away. The final panel of the comic strip concludes, “And thus ended capitalism.”

This comic strip is so effective because it highlights the importance, and fragility, of trust for economic contracting and the benefits of mutually agreeable exchange. Economic theorists have long appreciated this central importance of trust. Only recently, however, have empiricists systematically explored the relation of trust to financial outcomes. This paper proposes that several seemingly disparate areas of the finance literature share a common theme, namely, the importance of accountability and trust for exchange and production activity. To emphasize this theme, we introduce the Trust Triangle, a framework that reflects three primary pathways by which counterparties experience accountability and through which they develop trust to overcome the risk of opportunistic behavior and engage in cooperative production and exchange. The first pathway is the set of legal institutions that impose regulatory oversight of economic transactions and the risk of penalty for illegal behavior. The second pathway is reputational capital, which bonds firms and individuals to perform as promised and imposes pecuniary losses—in the form of lost sales and/or higher costs—on firms and individuals who act opportunistically toward their counterparties. The third pathway is culture, defined here as the combination of personal and societal values, morals, ethics, and social norms that encourage honest dealing even in the absence of legal penalties or the risk of lost reputational capital.

We use the Trust Triangle to highlight recent attempts in the finance literature to measure empirically the importance of trust in financial markets and business practice. The last 20 years has seen substantial innovations in the measurement of legal institutions, reputational capital, and culture. Such measures are necessary to empirically investigate the role of trust and have generated new discoveries about how trust is formed and how it affects wealth creation, financial market development, and firms’ operations and value. The empirical results indicate that all three legs of the Trust Triangle—legal institutions, reputational capital, and culture—have first-order effects on the formation of trust. All three operate to facilitate financial market development and firm productivity, and the creation of value.

The three legs of the Trust Triangle correspond not only to related threads of the finance literature, but also highlight different emphases in attempts to conceptualize trust and accountability across disciplines. Criminal justice perspectives tend to emphasize the importance of third-party enforcement for societal trust and stability (e.g., see Sect. 2 in Amiram et al. 2018). The economics literature has a long theoretical tradition (e.g., see footnote 6) and more recent empirical work (e.g., see Sect. 4 in Amiram et al. 2018) that emphasizes the importance of related-party transactions and reputation for the formation of trust. Parts of the business ethics literature, in contrast, emphasize a conception of trust as a social bond that explicitly is not related to legal or pecuniary concerns, i.e., what we call the culture leg of the triangle (e.g., see Fukuyama 1995). We propose that trust arises from all three pathways and that interactions among these pathways can yield new insights into the formation of trust at personal, business contracting, and societal levels. Attempts to model trust and trustworthiness that do not incorporate all three aspects of the Trust Triangle can miss essential aspects of the basic problem of how counterparties overcome the risk of opportunism to engage in mutually beneficial interactions, including exchange and production activities.

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## Compliance with Ethical Standards

**Conflict of interest** Quentin Dupont and Jonathan M. Karpoff declare that they have no conflicts of interest in writing this paper.

**Ethical Approval** This article does not contain any studies with human participants or animals performed by any of the authors.

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