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Trust and the regulation of corporate self-dealing

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ABSTRACT

The economic impact of corporate self-dealing and the regulation against such activity both vary across countries. In this work, we examine the influence of trust on shareholder protection. We hypothesize that anonymous trust can affect self-dealing through two channels. First, trust may complement existing formal regulation. Alternatively, trust and formal regulation can act as substitutes. To test these hypotheses, we examine the association between a country's anti-self-dealing index and anonymous trust. We find that anonymous trust inversely relates to formal self-dealing regulation. We further find that anonymous trust positively relates to financial market development. Collectively, this evidence suggests that trust substitutes for formal self-dealing regulation, providing an alternative mechanism for shareholder protection.

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1. Introduction

When shareholders supply capital to the firm, they delegate to managers the day-to-day responsibility for use of those resources. Managers, however, at their own discretion may deploy these funds to benefit themselves at the expense of shareholders. This self-dealing undermines shareholder confidence in financial markets and results in an inefficient transfer of capital and stymied economic development.[1]

Recent studies emphasize that differences in formal investor protection across countries impact the ability of managers to expropriate shareholder wealth (e.g., Shleifer and Vishny, 1997; La Porta et al., 1997a; Shleifer and Wolfenzon, 2002). La Porta et al. (1998) along with Djankov et al. (2008) explain this variation in investor protection by examining formal rules and regulations designed to limit self-dealing.[2] Djankov et al. (2008) further show that a country's legal origin determines the adoption of such rules. Largely unexplored, however, is how informal norms may also influence investor protection.

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[1] Jensen and Meckling (1976) refer to this economic loss generally as the "residual loss" resulting from gains from trade neglected, due to the agent's lack of proper incentives.

[2] In addition to country-level regulation, firms often adopt corporate governance policies through the organization of boards and incentive-based compensation. Not surprisingly, by aligning the interests of managers with shareholders, these practices are linked to better performance (La Porta et al., 2002; Klapper and Love, 2004; Durnev and Kim, 2005).

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In this paper, we examine how anonymous trust influences shareholder protection against self-dealing of corporate insiders. We focus on anonymous trust because of its ability to promote cooperative attitudes outside of local networks, which is the type of cooperation needed to facilitate financial exchange.

A financial exchange places resources at the disposal of another party with the expectation of a beneficial economic payoff. This type of transaction seldom involves face-to-face interaction and is often impersonal in nature. Thus, shareholders supply capital only when they expect managers not to cheat and expropriate wealth. In this context, trust facilitates the supply of capital because shareholders believe managers will act in their best interest. Guiso et al. (2008) find support for this argument, documenting that trusting individuals invest more in the stock market. More broadly, a large body of empirical work finds evidence suggesting that trusting societies experience higher levels of economic and financial development (e.g., Knack and Keefer, 1997; Zak and Knack, 2001; Guiso et al., 2004; Tabellini, 2010; Algan and Cahuc, 2010).

Our paper provides a specific mechanism for how trust relates to financial outcomes—by influencing shareholder protection. We hypothesize two channels through which trust may influence this protection. First, countries can adopt formal legal provisions to protect shareholders and promote financial development. However, Algan and Cahuc (2013) argue that it is difficult, if not impossible, to create formal rules that sustain all complex financial exchanges—similar to the difficulty of writing complete contracts. Trust may fill these missing gaps, lowering transaction and monitoring costs, thereby complementing formal self-dealing regulation. The combined outcome is less self-dealing behavior and greater financial development.

Second, trust and formal regulation may act as substitutes. On one hand, trust can substitute for formal regulation. In the presence of weak formal rules protecting shareholders, trust is critical for facilitating financial exchange (Knack and Keefer, 1997). In trusting societies, individuals do not expect to be cheated because they believe others have internalized moral rules deterring self-dealing behavior. Thus, individuals may not demand formal regulation to prevent self-dealing. In these societies, trust can substitute for formal regulation, directly providing shareholder protection.

On the other hand, formal self-dealing regulation may substitute for a lack of trust. Individuals in low trust societies expect others to behave opportunistically. They therefore demand government regulation to promote cooperation and exchange (Aghion et al., 2010). In this scenario, anti-self-dealing regulation substitutes for a lack of trust and provides shareholder protection.

To test these conjectures, we empirically examine the association between a measure of anonymous trust and the country-level anti-self-dealing (ASD) index. This index, developed by Djankov et al. (2008), measures formal legal rules of minority shareholder protection against expropriation by corporate insiders. Anonymous trust, collected from the World Values Surveys (WVS), captures how trustworthy an individual perceives those whom they meet for the first time.

Our evidence suggests that anonymous trust is inversely associated with formal self-dealing regulation. A one standard deviation increase in anonymous trust reduces the ASD index by approximately a one-half standard deviation. This result is robust when controlling for endogeneity, institutional quality, and economic factors. The inverse association suggests that anonymous trust and formal regulation act as substitutes.

We further find that anonymous trust positively relates to financial market development. Specifically, anonymous trust is positively associated with market capitalization, number of firms per capita, IPOs to GDP, share turnover, and GDP per capita, and is negatively associated with the benefits of private control. Thus, while anonymous trust negatively impacts formal shareholder protection on the books, we find that it positively relates to measures of a healthy financial system. This finding lends support to the hypothesis that anonymous trust can substitute for formal shareholder protection, limiting self-dealing behavior and promoting financial development.

Our paper contributes to the literature at the intersection of culture and finance. Griffin et al. (2014) find that culture influences corporate governance across countries. We find that trust affects country level rules pertaining to investor protection. Our work also closely relates to Licht et al. (2005) who find cultures that minimize uncertainty and promote social harmony have less formal shareholder protection. Djankov et al. (2008) show that legal origins predict the ASD index. For all measures of shareholder protection, they find a pronounced difference between common and civil law countries. They note that, "this does not mean that politics, media, or culture do not affect legal rules – they surely do" (p. 462). Our findings suggest that anonymous trust is one such predictor.

Perhaps the greatest distinction between our work and previous literature is that we empirically link anonymous trust *inversely* to formal shareholder protection, yet anonymous trust *positively* predicts financial development. We view this combined result as suggesting that trust can substitute for formal regulation, providing an alternative mechanism for shareholder protection.

2. Conceptual framework

2.1. Trust and finance literature

Trust exists when an individual places resources at the disposal of another party without a legal commitment but with an expectation that this act will have a beneficial economic payoff (Coleman, 1990). Due to the promise of future payment with an often-unknown party, financial transactions face larger transaction costs than other forms of exchange. Trust can lower these costs. La Porta et al. (1997b) argue trust is important for generating cooperation among people who interact infrequently. This applies to minority shareholders since they are unlikely to know controlling shareholders or top managers personally.

Therefore, if potential shareholders trust in strangers, the likelihood they trust corporate insiders increases, as does their willingness to supply capital.

The importance of anonymous trust centers on the difference between generalized and limited morality. Banfield (1958) illustrates that societies with limited morality promote codes of good conduct within personal networks, but allow selfish behavior outside their own network. Generalized morality, on the other hand, describes societies that promote moral behavior both inside and outside personal circles. These societies tend not to act opportunistically, leading to attitudes of reciprocal cooperation. This instills confidence and trust outside local networks since individuals who practice generalized morality are less likely to cheat others even when they do not know the person with whom they are dealing. Thus, generalized morality is linked to trusting in people an individual does not know personally.

Studies documenting that trust underpins exchange focus on trust among individuals not bound by personal ties. For example, Guiso et al. (2004) find that households in the more trusting northern regions of Italy invest smaller portions of savings in cash and larger portions in the stock market, and they use checks and credit institutions more frequently. In less trusting southern regions, households rely on close networks for loans. Similarly, Guiso et al. (2009) find that bilateral trust between countries leads to more trade in goods, financial assets, and direct investment.

In addition, anonymous trust is beneficial for firms since large corporations rely on cooperation between strangers (Fukuyama, 1995). La Porta et al. (1997b) empirically document that trust increases large firms' share of the economy. Supporting this, Cingano and Pinotti (2012) find that trust is associated with greater decentralization and larger firms.

2.2. Hypotheses development

To provide a theoretical link between anonymous trust, formal investor protection, self-dealing behavior, and financial outcomes, we create a conceptual framework presented in Fig. 1. Arrow D identifies the connection between self-dealing behavior and financial market outcomes. Arrow A illustrates the association between formal regulation and self-dealing. Arrows B and C define two possible avenues for the influence of trust on financial markets. Arrow B identifies the association between trust and formal regulation. Arrow C identifies trust's direct effect on self-dealing behavior. We discuss the conceptual links below, providing a theoretical basis for our conjecture that trust can affect financial outcomes by either complementing formal regulation or serving as an alternative to regulation.

It is well established that formal regulation of investor protection leads to financial development (e.g., Shleifer and Vishny, 1997; La Porta et al., 1997a, 1998; Shleifer and Wolfenzon, 2002). La Porta et al. (1998) create an index of anti-director rights to proxy for minority shareholder protection and relate the index to economic and financial outcomes.[3] In a follow-up, Djankov et al. (2008) develop a theoretically based measure of legal protection for minority shareholders against expropriation by corporate insiders, the ASD index. They illustrate that these measures of formal self-dealing regulation positively relate to financial development. Others also document the effects of anti-self-dealing regulation. For example, Liu and Magnan (2011) find empirical evidence that self-dealing regulation enhances firm value. Chen et al. (2009) show that in emerging markets the ASD index is a substitute for firm-level corporate governance and reduces the cost of equity.

This association is between formal regulation, i.e., laws on the books, and financial outcomes. These provisions are designed to limit self-dealing behavior as indicated by Arrow A in Fig. 1. The ability to minimize self-dealing is what leads to financial development, as represented by Arrow D.

We contend that trust can affect financial outcomes by substituting for formal rules or by complementing regulation. If trust complements formal regulation, we expect a positive association between trust and the ASD index, represented by Arrow B. This indicates an indirect effect between trust and self-dealing behavior, a link supported by economic theory. As defined by North (1990), institutions are 'rules of the game', both formal and informal, which govern actions through incentives. When both formal and informal institutions are present and well-functioning, incentives align and transactions costs are lower resulting in additional economic exchanges.

Dal Bo et al. (2010) suggest that formal and informal rules act as complements if formal rules sustain informal norms. Aghion et al.'s (2010) theoretical model predicts that trust and regulation coevolve, supporting a complements story. Carlin et al. (2009) show that regulation and trust act as complements if the introduction of formal rules facilitates the development of trust. Thus, when a legal system is well-functioning, trust complements formal rules, further enabling complex transactions. In this way, trust contributes to financial development by lowering transactions costs and facilitating exchanges that cannot be fully specified in a contract. This lends support to a complements hypothesis.

H1. Trust and formal anti-self-dealing regulations are complements.

Empirical support for this hypothesis occurs if trust positively associates with both the ASD index and financial market outcomes.

An alternative, however, is that Arrow B inversely relates to regulation, suggesting trust substitutes for formal rules. If trust substitutes for formal regulation, we expect a negative association between trust and anti-self-dealing regulation, represented by Arrow B. A substitution also implies a direct effect between trust and self-dealing behavior (Arrow C).

[3] For a counter argument, we note that Coffee (1999) and Spamann (2010) are critical of this measure of minority shareholder protection.

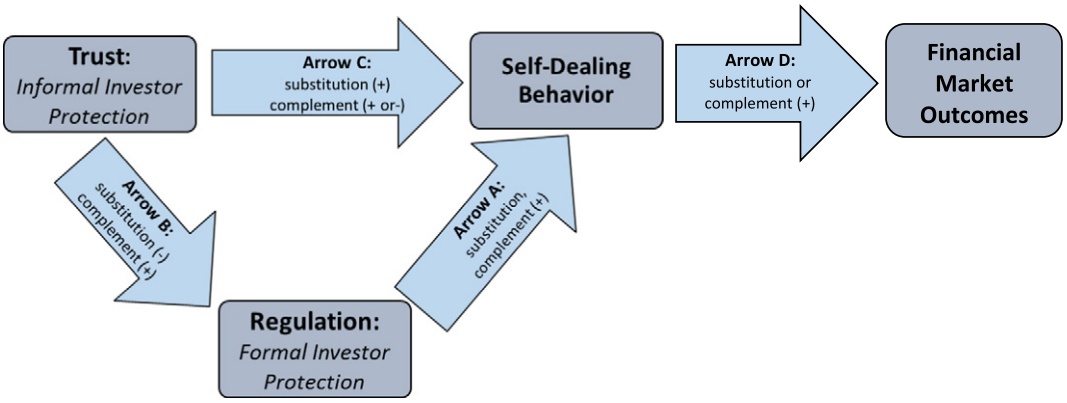

Fig. 1. Trust, Regulation, and Financial Market Outcomes This figure provides a simple theoretical depiction of the link beween trust, formal investor protection, and financial outcomes. Arrow D identifies the connection between self-dealing behavior and financial market outcomes. Arrow A illustrates the association between formal regulation and self-dealing behavior. Arrows B and C define two possible avenues for the influence of trust on financial markets. Arrow B identifies the association where trust provides shareholder protection by complementing existing formal regulations. Arrow C identifies trust's direct effect on self-dealing behavior whereby trust substitutes for formal regulation.

Williamson (2005) contends that informal norms provide internal constraints on individual behavior. Fukuyama (1995) describes trust as the set of reciprocal moral habits and obligations that are internalized, thereby reducing wealth expropriation. Others show that trust establishes generalized moral rules directly affecting economic outcomes (e.g., Licht et al., 2005; Guiso et al., 2006; Tabellini, 2010). The implication is that trust limits opportunistic behavior in private dealings, lessening the need for formal protection. If so, a society's level of trust shapes preferences for regulation. For example, Dixit (2004) argues that trust facilitates anonymous exchange and reduces the need for external contract enforcement. Pinotti (2012) finds that distrust predicts regulation of the entry of new firms, and Aghion et al. (2010) show distrust leads to demand for government regulation over commercial activity. As a result, high trust societies may not demand formal regulation to establish protection since they do not believe it necessary to prevent others from self-dealing; thus, trust can act as a substitute for formal rules (Carlin et al., 2009).

Substitution may also occur when government chooses not to provide or enforce formal financial regulation (Knack and Keefer, 1997). Allen et al. (2005) document substantial growth in the Chinese private sector despite the absence of a strict legal system. They assert that business culture and social norms play a significant role in facilitating growth. Allen et al. (2012) also find that despite a lack of legal investor protection, India experienced high growth due to a reliance on 'informal and extra-legal mechanisms'. This leads to our second hypothesis.

H2A. Anonymous trust substitutes for formal anti-self-dealing regulation.

If trust acts as a substitute for regulation against self-dealing, trust should negatively correlate with the ASD index. Trust should also positively relate to financial market outcomes. These results combined would indicate that trust is limiting self-dealing behavior and promoting financial development.

A negative correlation between trust and the ASD index could also exist if formal regulation substitutes for a lack of trust. Distrust may generate preferences for regulation. As suggested by Pinotti (2012), low trust individuals expect more harm from unbridled market participants than from government control. This preference for regulation holds even when individuals realize their government is corrupt and ineffective (Aghion et al., 2010). People who lack trust expect others to behave opportunistically and therefore demand government intervention. As a result, the government intervenes to regulate actions attempting to promote cooperation and economic exchange. Knack and Keefer (1997) argue that if trust is low, formal regulation may aid in establishing cooperation.

H2B. Formal anti-self-dealing substitutes for a lack of anonymous trust.

Similar to H2A, H2B hypothesizes an inverse association between trust and the ASD index. Contrary to H2A, however, if formal regulation is completely substituting for a lack of trust, trust should not significantly relate to financial market development once formal anti-self-dealing provisions are included. If trust retains a significant association with financial outcomes after including the ASD index, formal regulation is not completely substituting for lack of trust.

Djankov et al. (2008) and La Porta et al. (2008) highlight the necessity to control for legal origin when predicting the adoption of regulation. Legal origins represent how a country's legal process is organized based on common or civil law identity of the colonizer. Common law nations have less hierarchical regulations and more market-oriented processes of social control relative to civil law (La Porta et al., 2008). Civil law countries tend to intervene in the economy, adopting regulations that do not promote financial development (La Porta et al., 1999, 2008).

Beck et al. (2003) argue that legal origin may influence financial regulation because legal traditions diverge with respect to state versus individual rights. Civil law places preference on state dominance over the protection of individual investors. In these countries, formal regulations tend to favor state rights over investor rights. As a result, civil law countries are less likely to adopt regulation in line with shareholder protection.[4] English legal origin (common law) evolved to protect private property rights against government expropriation. This resulted in common law countries supporting financial development, including the adoption of rules to protect shareholders.

At a broader level, this argument is consistent with Djankov et al.'s (2003b) model of how societies manage social disorder, including investor protection. Every society faces a trade-off between market disorder and government control of such disorder. Common law differs from civil law by its "encouragement of private solutions to the problem of disorder. In a common law system, statutes seek to reduce the costs of these private solutions, but not to replace them with public ones. Mandatory disclosure and arm's-length approval are very clear examples of this broader strategy of social control of business associated with common law" (Djankov et al., 2003a, p. 463). Therefore, common law countries are more likely to adopt rules associated with the ASD index, whereas civil law countries are less inclined to adopt rules that facilitate investor protection. This is empirically documented by Djankov et al. (2008).

While legal origin captures the identity of a colonizer, colonization strategy created dramatic shifts in institutional quality (Nunn, 2009). Acemoglu et al. (2001, 2002) show that current income levels are determined not by the identity of the colonizer but by strategy. If colonizers perceived a country as hospitable and inhabited the new land, higher quality institutions were established. Alternatively, those with a short-term perspective extracted resources, which reduced institutional quality. Countries colonized by an extractive colonization strategy are among the poorest countries today. For example, regions within Africa with the highest slave extraction currently have the lowest levels of trust and income (Nunn, 2008; Nunn and Wantchekon, 2011).

Colonizers deciding to inhabit transferred their knowledge, institutions and culture, including trust. Thus, colonization not only impacts current legal rules regarding investor protection (via legal origin), but how a country was colonized also affects current trust and income levels. This co-determination highlights the need for controlling for legal origin and income to isolate trust's impact on investor protection. It also speaks to the importance of controlling for endogeneity through our instrumental variable strategy.

3. Data

Following Djankov et al. (2008), we measure the regulation of self-dealing with the ASD index. The index measures strength of minority shareholder protection against self-dealing by controlling shareholders. It is not designed to capture corporate crime; instead, it measures the difficulty for minority shareholders to prevent self-dealing or to recover damages if a controlling shareholder decides to enrich himself at the expense of shareholders while following the law.

Djankov et al. (2008) collect data across countries by developing an artificial self-dealing transaction between two firms controlled by the same person. This transaction in principle can be used to improperly enrich the controlling shareholder. In order to collect standardized legal responses, they team up with Lex Mundi law firms to code how each country's legal system would regulate such a transaction. These regulations are rules designed to incentivize good behavior, such as extensive disclosure, approval procedures for transactions, and facilitation of private litigation.

Djankov et al. (2008) create two sub-indices of the ASD index. An ex-ante ASD index is constructed by extracting the first principal component of approval by disinterested shareholders, disclosures by buyer, disclosures by controlling shareholder, and whether an independent review is required. The second group captures ex-post rules based on ease of proving wrongdoing, including acquiring access to evidence and ex-post disclosures. The ex-post ASD index is constructed from the first principal component of disclosures in periodic filings, standing to sue, rescission, ease of holding controlling shareholders liable, ease of holding the approving body liable, and access to evidence. The overall ASD index is the combination of both the ex-ante and ex-post indices.

The ASD index represents formal regulations 'on the books' designed to protect minority shareholders, which essentially measures the hurdles that the controlling shareholder must clear in order to get away with such a transaction. The more hurdles, the higher score a country receives on the ASD index. The higher the score, the more regulations a country has adopted to protect against self-dealing. We note that the index does not directly capture enforcement of these regulations, only that they exist.[5] All three anti-self-dealing indices are scaled from zero to one. The analysis is limited to cross-country OLS regressions since the ASD index is not available over time, a common issue with cross-country data (e.g., Stulz and Williamson, 2003; La Porta et al., 2008).

Anonymous trust is the percentage of respondents saying they trust people they meet for the first time, and is collected and aggregated at the country level using survey data from WVS.[6] In order to maximize sample size, we use the last two waves from

[4] The idea that regulation is written to promote government over private interest is consistent with public choice literature, which provides an explanation regarding why individuals in high trust civil law countries may not demand public regulation against self-dealing. Not only do they perceive it unnecessary, but the perceived benefit from the additional protection from regulation is less than the potential cost from government intervention. In this light, fear of government expropriation is greater than private managerial expropriation.

[5] Djankov et al. (2008) create a separate public enforcement index. They do not find a significant relation between public enforcement and financial development. However, Jackson and Roe (2009) create new measures and find that public enforcement is as important as disclosure in explaining financial market outcomes and is more important than private liability rules.

[6] Support in the literature is offered for aggregating trust at the country level. Algan and Cahuc (2013) provide support for national aggregation. They highlight that what drives the results between trust and outcomes is cross-country variation in trust, not within country variation. Thus, our results should not be sensitive to national aggregation.

2005 to 2009 and 2010 to 2014, consisting of over 162,000 individual responses.[7] Bjørnskov (2010) argues that this approach is valid since trust scores are stable over time.

As shown in La Porta et al. (2008), laws on the books, including self-dealing regulation, are influenced by a country's legal system represented by legal origins. Legal origin is classified by its respective tradition: English, German, French, or Scandinavian. The data are collected from La Porta et al. (2008). English legal origin is the omitted variable (Djankov et al., 2008; La Porta et al., 2008).

In addition to legal origins, we control for income per capita measured by log GDP per capita in 2012 (PPP, constant 2011 international dollar) collected from WDI (2014). By doing so, we proxy for colonization strategy and quality of rule enforcement (La Porta et al., 2008).[8] In addition, as a country improves its financial development, it may also improve the regulatory environment. Not only can a wealthier country more easily afford to adopt and enforce regulatory rules compared to a poorer country, but investors can apply political pressure for greater investor protection. Thus, we always control for income. All remaining variables are described in Appendix A.

Table 1 presents summary statistics for our primary variables of interest. The ASD index and anonymous trust are available for 45 countries. Many controls are available for a smaller subset, therefore, the number of observations varies depending on specification. The ASD index ranges from 0.08 to 1.00, with a mean of 0.46 and a standard deviation of 0.24. Singapore ranks the highest with the most formal legal regulations against self-dealing. Ecuador scores the lowest on the ASD index. Finland scores at the mean. Anonymous trust has a mean of 26.1%, a standard deviation of 14%, and ranges from 5.4% (Peru) to 65.7% (Norway).

Table 1
Summary statistics
ASD index measures the strength of minority shareholder protection against self-dealing by the controlling shareholder. A higher score on the ASD index indicates more formal country-level legal protection against self-dealing. *Ex-ante ASD index* is a sub-index of the ASD index capturing the required disclosure, approval by disinterested shareholders, and necessity of an independent review. *Ex-post ASD index* is a sub-index of the ASD index measuring ex-post rules based on ease of proving wrongdoing, including acquiring access to evidence, and ex-post disclosures. *Anonymous trust* is the percentage of WVS respondents saying they trust people they meet for the first time. *Market capitalization* is the average of the stock market capitalization to GDP. *Control premium* is the difference between the price per share paid for the control block and the exchange price two days after the announcement of the control transaction, divided by the exchange price and multiplied by the ratio of the proportion of cash flow rights in the controlling block. *Ln firms/pop* is the log number of domestic companies listed on the country's stock exchange divided by population, and *IPOs* is the average ratio of the equity issued by newly listed firms to GDP. *Turnover* is total value of shares traded divided by GDP. *Log GDP* is the log GDP per capita measured in 2012 or closest year available. *English*, *French*, *German*, and *Scan* indicate a country's legal origin.

Variable	Observations	Mean	Std. Dev.	Min	Max
Anti-self-dealing regulation & trust:					
ASD index	45	0.46	0.24	0.08	1.00
Ex-ante ASD index	45	0.40	0.35	0.00	1.00
Ex-post ASD index	45	0.53	0.24	0.08	1.00
Anonymous trust	45	26.13	13.98	5.40	65.70
Financial development:					
Market capitalization	45	68.07	45.38	0.38	186.62
Control premium	29	0.09	0.12	−0.01	0.49
Ln firms/pop	45	2.09	1.30	0.07	4.73
IPOs	35	2.90	3.01	0.00	11.27
Turnover	45	48.02	48.93	0.01	214.32
Log GDP	45	9.80	0.87	7.22	11.19
GDP per capita	45	24,516	17,531	1360	72,724
Legal origin:					
English	14	0.31	0.47	0	1
French	21	0.47	0.50	0	1
German	7	0.16	0.37	0	1
Scan	3	0.07	0.25	0	1

The analysis on financial market outcomes uses a total of six measures, including average stock market capitalization (% of GDP), control premium, log number of firms per capita, IPOs to GDP, turnover ratio, and log GDP per capita. The average income per capita across our sample is about $24,516 and approximately the average income in Russia. The standard deviation is $17,531, with a range from $1360 (Zimbabwe) to $72,724 (Singapore).

Table 2 provides the correlation matrix for our main variables. The association between anonymous trust and the ASD index is negative and insignificant. However, as discussed earlier, univariate correlations do not take into account the conditional effects of

[7] Wave five spanned from 2005 to 2009 surveying 54 countries and over 77,000 individuals; Wave 6 spanned from 2010 to 2014 surveying 57 countries and over 85,000 individuals. Samples are drawn from the entire population of 18 years and older. The minimum sample is 1000. Stratified random sampling is used to obtain representative national samples. Respondents are interviewed in person by professional organizations using uniformly structured questionnaires.

[8] If we substitute contract enforcement for income per capita the results of our baseline specification are unchanged.

Table 2
Correlation matrix
This table reports correlations between our variables of interest. *ASD index* is the index measuring the strength of minority shareholder protection. *Anonymous trust* is the percentage of WVS respondents saying they trust people they meet for the first time. *Common law* and *Civil law* are countries where the legal origin is common and civil, respectively. *Market capitalization* is the average of the stock market capitalization to GDP. *Control premium* is the difference between the price per share paid for the control block and the exchange price two days after the announcement of the control transaction, divided by the exchange price and multiplied by the ratio of the proportion of cash flow rights in the controlling block. *Ln firms/pop* is the log number of domestic companies listed on the country's stock exchange divided by population, and *IPOs* is the average ratio of the equity issued by newly listed firms to GDP. *Turnover* is total value of shares traded divided by GDP. *Log GDP* is the log of GDP per capita measured in 2012 or closest year available. Bolded coefficients indicate significance at the 5% level.

	ASD index	Anonymous trust	Common law	Civil law	Market cap.	Control premium	Ln firms/pop	IPOs	Turnover	Log GDP
ASD index	1.00									
Anonymous trust	−0.02	1.00								
Common law	**0.67**	0.05	1.00							
Civil law	**−0.67**	−0.05	−1.00	1.00						
Market capitalization	**0.50**	**0.29**	**0.33**	**−0.33**	1.00					
Control premium	**−0.38**	**−0.48**	−0.35	0.35	−0.33	1.00				
Ln firms/pop	**0.30**	**0.56**	0.20	−0.20	**0.62**	**−0.60**	1.00			
IPOs	**0.46**	**0.52**	0.31	−0.31	**0.51**	**−0.43**	**0.68**	1.00		
Turnover	**0.39**	**0.40**	0.22	−0.22	**0.66**	−0.36	**0.54**	**0.65**	1.00	
Log GDP	0.17	**0.54**	−0.16	0.16	**0.33**	**−0.36**	**0.65**	**0.60**	**0.53**	**1.00**

other determinants such as income and legal origin. Income and anonymous trust positively correlate at the 5% level. The ASD index and common law have a positive and significant coefficient of 0.67, indicating that common law countries adopt greater formal regulation against self-dealing. This supports the argument from Beck et al. (2003) and the empirical findings of La Porta et al. (2008) and Djankov et al. (2008).

In Fig. 2, the correlation between the ASD index and anonymous trust is plotted for each country, split according to common and civil legal origin. The scatterplot shows several distinctions. First, for common law countries, there appears to be a positive association between anonymous trust and formal regulation. Not surprisingly, the common law sample has higher ASD index scores. For civil law countries, this association is negative. These unconditional correlations highlight the difference in regulatory adoption between common versus civil law countries.

Table 3 provides statistics for our primary variables of interest for each country in the sample. Due to the impact of legal origins, the sample is bifurcated into common and civil law countries. Summary statistics, reported at the bottom of Table 3, reveal a distinct difference in the ASD index. The mean for common law countries is twice of that of countries with civil legal origins. Singapore has the most formal legal regulations against self-dealing overall and among common law countries. Interestingly, the lowest country on the ASD index in the common law sample, Zimbabwe, has an ASD rank slightly higher than the mean of civil law countries. For civil law, China ranks the highest on the ASD index. Ecuador and Ukraine tie for the lowest. The mean civil law country is Spain, with a 0.37 ASD index score.

Among common law countries, Canada ranks the highest for anonymous trust at 49.8, and Malaysia ranks the lowest at 7.4. For countries with civil law origins, Norway has the highest level of anonymous trust at 65.7. The lowest ranking civil law country is Peru at 5.4. Differences in the means of trust and income across common and civil law countries are insignificant.

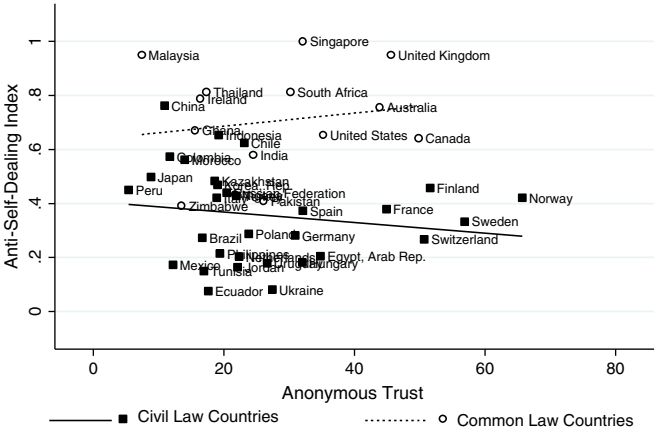

Fig. 2. Anti-self-dealing index and anonymous trust *ASD index* measures shareholder protection against self-dealing. *Anonymous trust* is the percentage of WVS respondents saying they trust people they meet for the first time.

Table 3
Country statistics
The *ASD index* is the index measuring the strength of minority shareholder protection. *Anonymous trust* is the percentage of WVS respondents saying they trust people they meet for the first time. *Common law* and *Civil law* countries are countries where the legal origin is common and civil, respectively.

	ADS index	Anonymous trust	GDP per capita
Common law countries:			
Singapore	1.00	32.1	72,725
United Kingdom	0.95	45.6	35,722
Malaysia	0.95	7.4	22,280
South Africa	0.81	30.2	12,198
Thailand	0.81	17.3	13,824
Ireland	0.79	16.4	43,834
Australia	0.76	43.9	43,818
Ghana	0.67	15.6	3702
United States	0.65	35.2	51,749
Canada	0.64	49.8	41,298
India	0.58	24.5	5138
Nigeria	0.43	21.7	5535
Pakistan	0.41	26.1	4437
Zimbabwe	0.39	13.5	1361
Civil law countries:			
China	0.76	10.9	10,960
Indonesia	0.65	19.2	9011
Chile	0.63	23.1	21,468
Colombia	0.57	11.7	11,892
Morocco	0.56	14.0	6998
Japan	0.50	8.8	35,618
Kazakhstan	0.48	18.6	21,882
Korea, Rep.	0.47	19.0	30,011
Finland	0.46	51.6	39,199
Peru	0.45	5.4	11,805
Russia	0.44	20.4	23,589
Turkey	0.43	21.9	18,551
Norway	0.42	65.7	66,141
Italy	0.42	18.9	34,926
France	0.38	44.9	36,785
Spain	0.37	32.1	32,134
Sweden	0.33	56.9	42,866
Poland	0.29	23.8	22,783
Germany	0.28	30.9	42,700
Brazil	0.27	16.7	14,551
Switzerland	0.27	50.7	53,191
Philippines	0.22	19.4	6110
Egypt, Arab Rep.	0.20	34.8	10,872
Netherlands	0.20	22.3	43,339
Hungary	0.18	32.0	22,635
Uruguay	0.18	26.6	18,280
Mexico	0.17	12.2	16,426
Jordan	0.16	22.1	11,539
Tunisia	0.15	16.9	10,797
Ukraine	0.08	27.4	8478
Ecuador	0.08	17.6	10,073
Common law countries	0.70	27.09	25,544
Civil law countries	0.36	25.69	24,052

4. Empirical analysis

4.1. Determinants of trust

In this section, we use OLS to examine the determinants of anonymous trust. We first present models based on the existing literature, which focuses on historical determinants of trust such as past education, prior per capita income, ethnic fractionalization, past political constraints, religious affiliation, and legal origin. One potential concern with most of these factors is that they are likely endogenous. Thus, we also present models including exogenous historical determinants of trust: pronoun drop, rainfall variation, and genetic distance.

Many studies demonstrate that educated people have higher levels of trust (Algan and Cahuc, 2013; Guiso et al., 2004, 2008; Knack and Keefer, 1997). Zak and Knack (2001) note that willingness to invest in education may positively relate to trust since it signals a longer time horizon. In addition, formal schooling increases rates of learning and socialization outside the family, which builds external trust. Therefore, similar to Knack and Keefer (1997), we include education rates in 1960 and anticipate a positive relation with current levels of anonymous trust (Glaeser et al., 2004).

Past formal political institutions also relate to trust formation. When constraints exist to limit arbitrary rule by government, and property rights and contracts are enforced, trust and cooperation among private citizens may be easier to achieve (Knack and Keefer, 1997; Zak and Knack, 2001). Following Tabellini (2008), we proxy for formal political institutions with a measure of constraints on executive power. Data are representative of 1960 and collected from Jaggers and Marshall (2000).

Many societies polarize along ethnic lines, forming associations based on ethnicity (Alesina et al., 2003). Homogenous ethnic groups may form ties that strengthen trust and cooperation within the group, but ethnic division may weaken ties and trust among ethnic groups. Thus, ethnic fractionalization can decrease the likelihood of anonymous trust formation (Bjørnskov, 2007). We include the measure of ethnic fractionalization collected from Alesina et al. (2003).

Religion is also documented to predict trust (Guiso et al., 2003; Berggren and Jordahl, 2006; Bjørnskov, 2007). Putnam (1993) argues that hierarchical religion deters the formation of trust. For example, the Catholic Church's hierarchical structure discourages the formation of trust by establishing vertical bonds of authority instead of horizontal bonds of fellowship. La Porta et al. (1997b) empirically document a negative association between trust and the dominance of a strong hierarchical religion in a country. We control for the share of the population as of 1970 belonging to dominant hierarchical religions, Catholic, Muslim, or Orthodox (McCleary and Barro, 2006).

Income per capita is a standard variable for explaining trust. According to Knack and Keefer (1997); Alesina and La Ferrara (2002), and Algan and Cahuc (2013) income raises trust. Zak and Knack (2001) argue that individuals earning higher incomes prefer to work and spend less time verifying the actions of others. Empirically, however, the results are mixed. Bjørnskov (2007) does not find a statistical relation between GDP per capita and trust. Since income per capita correlates with several variables of interest, including education and political institutions, we present the results with and without income. We collect data on GDP per capita in 1960 from WDI (2014).

Knack and Keefer (1997) document high trust levels in Scandinavian countries. To control for this and capture historical legal determinants on trust formation, legal origins are also included.

In Table 4, models (1) and (2), we report the results for the traditional determinants of anonymous trust. If income is not included in the specification, education is positive and significant; however, once income is included education is no longer

Table 4
Determinants of anonymous trust
This table reports the determinants trust. *Anonymous trust* is the percentage of WVS respondents saying they trust people they meet for the first time. *Education 1960* is the number of years of schooling of the total population above the age of 25 in 1960. *Executive constraints 1960* is the Polity IV measure of constraints on executive power defined as institutionalized constraints on the decision making powers of chief executives in 1960. *Ethnic fractionalization* is the probability that two randomly selected individuals from a population belong to different ethnic groups. Historical religion is measured as the percentage of the population identified in 1970 as Catholic, Muslim, and Orthodox. *Pronoun drop* equals one if the country's population speaks a language in which pronoun drop is permitted. *Rainfall variation* is the natural log of the coefficient of intertemporal variation of monthly rainfall from 1900 through 2009. *Genetic distance* is a country's genetic distance from the U.S. *Log GDP pc 1960* is the log of GDP per capita measured in 1960. *French*, *German*, and *Scan* are indicator variables to control for legal origin. *English* is the omitted indicator. Robust standard errors are reported in parenthesis. ***, ** and *denote significance at 1%, 5%, and 10%, respectively.

Dep. var: Anonymous trust	(1)	(2)	(3)	(4)
Education 1960	14.603**	−5.337	12.794**	9.679
	(4.772)	(9.756)	(5.471)	(7.439)
Executive constraints 1960	−0.965	−1.834*	−1.011	−1.101
	(1.331)	(1.066)	(1.147)	(0.982)
Ethnic fractionalization	−0.781	−0.895	7.743	9.137
	(11.295)	(9.744)	(11.368)	(9.162)
Catholic 1970	−5.450	−6.202	−8.869	−7.921
	(9.343)	(8.260)	(12.373)	(11.704)
Muslim 1970	12.956	−2.947	−0.024	−4.148
	(11.882)	(13.003)	(9.544)	(10.971)
Orthodox 1970	−31.813**	−1.276	−76.194**	260.100
	(14.415)	(13.582)	(36.384)	(316.197)
Pronoun drop			−12.155**	−12.756**
			(4.757)	(5.213)
Rainfall variation			10.695*	12.832**
			(5.385)	(4.341)
Genetic distance			−0.008**	−0.008**
			(0.002)	(0.002)
Log GDP pc 1960		14.081**		1.788
		(3.746)		(4.680)
French	−7.813	−6.811	−5.232	−3.199
	(5.599)	(5.362)	(5.874)	(5.735)
German	−5.169	-3.763	0.989	5.278
	(8.968)	(9.284)	(6.835)	(5.836)
Scan	22.127**	20.551**	19.078**	21.141**
	(7.161)	(6.223)	(5.896)	(6.049)
Constant	−23.457	−52.712*	−3.125	−7.213
	(20.580)	(28.758)	(18.372)	(22.962)
Observations	40	34	36	31
Adj. R^2	45%	63%	66%	75%

significant. Executive constraints is negative and weakly significant when controlling for income in model (2). Orthodox negatively predicts anonymous trust when income is not included. Scandinavian legal origin is positively associated with anonymous trust formation in both models.

Next, we include pronoun drop, rainfall variation, and genetic distance. We do so to differentiate the relative impact of potentially endogenous historical factors from exogenous historical determinants of trust. Not only does this provide a deeper understanding of the formation of anonymous trust but also helps motivate the use of these variables as our instruments.

Language effects the formation of concepts, which affects the formation of values. In particular, grammatical rules regarding pronoun drop associate with social views relating the importance of the individual to the group. These rules govern whether a speaker may drop a pronoun in the subject position. Languages that do not allow the dropping of the first person pronoun emphasize the individual over the group. In languages that permit pronoun drop, the identity of the subject is understood in the context of the rest of the sentence. In contrast, in languages that do not permit pronoun drop, the subject stands apart from the context.

Pronoun drop, with its focus on the group over the individual, is therefore associated with societies that promote limited instead of generalized morality (Kashima and Kashima, 1998; Licht et al., 2007). Tabellini (2008) presents evidence that pronoun drop is an appropriate instrument for trust. As we discuss above, generalized morality supports the formation of anonymous trust, thus we expect a negative coefficient on pronoun drop. The variable equals one if the country's population speaks a language in which pronoun drop is permitted (Licht et al., 2007).

The second exogenous determinant is a historical measure of rainfall variation. Durante (2010) argues that regions experiencing more historical climate variation are more trusting today. He conjectures that greater weather variability created an increase in uncertainty regarding harvests. As a result, to offset negative climate shocks, individuals pooled resources to collectively manage and hold larger stocks. They also developed more trading partners, facilitating anonymous exchange as a means to minimize risk. This led to the development of cooperative attitudes and less reliance on the family structure. Thus, we predict that greater rainfall variability is positively associated with anonymous trust. Data are collected from Davis (2016).

The third exogenous determinant measures a country's genetic distance from the United States. Spolaore and Wacziarg (2009) argue that genetic distance captures divergence in beliefs, customs, and norms transmitted across generations. Greater genetic divergence between two groups creates more uncertainty and less willingness to trust someone who is dissimilar. We expect this measure to negatively associate with anonymous trust.

Models (3) and (4) include the three exogenous determinants of anonymous trust. Across both specifications, all three variables are significant with the expected sign. Pronoun drop is negative and significant, suggesting that countries permitting pronoun drop have approximately 12 percentage points lower anonymous trust. Historical rainfall variation is positive and significantly associated with anonymous trust. A one standard deviation increase in rainfall variation increases anonymous trust up to 5.37 percentage points. Genetic distance is negative and significant; a one standard deviation increase in genetic distance decreases anonymous trust by about 5.32 percentage points. Scandinavian legal origin is the only other variable that is significant in the full model.

Given the exogeneity of these historical determinants, we utilize pronoun drop, rainfall variation, and genetic distance to instrument for anonymous trust and control for potential endogeneity. We refrain from using other historical determinants, such as education in 1960, since they are likely endogenous and may not satisfy the exclusion restrictions.[9]

4.2. Trust and the regulation of self-dealing

Using cross-sectional OLS regressions, Table 5 presents the impact of trust on self-dealing regulation. In Panel A, three dependent variables are used to gain deeper insight into trust's impact on specific regulations: the ASD index, the ex-ante ASD index, and the ex-post ASD index.

The results reported in column (1) of Panel A support the theoretical predictions in Section 2. Anonymous trust negatively predicts anti-self-dealing regulation. Marginal effects imply that a standard deviation increase in trust in someone you meet for the first time (column 1) decreases the ASD index by about 0.10, equivalent to a 0.40 standard deviation decrease.[10]

In column (2), using the ex-ante ASD index as the dependent variable, we find results similar to those reported in column (1). For example, moving from the lowest to the highest trusting country, the difference between Peru and Norway, reduces the ex-ante ASD index by about 0.66, which is a 2.75 standard deviation decrease. This implies that anonymous trust is effective in reducing formal regulations pertaining to activities before the transaction. In other words, a country with more trust in strangers does not require extensive disclosures, approval by minority shareholders, or an independent review before a transaction takes place. This finding offers support to our theoretical argument that in

[9] We retest our IV models including education in 1960 as an additional instrument. It is insignificant in all first stage estimates and violates the exclusion restriction in our model including all controls simultaneously. These results are untabulated and are available upon request.

[10] Also consistent with our the empirical predictions, untabulated analysis suggests that generalized, personal, and family trust insignificantly relate with all ASD indices. Two additional measures of anonymous trust are also examined: the percentage of the respondents saying they 'trust people of another religion', and the percentage saying they 'trust people of another nationality'. Test results from these variables are qualitatively unchanged from those measuring trust in someone you meet for the first time.

Table 5
Trust and regulation of self-dealing
Panel A reports OLS regressions of anonymous trust on the overall ASD index and its two sub-indices. Panel B reports OLS regressions with countries split according to common and civil legal origin. *ASD index* is the full index measuring the strength of minority shareholder protection against self-dealing by the controlling shareholder. *Ex-ante ASD index* is the sub-index of the *anti*-self-dealing capturing the required disclosure, approval by disinterested shareholders, and necessity of an independent review. *Ex-post ASD index* is the sub-index of the ASD index measuring ex-post rules based on ease of proving wrongdoing, including acquiring access to evidence, and ex-post disclosures. *Anonymous trust* is the percentage of WVS respondents saying they trust people they meet for the first time. *French*, *German*, and *Scan* are indicator variables to control for legal origin. *English* is the omitted indicator. *Log GDP* is the log of GDP per capita measured in 2012 or closest year available. Robust Standard errors are reported in parenthesis. ***, ** and *denote significance at 1%, 5%, and 10%, respectively.

Panel A:				Panel B:		
Dep. var:	ASD index	Ex-ante ASD index	Ex-post ASD index	Dep. var:	ASD index: Common law	ASD index: Civil law
	(1)	(2)	(3)		(1)	(2)
Anonymous trust	−0.007***	−0.011**	−0.003	Anonymous trust	−0.005	−0.004*
	(0.002)	(0.004)	(0.003)		(0.003)	(0.002)
French	−0.413***	−0.417***	−0.409***			
	(0.053)	(0.096)	(0.053)			
German	−0.406***	−0.476**	−0.337***			
	(0.083)	(0.149)	(0.063)			
Scan	−0.225**	−0.210	−0.240*			
	(0.085)	(0.187)	(0.130)			
Log GDP	0.128***	0.139**	0.117***	Log GDP	0.150***	0.070
	(0.031)	(0.057)	(0.027)		(0.031)	(0.060)
Constant	−0.328	−0.381	−0.274	Constant	−0.588**	−0.236
	(0.293)	(0.534)	(0.234)		(0.259)	(0.585)
Observations	45	45	45	Observations	14	31
Adj. R^2	55%	27%	54%	Adj. R^2	61%	7%

trusting countries individuals do not believe strangers are likely to cheat them; thus, they do not require extensive legal code to prevent such behavior.

In column (3), however, anonymous trust does not significantly relate to ex-post ASD measures. Combined, columns (2) and (3) suggest a country may rely more on anonymous trust to minimize self-dealing *beforehand* but find these informal means insufficient to prove wrongdoing or recover losses after a transaction has taken place. The implication is that regardless of the level of trust, once self-dealing has occurred, explicit legal provisions may be required to recover damages. By definition, trust is the probability someone assigns to being cheated. Thus, self-dealing transactions are less likely to take place when people are trustworthy. However, if self-dealing occurs, being a trusting person does not necessarily provide a means to recover damages.

Collectively, these results suggest that counties rich in anonymous trust adopt fewer formal regulations to limit self-dealing. Consistent with La Porta et al. (2008), civil legal origins are negative and significant in all regressions; income per capita is positive and significant.

In Panel B of Table 5, we report tests on subsamples split according to common and civil legal origins. In contrast to Fig. 2, once conditioned on income, anonymous trust is negatively associated with the ASD index in both common and civil law countries. However, it is only significant in the civil law sample. Income is positive but only significant in common law countries. Given the low number of observations in each sample, we do not draw too much inference from these estimations. Nonetheless, they do support our overall conclusion that anonymous trust negatively relates to the ASD index.

5. Sensitivity analysis

The first five columns of Table 6 report the benchmark specification, replacing anonymous trust with alternative measures of culture. We include individual versus government responsibility from the WVS (described in Appendix A), which proxies for preferences for government regulation (Davis, 2016). Column (1) of Table 6 reports a negative but insignificant association.

Next, we include Hofstede's (2001) measures of culture: uncertainty avoidance, power distance, individualism, and masculinity. Previous work reports a negative association between uncertainty avoidance and indices of shareholder rights (Licht et al., 2005). However, we do not find a similar result for self-dealing regulation, as uncertainty avoidance is insignificant. Societies that anticipate unequal distribution of power, as measured by power distance, may find formal regulation more beneficial to prevent the expropriation of less powerful members of society. Consistent with this prediction, power distance is positive and significantly related to the ASD index in column (3).

Individualism robustly relates to a variety of economic outcomes (Gorodnichenko and Roland, 2011). This measure contrasts the degree to which individuals integrate into cohesive in-groups versus maintaining individuality. Collectivist societies may prefer a greater level of regulation to constrain individual behavior in favor of establishing social order for the group. The negative and significant coefficient on individualism, reported in column (4) supports this argument, suggesting that more individualistic societies adopt less formal protection against self-dealing. Lastly, more masculine cultures, those more focused on achievement and success, could prefer more risk and less financial regulation. As shown in column (5), masculinity is not associated with the ASD index.

The last five columns report these specifications with the inclusion of anonymous trust. Perhaps the most intriguing finding of Table 6 is that anonymous trust is negative and significant when controlling for each culture variable and both power distance and individualism lose significance. These findings provide additional support to the findings in Table 5.

Table 6
Anonymous Trust and Regulation of Self-dealing with Culture Variables
Regressions of other culture variables found in the literature on the ASD index are reported. Anonymous trust is included to show the marginal impact. *Anonymous trust* is the percentage of WVS respondents saying they trust people they meet for the first time. *Individual resp.* is the average WVS responses ranging from 1 to 10 from the question: People should take more responsibility to provide for themselves (10) or the government should take more responsibility (1). *Uncertainty avoidance* is the Hofstede, 2001 degree to which members of society are comfortable in unstructured situations. *Power distance* is the Hofstede, 2001 degree to which less powerful members of society accept and expect power to be distributed unequally. *Individualism* is the Hofstede, 2001 degree to which individuals are integrated into groups, and *Masculinity* is the Hofstede, 2001 measure reflecting the emphasis in society on caring for others, solidarity, and quality of life (Femininity), as opposed to achievement and success (Masculinity). *French*, *German*, and *Scan* are indicator variables to control for legal origin. *English* is the omitted indicator. *Log GDP* is the log of GDP per capita measured in 2012 or closest year available. Robust standard errors are reported in parenthesis. ***, ** and *denote significance at 1%, 5%, and 10%, respectively.

Dep. var: ASD index	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Anonymous trust						−0.008***	−0.007**	−0.005**	−0.005**	−0.007**
						(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Individual resp.	−0.001					0.001				
	(0.002)					(0.002)				
Uncertainty avoidance		−0.003					−0.003			
		(0.002)					(0.002)			
Power distance			0.004**					0.002		
			(0.002)					(0.001)		
Individualism				−0.003**					−0.002	
				(0.001)					(0.002)	
Masculinity					−0.001					−0.001
					(0.002)					(0.002)
French	−0.375***	−0.269**	−0.394***	−0.388***	−0.361***	−0.408***	−0.311**	−0.416***	−0.406***	−0.402***
	(0.059)	(0.097)	(0.062)	(0.062)	(0.066)	(0.056)	(0.089)	(0.058)	(0.057)	(0.059)
German	−0.371**	−0.278**	−0.365***	−0.383***	−0.348**	−0.399***	−0.320**	−0.397***	−0.404***	−0.388***
	(0.106)	(0.118)	(0.086)	(0.083)	(0.103)	(0.087)	(0.096)	(0.076)	(0.075)	(0.090)
Scan	−0.398***	−0.369***	−0.326***	−0.382***	−0.400**	−0.216**	−0.220**	−0.218**	−0.269**	−0.254**
	(0.067)	(0.076)	(0.069)	(0.056)	(0.116)	(0.090)	(0.091)	(0.088)	(0.089)	(0.120)
Log GDP	0.081**	0.047	0.095**	0.112**	0.051	0.128***	0.094**	0.120**	0.124**	0.098**
	(0.033)	(0.038)	(0.038)	(0.040)	(0.043)	(0.031)	(0.039)	(0.037)	(0.038)	(0.042)
Constant	−0.052	0.398	−0.409	−0.220	0.263	−0.352	0.118	−0.425	−0.254	−0.011
	(0.323)	(0.415)	(0.421)	(0.397)	(0.434)	(0.294)	(0.391)	(0.398)	(0.372)	(0.399)
Observations	45	40	40	40	40	45	40	40	40	40
Adj. R2	46%	48%	49%	50%	44%	54%	55%	52%	52%	50%

In Table 7, we include additional institutional and economic controls using both OLS and IV estimations. Panel A contains OLS models with institutional controls (column 1) and economic controls (column 2). Column (3) of Panel A reports the full specification.

First included is a measure of democratic institutions from Polity IV (Jaggers and Marshall, 2000). Arguably, democracy leads to better rules and regulations supporting firm development (Djankov et al., 2002). Thus, democratic countries may be more likely to adopt regulations that deter self-dealing. In our results, democracy is negative and significant in column (1) but insignificant when including economic controls (column 3).

Also tested are three institutional measures from the Worldwide Governance Indicators (WGI): control of corruption, rule of law, and regulatory quality (Kaufmann et al., 2014). A country lacking control over public corruption would be less likely to create regulation minimizing corporate corruption. We find, however, that it insignificantly relates to the ASD index. Rule of law measures the perception to which agents have confidence in and abide by the rules of society. Regulatory quality is the perceptions that government is able to formulate and implement sound policies and regulations that permit and promote private sector development. In column (1), regulatory quality is positive and significant; however, it loses significance in the full model, column (3). Rule of law is insignificant in both models. We also examine the percent of the country's population with native ancestry, as homogenous populations may find it easier to develop and enforce regulations compared to more diverse groups (Ashraf and Galor, 2013). We do not find significant correlations between native ancestry and the ASD index.

In column (2) of Panel A, we include basic economic controls as proxies for macroeconomic stability. These are unemployment and economic growth (WDI, 2014), average years of schooling (Barro and Lee, 2001), and the log of newspapers and periodicals in circulations per 1000 (Djankov et al., 2008). In columns (2) and (3), growth is a positive and significant predictor of self-dealing regulation. This is expected since growing economies not only can afford better regulations but may also demand rules protecting investors. Unemployment, average schooling, and newspaper circulation are insignificant.

In all three regressions, anonymous trust is negative and a significant predictor of the ASD index with similar size coefficients as in previous results. Based on the adjusted R-squareds, the specifications explain 58% to 64% of the variation in self-dealing regulation.

The coefficients for anonymous trust and self-dealing regulation reported above potentially suffer from biased estimation. Cultural values may be shaped by social phenomena, including economic and political influence, leading to endogeneity concerns (Bowles, 1998). For example, some third factor not controlled for may influence both the regulation of self-dealing and anonymous trust. As such, anonymous trust may be endogenous. A specific endogeneity concern is reverse causation. For example, greater regulation of self-dealing may increase the ability to trust strangers, supporting a positive reinforcement effect. However,

Table 7
Anonymous trust and regulation of self-dealing with controls
Panel A reports OLS regressions of anonymous trust on the ASD index with institutional and economic controls. Panel B presents second state results from IV estimations. *ASD index* is the full index measuring the strength of minority shareholder protection against self-dealing by the controlling shareholder. *Anonymous trust* is the percentage of WVS respondents saying they trust people they meet for the first time. *Democracy* is the level of democracy from Polity IV 2013. *Corruption* is the WGI 2014 measure of perceptions of the extent to which public power is exercised for private gain. *Rule of law* is the WGI 2014 measure of the perception to which agents have confidence in and abide by the rules of society. *Reg. quality* is the perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. *Native* is the percent of a county's population with native ancestry. *Unemployment* is the share of the labor force without work but available and seeking employment. *Growth* is the annual percentage growth rate of GDP per capita. *Avg. school* is the average years of schooling of the population over age 25 in 2000. *Newspaper* is the logarithmic number of newspapers and periodicals in circulation per thousand inhabitants in 2000. *French*, *German*, and *Scan* are indicator variables to control for legal origin. *English* is the omitted indicator. *Log GDP* is the log of GDP per capita measured in 2012 or closest year available. Robust standard errors are reported in parenthesis.

Panel A: OLS				Panel B: IV			
Dep. var: ASD index	(1)	(2)	(3)	(1)	(2)	(3)	(4)
Anonymous trust	−0.006**	−0.006**	−0.006**	−0.008**	−0.009***	−0.007**	−0.01**0
	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)
Democracy	−0.024**		−0.012		−0.021**		−0.008
	(0.010)		(0.012)		(0.010)		(0.010)
Corruption	−0.063		−0.084		−0.070		−0.102
	(0.093)		(0.099)		(0.093)		(0.084)
Rule of law	0.013		0.131		0.066		0.216*
	(0.142)		(0.145)		(0.142)		(0.127)
Reg. quality	0.185**		0.052		0.138*		−0.035
	(0.087)		(0.114)		(0.083)		(0.103)
Native	0.075		0.121		0.053		0.084
	(0.104)		(0.111)		(0.109)		(0.096)
Unemployment		0.005	0.004			0.007**	0.006
		(0.004)	(0.005)			(0.003)	(0.004)
Growth		0.032**	0.035**			0.032**	0.035**
		(0.013)	(0.014)			(0.011)	(0.011)
Avg. school		−0.006	−0.005			0.000	0.002
		(0.015)	(0.015)			(0.013)	(0.011)
Newspaper		−0.041	−0.052			−0.064*	−0.068
		(0.046)	(0.056)			(0.038)	(0.046)
French	−0.387***	−0.420***	−0.374***	−0.425***	−0.400***	−0.442***	−0.413***
	(0.069)	(0.061)	(0.076)	(0.055)	(0.063)	(0.052)	(0.066)
German	−0.420***	−0.361***	−0.399***	−0.426***	−0.437***	−0.391***	−0.442***
	(0.093)	(0.090)	(0.104)	(0.082)	(0.083)	(0.083)	(0.094)
Scan	−0.263**	−0.217*	−0.251	−0.224**	−0.190	−0.212**	−0.189
	(0.121)	(0.114)	(0.151)	(0.090)	(0.128)	(0.106)	(0.136)
Log GDP	0.045	0.227***	0.183**	0.137***	0.061	0.254***	0.226**
	(0.053)	(0.040)	(0.086)	(0.034)	(0.046)	(0.032)	(0.075)
Constant	0.494	−1.251***	−0.819	−0.385	0.436	−1.403***	−1.086*
	(0.536)	(0.287)	(0.735)	(0.295)	(0.459)	(0.239)	(0.606)
Observations	44	42	41	42	42	40	40
Adj. R^2	58%	63%	64%	55%	55%	66%	64%
Hansen J-stat				1.41	1.76	2.21	3.57
p-value				0.49	0.42	0.33	0.17

* Denotes significance at 10%.
** Denote significance at 5%.
*** Denote significance at 1%.

in our particular case, anonymous trust negatively relates to provisions to limit self-dealing. Thus, it is unlikely that reverse causation is driving our results.[11]

In Panel B of Table 7, we address these potential concerns by estimating two-stage least squares regressions. We instrument for anonymous trust using the three exogenous historical determinants of anonymous trust presented above: pronoun drop, rainfall variation, and genetic distance. According to the first stage results reported in Appendix B, all three instruments significantly correlate with anonymous trust. This implies that pronoun drop, less rainfall variation, and greater distance from United States lead to lower levels of anonymous trust. The adjusted R-squareds cross the 20% benchmark and the F-statistics are above the critical 10.0 benchmark. Importantly, none of the instruments significantly correlate with the ASD index. As shown in Panel B, the Hansen J statistics from the overidentifying restrictions tests indicate that in none of the regressions can we reject the null hypothesis that the instruments are valid. The fact that our instruments are motivated by a solid theoretical argument strengthens the case that the exclusion restrictions are met.

The second stage results are presented in Panel B of Table 7. In column (1), we report the benchmark specification controlling only for legal origin and income per capita. Anonymous trust is negative and significant, with a coefficient similar in size and

[11] Another potential source of bias is due to measurement error associated with the use of survey data. Differences in the interpretation of survey questions may lead to classical measurement error, resulting in attenuation bias. In addition, survey data are subject to measurement error due to cognitive errors and to the perceived social desirability of particular answers. As Bertrand and Mullainathan (2001) point out, these sources of error tend to bias results when survey data are used.

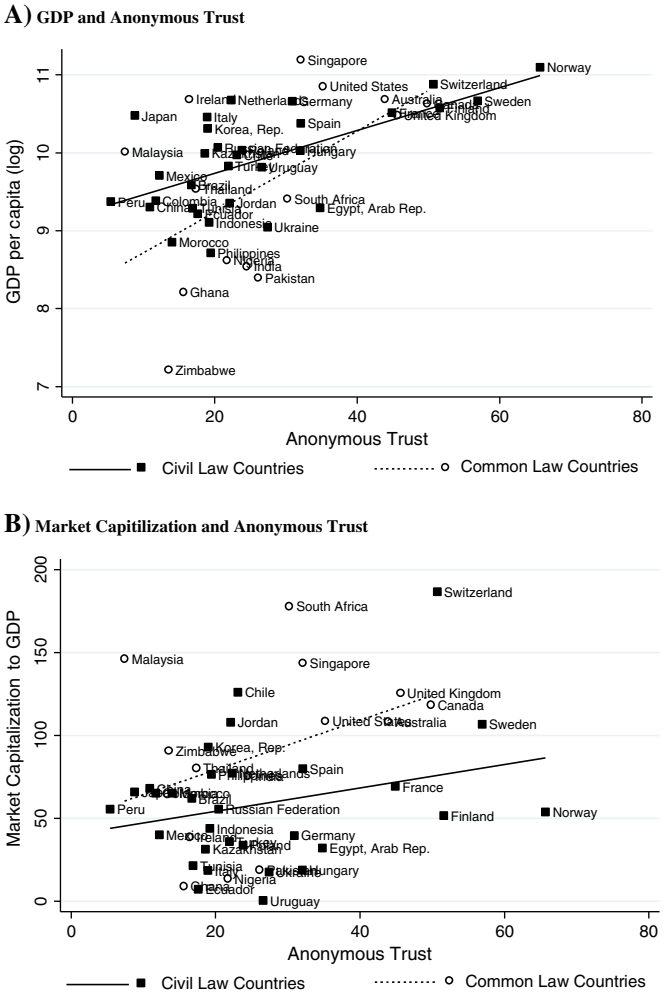

Fig. 3. Anonymous trust and financial market outcomes *Anonymous trust* is the percentage of WVS respondents saying they trust people they meet for the first time. *GDP* per capita is the log of GDP per capita. *Market capitalization* is the stock market capitalization to GDP. Panel A: GDP and Anonymous Trust Panel B: Market Capitilization and Anonymous Trust.

significance as reported in previous tables. For example, moving from the lowest to the highest-ranking country with respect to anonymous trust reduces the ASD index by 0.48, a two standard deviation decrease. This represents the difference between the United Kingdom and South Korea.

As robustness, in the next two regressions we include our set of institutional and economic controls separately. We find similar results, as anonymous trust remains negative and significant. The results persist in columns (5) when including all controls simultaneously.

The IV results support our earlier findings. Anonymous trust appears to play a significant role in determining self-dealing regulation, as countries with more trust in those whom they do not know choose to formally regulate less than countries with less anonymous trust.[12]

6. Anonymous trust and financial market development

The results presented above provide evidence suggesting anonymous trust and anti-self-dealing regulation are inversely related. The findings from Tables 5 through 7 suggest the association is robust to cultural, institutional, and economic controls, as well as IV estimations. This evidence offers little support for H1, which predicts a positive association if anonymous trust and formal anti-self-dealing regulation are complements.

[12] A potential concern is that firms in countries rich in anonymous trust pressure government for lax regulation in order to expropriate shareholder wealth. If so, we anticipate a negative association between anonymous trust and regulation and a negative association between anonymous trust and financial development. However, our evidence reported in the next section indicates a positive association between anonymous trust and financial development. Thus, the inverse association found between anonymous trust and the ASD index is not likely a result of firm lobbying to expropriate shareholder wealth.

Table 8
Anonymous trust and financial market development
This table presents tests of the association between anonymous trust and financial market outcomes. *Log GDP* is the log of GDP per capita measured in 2012 or closest year available. *Market capitalization* is the average of the stock market capitalization to GDP. *Control premium* is the difference between the price per share paid for the control block and the exchange price two days after the announcement of the control transaction, divided by exchange price and multiplied by the ratio of the proportion of cash flow rights in the controlling block. *Ln firms/pop* is the log number of domestic companies listed on the country's stock exchange divided by population, and *IPOs* is the average ratio of the equity issued by newly listed firms to GDP. *Turnover* is total value of shares traded divided by GDP. *Time to collect* is the Djankov et al. 2003 log of calendar days of the judicial procedure to collect on a bounced check. *French*, *German*, *Scan* are indicator variables to control for legal origin. *English* is the omitted indicator. Robust standard errors are reported in parenthesis.

Dep. var:	Log GDP	Market capitalization	Control premium	Ln firms/pop	IPOs	Turnover
	(1)	(2)	(3)	(4)	(5)	(6)
Anonymous trust	0.042***	1.481*	−0.004*	0.026*	0.066*	1.468**
	(0.009)	(0.809)	(0.002)	(0.014)	(0.038)	(0.524)
ASD index	1.879**	99.057**	−0.253	0.364	2.903	65.203*
	(0.628)	(32.475)	(0.201)	(0.844)	(1.910)	(34.108)
Time to collect	−0.151	−8.884	0.029	−0.113	0.587	−15.194*
	(0.104)	(5.823)	(0.020)	(0.125)	(0.453)	(7.638)
French	1.008**	8.794	−0.044	−0.685	−1.486	−3.446
	(0.377)	(19.160)	(0.075)	(0.478)	(0.914)	(22.622)
German	1.351**	18.469	−0.086	−0.270	−0.241	36.961
	(0.400)	(24.201)	(0.110)	(0.609)	(1.243)	(31.507)
Scan	0.455	−35.087	−0.013	−0.572	−2.999*	−40.176
	(0.324)	(29.101)	(0.064)	(0.529)	(1.603)	(30.453)
Log GDP		0.763	0.006	0.718**	1.542***	12.210
		(10.340)	(0.032)	(0.234)	(0.398)	(11.029)
Constant	7.894***	16.577	0.177	−4.832**	−16.330**	−64.237
	(0.850)	(103.013)	(0.360)	(2.232)	(4.516)	(84.412)
Observations	45	45	29	45	35	45
Adj. R^2	47%	30%	25%	49%	57%	49%

* Denotes significance at 10%.
** Denote significance at 5%.
*** Denote significance at 1%.

To support H2A (trust substitutes for formal self-dealing regulation), not only must evidence suggest an inverse association between anonymous trust and the ASD index, but also a *positive* association between anonymous trust and financial development. Alternatively, H2B (formal self-dealing regulation substitutes for trust) hypothesizes an inverse association between anonymous trust and the ASD index and an *insignificant* association between anonymous trust and financial development. To test these hypotheses, we directly examine the impact of anonymous trust on financial market outcomes.

Six measures of financial market development are examined: log GDP per capita, stock market capitalization, control premium, firms per capita, IPOs, and share turnover. Predictions for each follow traditional agency theory (Jensen and Meckling, 1976). Public firms should be larger and more valuable in countries with strong shareholder protection. IPO proceeds, turnover, and the number of firms should likewise be larger (Shleifer and Wolfenzon, 2002). In theory, private benefits of control are higher in countries with weaker investor protection (Grossman and Hart, 1988; Nenova, 2003; Dyck and Zingales, 2004). We therefore anticipate a positive impact of anonymous trust on GDP, market capitalization, the number of publically traded firms, IPOs, and turnover. Anonymous trust should negatively relate to the premium paid for corporate control. The interpretation is that benefits to private control is attenuated in countries with more anonymous trust.

Scatterplots presented in Fig. 3 for GDP per capita and market capitalization, split according to common and civil legal origin, illustrate that anonymous trust positively correlates with both GDP and market capitalization in common and civil law countries. These figures suggest that univariate associations between anonymous trust and financial market development are as predicted under H2A and outliers should not drive the results.[13]

To test the predictions of H2A and H2B in a multivariate setting, we adopt the empirical design of Djankov et al. (2008) and La Porta et al. (2008), regressing anonymous trust on measures of a healthy financial system. We control for income per capita, legal origin, and judicial efficiency proxied by time to collect on a bounced check (Djankov et al., 2003b). If anonymous trust is in fact substituting for formal regulation, the associations between trust and market outcomes should persist when the ASD index is included. Alternatively, if formal regulation is substituting for anonymous trust, trust should be insignificant. We therefore include the ASD index in the specifications.

Results presented in Table 8 suggest that anonymous trust positively and significantly relates to log GDP per capita, stock market capitalization, the number of publically traded firms, the amount of IPO equity issued, and share turnover. Anonymous trust has a significant negative impact on benefits to private control. The economic impact of trusting strangers on market capitalization implies that moving from the lowest to the highest trusting country increases market capitalization by about 89 percentage points. This is almost a two standard deviation increase and represents the difference between Pakistan and the United States.

[13] Scatterplots for the other measures of financial development yield similar interpretation and are available upon request.

Collectively, these findings support H2A, suggesting that anonymous trust may provide an alternative mechanism for shareholder protection, substituting for formal rules and supporting financial development.

7. Conclusion

Overwhelming theoretical and empirical evidence suggests that corporate self-dealing hinders financial market development. The regulation against such activity, however, varies considerably across countries and, up to this point, is largely unexplored.

Our research examines the influence of trust on shareholder protection by identifying two avenues through which trust impacts financial markets. We hypothesize that anonymous trust and formal anti-self-dealing regulation act as complements or substitutes. Our evidence suggests that anonymous trust inversely relates to formal self-dealing regulation. Furthermore, we find that anonymous trust positively relates to a healthy financial system. Collectively, we interpret this to suggest that anonymous trust substitutes for formal shareholder protection, limiting self-dealing behavior and promoting financial development.

Our results have several implications. First, they support evidence in the literature suggesting that informal institutions, such as trust, play a significant role in determining regulation. Second, they indicate that shareholder protection can emerge naturally in countries fostering anonymous trust. At the very least, our findings highlight that there are alternative means of achieving investor protection.

Appendix A. Data description

Variable	Description	Source
ASD index	Index measuring the strength of minority shareholder protection, where a higher score on the anti-self-dealing index indicates more formal country-level legal protection against self-dealing. The index is constructed from the first principal component of: (1) approval by disinterested shareholders; (2) disclosures by buyer; (3) disclosures by controlling shareholder; (4) independent review; (5) each of the elements in the index of disclosure in periodic filings; (6) standing to sue; (7) rescission; (8) ease of holding controlling shareholder liable; (9) ease of holding the approving body liable; and (10) access to evidence.	Djankov et al., 2008
Ex-ante ASD index	Sub-index of the ASD index capturing the required disclosure, approval by disinterested shareholders, and necessity of an independent review measuring: (1) approval by disinterested shareholders; (2) disclosures by buyer; (3) disclosures by the controlling shareholder; and (4) independent review.	Djankov et al., 2008
Ex-post ASD index	Sub-index of the ASD index measuring ex-post rules based on ease of proving wrongdoing, including acquiring access to evidence, and ex-post disclosures measuring: (1) each of the elements in the index of disclosure in periodic filings; (2) standing to sue; (3) rescission; (4) ease of holding the controlling shareholder liable; (5) ease of holding the approving body liable; and (6) access to evidence.	Djankov et al., 2008
Anonymous trust	Percentage of the respondents saying they trust people they meet for the first time. Uses the most recent data available from the past two surveys.	WVS, 2005-2014
Market capitalization	Average of the stock market capitalization to GDP.	WDI, 2014
Control premium	Difference between the price per share paid for the control block and the exchange price two days after the announcement of the control transaction, divided by the exchange price and multiplied by the ratio of the proportion of cash flow rights in the controlling block.	Djankov et al., 2008
Ln firms/pop	Log number of domestic companies listed on the country's stock exchange divided by population per million. Averaged from 2009 to 2012.	WDI, 2014
IPOs	Average ratio of the equity issued by newly listed firms (in thousands) to GDP (in millions) over the period 1996–2000.	Djankov et al., 2008
Turnover	Total value of shares traded divided by GDP. Measured from 2009 to 2012.	WDI, 2014
Log GDP	Log Gross Domestic Product per capita. Measured in 2012 or closest year available.	WDI, 2014
Time to collect	Log of calendar days of the judicial procedure to collect on a bounced check.	Djankov et al., 2003b
English	Dummy variable 0 or 1:1 indicates a country has English legal traditions.	La Porta et al., 2008
French	Dummy variable 0 or 1:1 indicates a country has French legal traditions.	La Porta et al., 2008
German	Dummy variable 0 or 1:1 indicates a country has German legal traditions.	La Porta et al., 2008
Scan	Dummy variable 0 or 1:1 indicates a country has Scandinavian legal traditions.	La Porta et al., 2008
Education 1960	Number of years of schooling of the total population above the age of 25 in 1960.	Glaeser et al., 2004
Executive constraints 1960	Institutionalized constraints on the decision making powers of chief executives in 1960. Scaled from 1 to 7, with 7 being more constraints.	Polity IV, 2013
Ethnic fractionalization	One minus the Herfindahl index of an ethnic group's share, which reflects the probability that two randomly selected individuals from a population belong to different ethnic groups.	Alesina et al., 2003
Religion 1970	Percentage of the population that is Catholic, Muslim, and Orthodox. Measured in 1970.	McCleary and Barro, 2006
Individual resp.	The average responses ranging from 1 to 10 from the question: People should take more responsibility to provide for themselves (score 10) or the government should take more responsibility to ensure that everyone is provided for (score 1).	WVS, 2005-2014

(continued on next page)

Appendix A (*continued*)

Variable	Description	Source
Uncertainty avoidance	The degree to which members of society are comfortable in unstructured situations. Highly uncertainty avoidant cultures are characterized by a strong need for predictability and control over the environment.	Hofstede, 2001
Power distance	Measures the degree to which less powerful members of society accept and expect power to be distributed unequally capturing how society handles inequalities among people. In low power distance cultures, people strive to equalize the distribution of power and demand justification for inequalities of power.	Hofstede, 2001
Individualism	The degree to which individuals are integrated into groups; assumes weak ties among group members. Denotes the extent to which society sees people primarily as individuals looking after themselves (high individualism) or primarily as members of tightly knit communities (low individualism).	Hofstede, 2001
Masculinity	Reflects the emphasis in society on caring for others, solidarity, and quality of life (Femininity), as opposed to achievement and success (Masculinity).	Hofstede, 2001
Democracy	Captures the level of democracy ranging from 0 to 10 with 10 representing strong democracy. Measured in 2013.	Polity IV, 2013
Corruption	Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Measured in 2012.	WGI, 2014
Rule of law	Measures the perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	WGI, 2014
Reg. quality	Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Measured in 2012.	WGI, 2014
Native	The percentage of a country's population with native ancestry in 1500 CE.	Ashraf and Galor, 2013
Unemployment	Refers to the share of the labor force that is without work but available for and seeking employment. Measured in 2012 or closest year available.	WDI, 2014
Growth	Annual percentage growth rate of GDP per capita. Measured in 2012 or closest year available.	WDI, 2014
Avg. school	Average years of schooling of the population over age 25 in 2000 or last year available.	Barro and Lee, 2001
Newspaper	Logarithmic number of newspapers and periodicals in circulation per thousand inhabitants in 2000 (or closest available).	Djankov et al., 2008
Pronoun drop	Dummy variable equal to 1 if the country's population speaks a language in which pronoun drop is permitted.	Licht et al., 2007
Rainfall variation	The natural log of the coefficient of intertemporal variation of monthly rainfall from 1900 through 2009.	Davis, 2016
Genetic distance	Measure of a country's genetic distance from the United States based on similarly non-expressed genetic material.	Spolaore and Wacziarg, 2009

Appendix B. First stage IV estimation

This table reports first stage regressions with the anonymous trust as the dependent variable. *Pronoun drop* equals one if the country's population speaks a language in which pronoun drop is permitted. *Rainfall variation* is natural log of the coefficient of intertemporal variation of monthly rainfall from 1900 through 2009. *Genetic distance* is a country's genetic distance from United States. All other variables are as described in Appendix A. Robust standard errors are reported in parenthesis. ***, ** and *denote significance at 1%, 5%, and 10%, respectively.

Dep. var: Anonymous trust	(1)	(2)	(3)	(4)
Pronoun drop	−11.766***	−11.659***	−12.301**	−11.446**
	(2.963)	(3.050)	(3.584)	(3.589)
Rainfall variation	12.601***	13.129**	10.779**	10.410**
	(3.398)	(4.050)	(3.335)	(3.577)
Genetic distance	−0.005**	−0.005**	−0.006**	−0.006**
	(0.002)	(0.002)	(0.002)	(0.002)
Democracy		0.486		0.056
		(0.446)		(0.505)
Corruption		4.572		5.968
		(5.509)		(5.235)
Rule of law		0.673		−3.030
		(6.864)		(6.413)
Reg. quality		−6.770		−2.958
		(4.971)		(5.835)

Appendix B (*continued*)

Dep. var: Anonymous trust	(1)	(2)	(3)	(4)
Native		−3.756		−1.659
		(6.464)		(6.208)
Unemployment			0.598**	0.614**
			(0.257)	(0.284)
Growth			−0.014	−0.141
			(0.733)	(0.776)
Avg. school			−0.193	−0.024
			(0.746)	(0.742)
Newspaper			4.101*	2.697
			(2.289)	(2.254)
French	−5.839*	−5.054	−8.160**	−8.262**
	(3.294)	(3.421)	(2.880)	(3.249)
German	−0.110	1.372	−3.771	−2.669
	(5.003)	(6.222)	(4.625)	(5.653)
Scan	21.441***	20.790**	15.889***	15.496**
	(4.697)	(6.840)	(4.295)	(6.596)
Log GDP	5.297**	5.383	2.039	1.837
	(1.597)	(3.334)	(2.251)	(4.995)
Constant	−11.039	−12.189	1.921	9.726
	(15.081)	(30.679)	(17.134)	(40.511)
Observations	42	42	40	40
Adj. R^2	68%	67%	76%	74%
F-stat	48.08	48.76	22.53	13.43

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