Firms of a Feather Merge Together: Cultural Proximity and M&A Outcomes

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Abstract

Using data from India, we show that cultural proximity between two firms' boards leads to a higher likelihood of the two firms entering a merger and acquisition (M&A) deal. This phenomenon may indicate firms' reliance on culture, as measured by caste, as an informal channel of information. But it may also be driven by directors' incentives for private gains (agency costs) or overestimation of synergies (optimism bias). If these alternative mechanisms are strong, caste-proximate deals may be sub-optimal. Indeed, we find that caste-proximate M&A deals create less value than caste-distant deals for both acquirer and target. The negotiation process and long run performance are also not significantly improved by caste-proximity. Teasing out mechanisms, we find no evidence for informational gains and optimism bias but strong evidence for agency costs. Overall, our findings show that information gains of reliance on culture are dwarfed by directors' agency problems leading to sub-optimal investment decisions.

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1 Introduction

The success of investment decisions hinges on the amount and quality of information available to investors. Thus, in environments characterized by information asymmetry, agents often rely on informal channels of information. For example, investors invest in geographically proximate firms and venture capitalists select startups founded by individuals ethnically similar to themselves.[1] An important corporate investment decision especially plagued by information asymmetry is whether to merge with or acquire another firm.[2] Studies show that firms considering M&A deals try to overcome information frictions by relying on alternative channels such as national cultural values, geographical proximity, and social ties of CEOs and directors.[3] However, it can also be costly to rely on such connections since they can create biases or incentives for private gains.[4] Thus, it becomes an empirical question whether the informational benefits of relying on these informal channels are strong enough to offset their negative effects.

In this paper, we examine the influence of a hitherto unexplored informal channel on firms' M&A decisions – the shared cultural identity of directors. We develop a simple model that predicts that cultural similarity among decision makers of two firms increases their likelihood of merging. This can result from greater information flows, directors overestimating the expected deal value, or maximizing private benefits. Deals engendered by the latter two mechanisms are likely to be value reducing relative to others. These theoretical predictions guide our empirical analysis. We choose the setting of Indian firms and investigate whether they rely on the cultural construct of the caste system to make M&A decisions, and whether it helps or hurts them. Our analysis shows that caste proximity among directors is a major driver of M&As but is detrimental for firms. Caste-proximate deals create lower firm values than caste-distant deals and do not yield improvements in negotiation outcomes or long run firm performance. We find weak evidence for informational gains and bias, but large rents for directors in caste-proximate deals.

India serves as a useful laboratory to study this question since the caste system of its

[1] See, among others, Coval and Moskowitz (1999) for home bias in investments, and Hegde and Tumlinson (2013) for venture capitalists' startup selections.

[2] See Eckbo et al. (1990).

[3] See Ahern et al. (2015), Uysal et al. (2008), Cai and Sevilir (2012), Ishii and Xuan (2014), and Rousseau and Stroup (2015).

[4] See, for example, Ishii and Xuan (2014) and El-Khatib et al. (2015).

majority Hindu society provides a uniquely narrow measure of cultural identity. This system has persisted since c. 1300 B.C. and divides the society into four hierarchical groups (*varnas*) – *Brahmins*, *Kshatriyas*, *Vaishyas*, and *Shudras* – in that order, and a fifth de facto lowest *varna* of *Dalits*. Within the five *varnas*, there are hundreds of sub-castes or *jatis*. An individual belongs to a certain *jati* and *varna* based on her lineage, making it completely exogenous to the individual.[5] Caste, albeit a cultural construct, influences myriad economic outcomes and people feel strong affinity to members of their own caste groups. As such, caste can both serve as a conduit for information flows[6] and create biases or agency problems.[7] [8]

A first examination of the data reveals that a high proportion of M&As in India are between firms with boards dominated by the same caste. In Table 1, we show the percentages of firms dominated by a given *varna* that acquire a target firm whose board is dominated by a given *varna* (rows add to 100%). The percentages on the diagonal, which represents same dominant-*varna* deals, are remarkably high. For example, 51.4% of all acquiring firms whose boards are dominated by *vaishyas* acquire targets whose boards are also dominated by *vaishyas*. The same is true for other *varnas*.[9] We observe a similar pattern if we consider the dominant *jati* of dealing firms' boards. Figure 1 presents a network graph where each node represents the dominant *jati* on a firm's board. The font size of each node is proportional to the number of same-*jati* deals. Two nodes are connected if there is an M&A deal between firms dominated by the two *jatis*, with the arrow emerging from the acquirer and pointing toward the target. The thickness of the connection is proportional to the number of deals between firms dominated by those particular *jatis*. Finally, the connections are in blue (red) if the number of same-*jati* deals for the acquirer's dominant *jati* is higher (lower) than the number of deals with firms dominated by different *jatis*. The graph is predominantly blue, revealing that for most *jatis* dominating an acquiring firm's board, the majority of the deals are with target firms dominated

[5]Historically, castes are endogamous and have been associated with occupations.

[6]See Munshi (2011) and Bönte and Filipiak (2012).

[7]See Bhagavatula et al. (2018), Damaraju and Makhija (2018) and Acharya et al. (2015).

[8]Two additional reasons make India a suitable setting for our question. First, India has witnessed rapid growth in the number of M&As in recent years. While in the year 2000, only 595 M&A deals were announced, the number of deals more than doubled to 1208 by 2017. Second, just like other economies, economic transactions in India are characterized by information frictions (see, Allen (2014) and David et al. (2016)).

[9]Note that the deals presented in Table 1 add to a total of 892 deals. The remaining deals in our dataset are such that either one or both firms in the deal have boards dominated by directors belonging to a non-Hindu religion.

by the same *jati*.[10]

Could this predominance of same-caste M&A deals be *caused* by cultural proximity between directors of dealing firms? We develop a simple model that formalizes three distinct mechanisms through which caste proximity can make deals between two firms more likely: it can positively affect the flow of information between dealing firms (information channel), directors might privately gain by associating with caste-proximate individuals (agency channel), or they may have a bias in favor of caste-proximate firms causing them to overestimate the value created from merging with them (optimism channel). The model predicts that in the presence of these channels, caste proximity between two firms makes an M&A deal more likely. The framework also provides predictions about the optimality of deals driven by these channels. We find that the information channel increases the likelihood that a deal is optimal. However, the optimism and agency channels increase the likelihood that a deal is sub-optimal. We use the predictions from this framework to guide the interpretation of our empirical results.

For our empirical analysis, we build a novel database of mergers and acquisitions in India during 2000-2017. We obtain data on M&As from Thomson One SDC and Prowess, a database of large Indian firms. The latter also provides us with data on corporate directors and firms' financial information. The caste (*varna/jati*) identities of directors are assigned using the last name to caste mapping developed by Bhagavatula et al. (2018).

We first assess whether a firm pair with caste proximate boards is systematically more likely to enter an M&A deal than others, as predicted by the model. To this end, we compare the percentage of mergers in our sample that are between caste (*varna* and *jati*) proximate firms to the corresponding percentages in several simulations wherein firms are matched in M&A deals randomly under a range of conditions. Across all simulations, the percentage of observed caste-proximate M&As is substantially higher than the corresponding mean percentages in the random samples. Thus, firms with boards dominated by the same caste enter deals systematically more often than other pairs of firms. We also estimate multivariate regressions that examine the association of caste proximity with the likelihood of mergers by stacking the sam-

[10]The largest node in Figure 1 is for the *Agarwal jati* which falls under the *vaishya varna*. This *varna* is historically associated with business and trading. Appendix Figure B.1 presents an alternative network graph that skips the *Agarwal* dominated firms. This graph reveals the same phenomenon that same-*jati* deals dominate the landscape of M&As in India.

ple of observed deals with synthetic matched non-merging firm pairs. The same results hold in these regressions for several measures of caste proximity.

Next, we ask how the value created in caste-proximate deals compares to other deals. We measure firm value as cumulative abnormal returns (CARs) of acquirer, target, and merged firms around the time of deal announcement. Results show that caste-proximate deals create lower value than caste-distant deals for both acquirer and target, and consequently for the merged entity. Thus, the market penalizes merger announcements between firms whose directors have similar caste backgrounds. Seen through the lens of our model, these results indicate that optimism bias and directors' agency dominate any informational advantages generated in caste-proximate M&As.

We attempt to empirically tease out these three mechanisms. To investigate if there are any informational advantages to caste-proximate deals, we examine cases where information asymmetry may be particularly pronounced due to factors such as small target size and assess whether the acquirers' reliance on caste-proximity is higher in such situations. We find no evidence of this. To assess if directors' incentives for private gains, drive caste-proximate deals, we look at the caste composition and compensation of acquiring firms' directors that are retained on the merged board. Data show that a significantly higher percentage of directors are retained when they belong to the dominant caste of the acquirer board compared to when they do not. This favorable outcome is even stronger for them when there are other indicators that the acquirer firms' board composition was influenced by caste. Retained directors who belong to the dominant caste of the acquiring board also see nearly a quadrupling of their compensation, on average, compared to a near doubling of the salaries of other retained directors. We take these results as indicating a strong presence of the agency channel. Finally, if optimism bias is present, we expect it to fall as directors learn through repeat M&As. However, we find no evidence of such learning when we examine the choices of serial acquirers.

We also examine whether negotiation outcomes (takeover premiums and time to deal completion) and post-deal firm performance (return on assets and operating cash flow) exhibit an association with caste proximity between the acquirer and target boards. Takeover premiums do not display a robust association with caste similarity of directors. The time to deal completion is shorter for caste-proximate M&As, a plausible benefit of trust between directors

with shared caste identities, but this association is not statistically significant. Firms that acquired caste-proximate targets also do not experience significant improvements in their long term performance relative to others.

Our paper relates to the broad literature on how culture affects economics outcomes. Papers have shown that cultural norms affect a vast range of economic phenomena such as female labor force participation, growth, public good provision, etc.[11] Closer to our study, some papers argue that agents' shared cultural identity affects outcomes such as loan disbursements and repayments (Fisman et al. (2017)) and research collaborations (Freeman and Huang (2015)). We contribute to this strand of work by documenting that caste similarity of corporate directors can affect firm decisions.

Researchers have only recently begun examining how culture affects firm decisions. Bloom et al. (2012) and Bloom et al. (2014) show that countries' cultural values affect firms' management practices. Several papers show that board composition along traits such as gender, culture, or country of origin affects firm performance (see, Ahern and Dittmar (2012), Bernile et al. (2018), Green and Homroy (2018), among others). A few others show that the cultural heritage of CEOs and corporate culture also affect M&A decisions (see, for instance, Malmendier and Tate (2005) and Pan et al. (2018). Closer to our paper, a few recent studies (Uysal et al. (2008), Jiang et al. (2018), Cai and Sevilir (2012), Ishii and Xuan (2014), Shi and Tang (2015) and Rousseau and Stroup (2015)) document the influence of social and geographical factors in M&As. To our knowledge, we are the first to examine how directors' shared cultural identities affect M&As. Our paper is unique since cultural identity, unlike social connections, is exogenously determined and our results show that it can strongly influence M&As even when directors may not have met each other. We are also able to measure this identity very narrowly, unlike gender, race, or country of origin. Closest to our paper, Ahern et al. (2015) show that the cultural distance between nations where firms are located increases the likelihood of cross-border M&As and the value created by them. An advantage of our setting is that we are able to measure cultural identities *within* a country allowing us to isolate cultural factors from

[11] See, among others, Alesina et al. (2013), Fernández (2013), Fernandez (2007), Fernández and Fogli (2006), Fernandez and Fogli (2009), Guiso et al. (2003), McCleary and Barro (2003), McCleary and Barro (2006), Noland (2005), Ashraf et al. (2007), Tabellini (2010), Fernández (2011), Alesina and Giuliano (2010), Campante and Yanagizawa-Drott (2015), Alesina et al. (2016), Benjamin et al. (2010), and Alesina et al. (1999).

country-level differences.

There is a large literature examining the interplay between caste and socio-economic outcomes in India. Most previous studies compare outcomes of disadvantaged and privileged caste groups (see, among others, Hnatkovska et al. (2012), Hnatkovska et al. (2013), Ghani et al. (2014), Damodaran (2008), Thorat and Neuman (2012), Jodhka (2010), and Varshney et al. (2012)). Instead, we focus on how agents' economic decisions are influenced by their shared caste backgrounds, regardless of whether they are disadvantaged or not. Only a few studies have examined caste through this lens (see Damaraju and Makhija (2018), Bhagavatula et al. (2018), Munshi (2011) and Fisman et al. (2017)). In particular, Munshi (2011) and Fisman et al. (2017) find positive effects of caste proximity on economic outcomes – occupational mobility and loan repayments, respectively. We conjecture that the reason why these studies find beneficial effects of caste networks is that in their settings, formal institutions may not be well functioning, so that caste networks may be filling a much needed information gap. However, in our setting of large public firms, the formal institutions are likely to be much better functioning. In this context then, relying on informal caste networks may do more harm than good.

The literature on M&As in India is sparse. Studies have documented the rise in acquisitions by Indian firms across industries and countries (Nayyar (2008) and Athreye and Kapur (2009)), market factors affecting them (Chidambaran et al., 2018), and their experiences (Banerjee et al. (2014), Chakrabarti (2007), Zhu and Malhotra (2008), Gubbi et al. (2010), and Kohli and Mann (2012)). No previous study examines how cultural factors affect M&As in India.

The rest of the paper is organized as follows. Section 2 develops the model. Section 3 describes our data sources. In section 4, we show that firms with caste-proximate boards are systematically more likely to enter M&A deals. Section 5 demonstrates that cumulative abnormal returns for acquirer, target, and merged entity are negatively associated with the announcement of deals between caste-proximate firms. In section 6, we document that negotiation process and post-merger firm performance are also not aided by caste proximity among directors. Section 7 investigates the presence of information, agency and optimism channels. Section 8 concludes.

2 A Simple Model

How can cultural proximity between two firms influence their likelihood of entering an M&A deal? We take the perspective of an acquirer whose board has to decide whether to merge with target t. Cultural characteristics of the acquirer and target are represented by θ_a and θ_t respectively. We assume that the value of the merged entity, X, can either be high, $X = X_H > 0$, or low, $X = X_L$. For simplicity, we assume $X_L = -X_H$. There is a common initial prior, p, that the value of the merged entity is high, i.e $Pr(X = X_H) = p$. Again, for simplicity, we assume $p > 0.5$. Note that value X captures the realized synergy between the target and acquiring firms.

We assume that cultural distance between the two firms, $c = \theta_a - \theta_t$, affects the decision making of acquirer's board through three mechanisms – information, agency, and optimism.

Under the information channel, cultural proximity between two merging firms increases the likelihood that the acquirer's board is privy to publicly unavailable information about the target. Thus, cultural proximity increases the chance that the acquirer receives a more accurate signal about the merged entity's value. The signal, s, received by the acquirer can be High, H, or Low, L. We assume that the likelihood that the signal is accurate is:

$$Pr(s = H|X_H) = Pr(s = L|X_L) = r + f(c) \tag{2.1}$$

where r is interpreted as the precision of the signal received by a firm that does not give any weight to cultural proximity. $f(c)$ is that part of the precision of the signal which increases as cultural distance decreases, i.e. $f'(c) < 0$. To make signals informative, we assume $r > 0.5$.

Optimism, in our framework, means that an acquirer's board that is culturally proximate to a target's board is more optimistic about high value creation than otherwise. Specifically, the acquirer's board assigns a greater weight to the likelihood of high value creation beyond the initial common prior, p. This additional weight or the degree of optimism, $g(c)$, is a decreasing function of cultural distance. Thus, the acquirer's board has the following prior about the likelihood of high value creation by merging with a target with cultural distance, c:

$$Pr(X = X_H) = p + g(c) \tag{2.2}$$

Under the agency channel, the acquirer's board may have an inherent preference to align with people who are culturally similar, thus receiving an additional private benefit from merging with a culturally proximate target.[12] This benefit, $\omega(c)$, is a decreasing function of cultural distance, c, i.e. $\omega'(c) < 0$. Thus, expected utility of the board is:

$$\lambda EU(s; p, c) = \lambda[X_H Pr(X_H|s, c, p) + X_L Pr(X_L|s, c, p)] + \omega(c), \forall s \in \{H, L\} \tag{2.3}$$

where, the acquirer's board derives utility from expected value from the deal but also receives benefits which depend upon the cultural proximity of the two firms. In the above expression, λ may be interpreted as the board's share in the merged firm's value.

Our first result relates to the effect of cultural distance on the decision to merge.

Hypothesis: *The likelihood of an M&A deal increases as cultural distance falls.*

We show that, ceteris paribus, the expected utility of the acquirer board from a deal increases with a decrease in cultural distance. This translates to the likelihood of a deal increasing with a decrease in cultural distance. This is explained as follows. The board's decision to merge with firm t, characterized by (p, c) depends upon the signal it receives. The board chooses to merge with the firm t iff $EU(s; p, c) \geq 0$. Given that $X_L = -X_H$ and $Pr(X_L|s, c, p) = 1 - Pr(X_H|s, c, p)$, the board's expected utility can be re-written as:

$$EU(s; p, c) = \lambda[X_H[2Pr(X_H|s, c, p) - 1]] + \omega(c), \forall s \in \{H, L\} \tag{2.4}$$

We can re-write $P(X_H|s = H, c, p) = \frac{(r+f(c))(p+g(c))}{(r+f(c))(p+g(c))+(1-(r+f(c)))(1-p-g(c))}$. Since, $f(c), g(c)$, and $\omega(c)$ are decreasing functions of c, $EU(s; p, c)$ is also a decreasing function of c. Hence, the board's expected utility from merging with firm t is a decreasing function of cultural distance. Thus, the likelihood of an M&A deal increases as cultural distance between the two firms falls.

Next, we analyze the market response to culturally proximate M&As. We believe that the market will evaluate culturally proximate mergers positively if the likelihood of making a sub-optimal decision is lower for culturally proximate firms. Our model predicts that the effect of cultural proximity on the likelihood of making a sub-optimal decision varies with the relative strengths of the three mechanisms. Therefore, to understand the effect of culture on the likeli-

[12] This additional benefit may or may not be monetary.

hood of making a sub-optimal decision we analyze each mechanism separately.

Information Channel

Here, we assume that the only way culture influences the decision making of the acquirer's board is through the information channel. i.e. $g(c) = 0$ and $\omega(c) = 0, \forall c$. The board's decision to merge with firm t, characterized by (p, c) depends upon the signal it receives. When only the information channel operates, the board's expected utility from merging with firm t upon receiving signal s is:

$$EU(s; p, c) = \lambda[X_H Pr(X_H|s, c, p) + X_L Pr(X_L|s, c, p)], \forall s \in \{H, L\}$$

The board chooses to merge with the firm t if and only if $EU(s; p, c) \geq 0$. Given that $X_L = -X_H$ and $Pr(X_L|s, c, p) = 1 - Pr(X_H|s, c, p)$, the board's problem reduces to evaluating if its updated belief about high value creation is more than half.

The decision of the acquirer board to merge with firm t is not obvious. Consider the case when the board receives a high signal. Using Bayes' rule, the updated belief about high value upon receiving a high signal is $\frac{(r+f(c))p}{(r+f(c))p+(1-(r+f(c))(1-p)}$. Given that $p, r \geq 0.5$, this updated belief is always more than half, incentivizing the board to always merge with firm t when it receives a high signal. However, if the board receives a low signal, the updated belief about high value is $\frac{(1-(r+f(c)))p}{(1-(r+f(c))p+(1-p)(r+f(c))}$. This updated belief is greater than half only if the initial prior about high value is sufficiently high, i.e. $p > r + f(c)$. Thus, for high enough initial prior, i.e. $p > r + f(c)$, the acquirer's board always chooses to merge. However, if the initial prior is less than $r + f(c)$, the board chooses to merge only when it receives a high signal.

In the eye of the market, an acquirer makes a sub-optimal decision if it merges with firm t conditional on the underlying true value created equaling X_L. The acquirer also makes a sub-optimal decision if it does not merge when the underlying true value created equals X_H. Thus, the likelihood of the board making a sub-optimal decision is:

$$Pr[\text{Sub-optimal Decision}] = Pr(X_L)Pr[\text{Merge}|X = X_L] + Pr(X_H)Pr[\text{Do Not Merge}|X = X_H] \tag{2.5}$$

When the information channel is the only mechanism present, this can be written as:

$$Pr[\text{Sub-optimal Decision}] = \begin{cases} 1 - p & \text{if } p \geq r + f(c), \\ 1 - (r + f(c)) & \text{if } p \in (0.5, r + f(c)) \end{cases}$$

For a merger between two firms with cultural distance, c, the probability of making a sub-optimal decision is represented by the blue line in Figure 2. For an initial prior less than $r + f(c)$, the board makes a sub-optimal decision by merging when it receives a high signal and the underlying value is X_L. It also makes a sub-optimal decision if it does not merge when it receives a low signal and the underlying value is X_H. Both of these happen with probability $1 - (r + f(c))$. For an initial prior greater than $r + f(c)$, the board always merges and makes a sub-optimal decision if the underlying value is X_L. This happens with probability $1 - p$.

The red line denotes the likelihood of making a sub-optimal decision when cultural distance is c', where $c > c'$. Since $f(c)$ is a decreasing function of c, the probability of making a sub-optimal decision for a merger with lower cultural distance is the same or less for all values of p.

In summary, the likelihood of a sub-optimal M&A deal decreases with cultural proximity when only the information channel is present. As such, holding all else equal, if the information channel is dominant, we would expect to see a more favorable market reaction to culturally proximate mergers.

Agency Channel

Here, we assume that the only way culture influences the decision of the acquirer board is through the agency channel. i.e. $f(c) = 0$ and $g(c) = 0, \forall c$. The board's problem is similar to that discussed above. It chooses to merge with firm t if and only if $EU(s; p, c) \geq 0$ which occurs iff $Pr(X_H|s, p, c) \geq L(c)$ where $L(c) = \frac{X_H - \omega(c)}{2X_H}$. When it receives a high signal, the updated

belief about high value is always greater than $L(c)$. However, if it receives a low signal, the updated belief about high value is $\frac{(1-r)p}{((1-r)p+(1-p)r)}$. This is greater than $L(c)$ only if the initial prior about high value is sufficiently high, i.e. $p > L^*(c)$, where $L^*(c) = \frac{rL(c)}{(rL(c)+(1-r)(1-L(c))}$. Thus, for a high enough initial prior about the merged entity's value, $p > L^*(c)$, the acquirer board always chooses to merge with the target. However, if the initial prior is not high enough, $p \leq L^*(c)$, the acquirer board chooses to merge only when it receives a high signal.

The likelihood of making a sub-optimal decision in this case is:

$$Pr[\text{Sub-optimal Decision}] = \begin{cases} 1-p & \text{if } p \geq L^*(c), \\ 1-r & \text{if } p \in (0.5, L^*(c)) \end{cases}$$

For a merger between two firms with cultural distance c, the probability of making a sub-optimal decision is represented by the blue line in the Figure 3. For an initial prior less than $L^*(c)$, the board makes a sub-optimal decision by merging when it receives a high signal and the underlying value is X_L. It also makes a sub-optimal decision if it does not merge when it receives a low signal and the underlying value is X_H. Both of these happen with probability $1-r$. For an initial prior greater than $L^*(c)$, the board always merges and makes a sub-optimal decision if the underlying value is X_L. This happens with likelihood $1-p$.

The red line denotes the likelihood of making a sub-optimal decision when cultural distance is c', where $c > c'$. Since, $L^*(c)$ is an increasing function of c, the probability of making a sub-optimal decision for a merger with lower cultural distance is the same or more for all values of initial prior.

In summary, the likelihood of a sub-optimal M&A deal increases with cultural proximity when only the agency channel is present. As such, holding all else equal, if the agency channel is dominant, we would expect to see more a negative market reaction to culturally proximate mergers.

Optimism Channel

Now suppose that the only way culture influences the decision making of the acquirer board is through optimism. i.e. $f(c) = 0$ and $\omega(c) = 0, \forall c$. The board's problem is similar to that

discussed above. It chooses to merge with firm t if and only if $EU(s;p,c) \geq 0$ which occurs iff $Pr(X_H|s,p,c) \geq 0.5$. When it receives a high signal, the updated belief about high value is $\frac{r(p+g(c))}{r(p+g(c))+(1-r)(1-p-g(c))}$, which is always greater than 0.5. However, if it receives a low signal, its updated belief about high value is $\frac{(1-r)(p+g(c))}{((1-r)(p+g(c))+(1-p-g(c))r)}$. This is greater than 0.5 only if the initial prior about high value is sufficiently high, i.e. $p > r - g(c)$. Thus, for a high enough initial prior about the merged entity's value, $p > r - g(c)$, the board always chooses to merge. However, if the initial prior is not high enough, $p \leq r - g(c)$, it chooses to merge only when it receives a high signal.

The likelihood of making a sub-optimal decision in this case is:

$$Pr[\text{Sub-optimal Decision}] = \begin{cases} 1-p & \text{if } p \geq r - g(c), \\ 1-r & \text{if } p \in (0.5, r - g(c)) \end{cases}$$

For a merger between two firms with cultural distance c, the probability of making a sub-optimal decision is represented by the blue line in the Figure 4. For an initial prior less than $r - g(c)$, the board makes a sub-optimal decision by merging when it receives a high signal and the underlying value is X_L. It also makes a sub-optimal decision if it does not merge when it receives a low signal and the underlying value is X_H. Both of these happen with probability $1-r$. For an initial prior greater than r-g(c), the board always merges and makes a sub-optimal decision if the underlying value is X_L. This happens with likelihood $1-p$.

The red line denotes the likelihood of making a sub-optimal decision between when cultural distance is c', where $c > c'$. Since, $g(c)$ is a decreasing function of c, the probability of making a sub-optimal decision for a merger with lower cultural distance is the same or more for all values of p.

In summary, the likelihood of a sub-optimal M&A deal increases with cultural proximity when only the optimism channel is present. As such, holding all else equal, if the optimism channel is dominant, we would expect to see a more negative market reaction to culturally proximate mergers.

3 Data and Descriptive Statistics

3.1 Data Sources

We combine data from three main sources: Thomson One SDC, Prowess, and the last names to caste mapping developed by Bhagavatula et al. (2018). We describe each of these sources below. Definitions of all variables are provided in Appendix A.

Thomson One SDC: The deals database of Thomson One SDC is our main source for M&A deals among Indian firms. It provides information on three kinds of deals – mergers, acquisitions, and sale of assets. To use these data, we start with the population of all M&A deals during 2000-2017 where both acquirer and target are Indian firms. Next, we collect several deal related variables – announcement date, effective date, deal status,[13] transaction value, percentage of transaction value paid in cash, toeholds, and the time taken to complete the deals.[14]

Prowess: Prowess is a database of large public, private, and government owned firms that account for about 84% of India's GDP. The data are sourced mainly from annual reports, quarterly financial statements, and profit and loss accounts of firms. Thus, information on all listed companies that are reasonably active on the major stock exchanges of India is available in the database. Though the database includes mostly public firms, a smaller number of private firms are also included. The reason for smaller coverage of these firms is that they are not required to disclose their financial statements. The sample period we consider is 2000-2017, as the number of firms covered by Prowess is much smaller prior to 2000. We use detailed data on several financial variables and other characteristics of these firms – size (real assets), export status, state of incorporation, industry (National Industrial Classification (NIC) 2008), public status, operating cash flow relative to assets, debt-to-assets ratio, and return on assets (sales - operating expenses).

We gather additional M&A deals from Prowess.[15] For each deal, we can identify the acquirer

[13] We only take completed and pending deals.

[14] Occasionally, we see the same two firms entering in multiple deals on the same day, although they have different SDC deal numbers that uniquely identifies the deal. In these cases, we randomly choose only one deal for the two firms on that day.

[15] Prowess only records deals for which at least one of the transacting firms is already covered in its sample.

and target firms. Further, we see several events related to a deal, such as first media announcement, stock exchange announcement, high court approval, etc., along with their respective dates. We take chronologically the first event with the word "announcement" to identify the announcement date of the deal.

Using data on firm characteristics, we create several deal related variables. Deals are classified as horizontal when the firms belong to the same two digit industry, vertical when they belong to industries that have a producer-supplier relationship.[16] The remaining deals between firms belonging to different industries that do not appear in the same supply chain are classified as unrelated. We also calculate the size of the acquiring firm relative to that of target, and measure acquirer's stock performance and volatility in the year prior to the deal.[17] We additionally identify whether a deal occurs between firms in the same state or between states speaking predominantly the same language so as to control for other factors that might influence deals.

We consider three deal specific variables: announcement period cumulative abnormal returns (CAR) for acquirer, target and merged firms, takeover premiums, and time to completion. The CAR for a given firm's stock is defined as the difference between the return on the stock over the announcement window minus the corresponding return on the market index. Specifically, we first calculate the abnormal daily return as $ar_{i,t} = r_{i,t} - r_{m,t}$, where $r_{i,t}$ and $r_{m,t}$ represent the daily returns, in logs, of firm i's stock and of market index portfolio (Bombay Stock Exchange (BSE) Sensex or BSE 500), respectively.[18] Then, we calculate the *cumulative* abnormal return, CAR, for firm i in time period t, by summing the daily abnormal returns over the event window as follows: $CAR_{it} = \sum_{\text{event window}} ar_{i,t}$, where the event windows we consider are $[0, 1]$, $[-1, 1]$, and $[-2, 2]$ centered on $t = 0$, the day of the deal's public announcement. The CAR for the merged entity is calculated as the weighted sum of the CARs of the acquirer and target firms where the weight is the market capitalization of the acquirer (target) relative to the sum of the

[16] Prowess provides information on products produced and inputs used by firms. Combining this information with their two digit NIC classifications, we are able to determine whether two industries have an upstream-downstream relationship. Alternatively, we use the input-output tables available from the Ministry of Statistics and Programme Implementation to cross validate our classification.

[17] We can observe stock related information only for a subset of public target firms that are publicly traded. Hence, we do not control for their stock related information in our regressions.

[18] While the majority of firms are traded on BSE, some are traded on the National Stock Exchange (NSE). For these firms, we use the NSE NIFTY 50 index. Note that the daily return is adjusted for corporate actions like stock splits, bonus and dividend declarations.

market capitalizations of both firms 43 trading days prior to the announcement date.[19] Takeover premium is defined as the transaction value divided by the percentage of shares acquired times market capitalization of the target 43 trading days before announcement. We also measure the merged firm's performance as its operating cash flow relative to total assets (OCF) and return on assets (ROA) either one or two years post deal completion.

Finally, we obtain information on firms' boards of directors. The main variable of interest with regard to boards is their caste composition, as this is needed to calculate caste proximity between boards of firms entering an M&A deal. For this purpose, we use the last name to caste mapping developed by Bhagavatula et al. (2018) to assign directors their most likely *varna* and *jati*. The procedure for identifying *varna* and *jati* is described below. We also calculate several corporate governance measures. We consider the size of the board and an indicator for CEO duality, i.e, whether the chairperson of the board is also the CEO of the firm. Additionally, we measure board interlocks between firms entering an M&A deal. For this purpose, we use unique director identification numbers (DINs) (or names when DINs are unavailable) and see whether there are any individuals with the same DINs or names serving on the boards of both firms. We create an indicator that takes the value of one when there is at least one such member and zero otherwise.[20] We also include the caste concentration of each individual board as a governance measure. This is simply the caste-based Hirschman-Herfindahl index (HHI) of the board and is calculated by summing the squared shares of each *varna* (*jati*) represented on a board.

Last name to caste mapping: To measure caste proximity between firms entering an M&A transaction, we first need to identify castes of directors serving on the two boards. To that end, we use the probabilistic mapping of last names to *varna* and *jati* developed by Bhagavatula et al. (2018). While the authors describe the methodology underlying this mapping in detail in their paper, we provide a brief summary here. The mapping exploits two aspects of the caste system in India: (a) caste is endogamous and (b) last names are indicative of caste. Data are taken on profiles of six million individuals registered on three matrimonial websites which contain infor-

[19]The choice of 43 days is based on Schwert (1996) who finds that on average target firm stock price starts to rise about two months before the initial bid announcement. Hence, our estimation procedure is likely to minimize potential bias in announcement returns due to investor anticipation or information leakage before the deal announcement.

[20]Matching of director names between boards is done manually.

mation on individuals' last names and their self-identified religion, *varna*, and *jati*. All spelling variations of a last name are grouped together and considered as one last name. Since the same last name may not always belong to the same caste, the authors probabilistically assign castes (*varnas* and *jatis*) to all last names in the group. The probability for a last name belonging to a given caste equals the proportion of times the users with that last name self-identify as belonging to that caste. We use this last name to caste mapping to assign a caste mapping to each director based on his/her last name. Next, we assign a director as uniquely belonging to the most likely caste for his/her last name from the mapping.[21] Further, we are unable to find all directors' last names in the Bhagavatula et al. (2018) mapping. As a result, there are several firms for which we cannot assign caste to all their directors across all years. Requiring 100% caste assignment for a firm's board in every year severely reduces the sample size. Thus, we retain all firm-year observations for which we can identify caste for at least 85% of the directors.

Other sources: We additionally obtain information from several other data sources. To calculate the cumulative abnormal returns after deal announcement, we get the S&P Bombay Stock Exchange (BSE) Sensex and S&P BSE 500 index from the BSE website, and the NIFTY 50 index from the National Stock Exchange (NSE) website. In our regressions, we control for whether a deal is between firms located in states that speak the same language. Language information is gathered from the population census. We compare our classification of deals as vertical, horizontal, or unrelated against what results from using the input-output tables available from the Ministry of Statistics and Programme Implementation. We find that there are some deals that are classified as vertical using Prowess data that would be deemed unrelated using the input-output tables. In cases of these discrepancies, we rely on Prowess based classification since it uses more detailed information. Finally, we deflate nominal values by the all-India CPI for industrial workers available from the Reserve Bank of India (2001=1).

Appendix A provides all variable definitions.

[21] The average likelihood of the most likely caste is quite high (73% for *varna* and 59% for *jati*).

3.2 Building the Sample of M&As

To build our final sample of M&A deals, we begin with the population of M&A deals in SDC and later combine additional deals from Prowess. However, all deals are ultimately matched across both data sources since neither database alone provides all the information about deals and firms that we need for our analyses. To match deals between SDC and Prowess, we first use ticker symbols of firms traded on BSE and NSE. However, these are not available for many firms. Therefore, we additionally match on firm names between the two data sources.[22] In matching deals between the two sources, we also match on the announcement dates besides firm names. Here, we observe that the announcement dates are not exactly the same for some deals. In cases of discrepancy we allow a difference of up to 30 days between SDC and Prowess announcement dates for a deal to be retained in the sample. In our analysis, we use SDC announcement dates even when there is a discrepency between announcement dates in SDC and Prowess. We also drop all M&A deals that occur within the same corporate entity. For all deals thus obtained, we combine them with data on the financial, board, and other characteristics of the acquirer and target firms as described in section 2.1. To get board and financial information of firms, we go back at most one year from the date of deal announcement.

Note that requiring data on all variables needed for our analysis quickly leads the sample size to shrink. In particular, we lose observations mainly because of two factors. Targets are often smaller firms that we are unable to find financial and board information for. Second, we are unable to find caste identity for all directors' last names using the Bhagavatula et al. (2018) mapping. We retain deals only among those firms for which we could identify caste for at least 85% of their directors. In our final sample, we have 1255 M&A deals for the period 2000-2017. Of these 1255 deals, 734 deals have complete information for all required control variables.

Measures of caste proximity: We define the cultural proximity between any two firm boards in three distinct ways. Our first measure of cultural proximity is an indicator variable that takes on the value of 1 if the two boards have the same dominant *varna* (*jati*). Second, we define a continuous variable which measures the percentage of same *varna* (*jati*) pairs among all possible

[22] We use all name matches with a Stata match score of at least 0.85 and manually check all matches below a score of 1.

pairwise combinations of directors between the two boards. Finally, we define a measure which calculates the distance (absolute value) between the dominant *varnas* of the two boards using the hierarchy of the castes, so that pairs of dominant *varnas* which are close in the hierarchy are assigned smaller values than pairs of dominant *varnas* that are farther apart in the hierarchy. Online Appendix A provides examples that illustrate these measures of cultural proximity.

3.3 Sample Statistics

Table 2 presents basic summary statistics for the final sample. Panel A presents basic firm characteristics for the two end points of our sample – 2000 and 2017. We note that the average size of firms, as measured by real assets, has grown considerably over the sample period. Also, a large proportion of firms are public, although it is higher at the beginning of the period. Panel B presents characteristics specific to M&A deals in the sample. The majority of deals are between public firms. Slightly less than half of the deals are among firms located in the same state or with directors who dominantly speak the same language. Nearly 74% of all deals are cash financed. Further, as expected, acquirers are larger than targets, and a larger proportion of them are public. Acquirers have higher returns on assets, are less leveraged, have less tangible assets, and have lower Tobin's Q. Panel C presents caste-proximity characteristics for merging firms. We see that 39% (21%) of all deals are among firms whose boards are dominated by the same *varna* (*jati*). The mean *varna* overlap is 23% and the mean *varna* hierarchy indicates that, on average, the dominant caste of acquirer boards is over three caste categories higher than the dominant caste of the target board.

4 Caste Proximity Increases Likelihood of M&A

The first step in our empirical analysis is to examine whether caste proximity between two firms' boards increases the likelihood of them entering an M&A deal. We describe our empirical strategy for this purpose, followed by results.

4.1 Empirical Approach

We use two approaches: (a) Univariate approach using simulations (b) Multivariate regression exploiting cross-sectional variation.

Univariate Approach: The main challenge that we face in addressing this question is that the data are censored, i.e., we do not observe firm pairs that did not engage in M&A deals. To overcome this challenge, in this approach we compare the sample of observed M&A deals to different subsets of firm pairs that could *potentially* have merged. For every sample of potential mergers created, we test whether the average caste proximity of firm pairs that are observed to engage in M&A deals every year is statistically different from the corresponding yearly average across one hundred simulated samples in which firm pairs are randomly selected. The null hypothesis is that firms pair by chance, while the alternative is that firms are more likely to pair in M&A deals if they are caste proximate. We employ three broad methods to create synthetic samples of potential mergers.

In the least limiting case, for every observed merger in a year we draw a completely random acquirer and a completely random target from the set of all firms for which we have financial and board information in that year. We refer to this sample as the unconditional simulated sample. For the next simulation in this case, we condition our choice of random firms on the industry pairs observed in the sample of actual M&A deals. Specifically, for every observed merger deal in every year, we randomly draw from the sample of all firms, one firm from the acquiring firm's industry (two digit NIC) and one firm from the target firm's industry. Under this approach, we are able to compare the average observed incidence of caste proximate deals to that in the conditional simulated sample, while controlling for the distributions of castes of directors across industries and the distribution of industry pairings among the observed deals. We refer to this sample as the industry-pair conditionally simulated sample. Next, we condition our selection of random firms on the state pairs appearing in the sample of observed M&As. Specifically, for every observed deal, we randomly draw one firm from the acquiring firm's state and one firm from the target firm's state from the sample of all firms in that year. Here, a comparison of the caste proximity of observed deals to those in this conditional simulated sample of deals

controls for the caste distribution of directors across states and the state-pair distribution in the observed deals sample. We refer to this sample as the state-pair conditionally simulated sample. Refer to Online Appendix B for examples.

In a second, more limiting case, we condition our simulated samples on the identity of acquirers and targets. In the acquirer conditional simulated samples, we draw a random target firm for each observed acquiring firm. We create three acquirer conditional samples by varying the criterion used for drawing the random target. We draw the random target (1) from the set of all firms in a given year, (2) from the set of firms in the industry of the observed target, and (3) from the set of firms headquartered in the same state as the observed target. Analogously, we create target conditional samples, where we draw a random acquirer firm for each observed target firm using the same three criteria: (1) from the set of all firms, (2) from the set of firms in the observed target firm's industry, and (3) from the set of firms headquartered in the observed firm's state. Refer to Online Appendix B for examples.

Finally, we create a simulated sample conditional on observed participation in the M&A market. For this simulation, we take as our universe of firms the set of observed acquirers and targets. We randomly pair a target to an acquiring firm from this universe. In the observed M&A participant conditional sample, we effectively control for any unobserved characteristics that make firms likely to engage in M&A deals. Refer to Online Appendix B for examples.

For each of these simulation methods, we draw a hundred random samples. The number of simulated pairings in each sample is equal to the number of observed M&A deals in a given year. We then test whether the average caste proximity in the simulated pairings is statistically lower than the corresponding average for the observed M&As. The results are described in section 4.2.

Exploiting cross-sectional variation: In an alternative approach following Bena and Li (2014), we estimate multivariate linear probability models to examine the association between caste proximity of two firms' boards and the likelihood of M&A between them. The dependent variable takes the value 1 when the pair of firms is observed to have entered an M&A deal. It takes the value 0 for all synthetic firm pairs that did not merge. We choose the synthetic pairs from a population in which the original acquirers are matched with all potential target firms in the industry of the observed target. From this population, the five nearest neighbor observations

are matched using a propensity score based on target size, acquirer size, and relative size; state pair fixed effects, industry pair fixed effects, and year fixed effects. These matched synthetic deals constitute our control sample. Among other regressors we include several firm and firm-pair characteristics, along with year, industry pair, and deal fixed effects. Note that the deal fixed effects identify the set of one observed deal and five matched synthetic deals. Specifically, we estimate the following regression:

$$I(M_{i,j,t}) = \beta_0 + \beta_1 CP_{i,j,t} + \beta_2 X^A_{i,t} + \beta_3 X^T_{j,t} + \beta_4 X^{AT}_{i,j,t} + \beta_5 D_{i,j,t} + \eta_{i,j} + \tau_t + \gamma_{ij} + \epsilon_{i,j,t} \quad (4.1)$$

where $I(M_{i,j,t})$ is a binary outcome that takes the value 1 if the firm pair (i, j) entered into an M&A deal in year t, $CP_{i,j,t}$ represents the caste proximity of the firm pair (i, j) in year t, $X^A_{i,t}$ is a vector of time varying characteristics of the acquiring firm, $X^T_{j,t}$ is a vector of time varying characteristics of the target firm, $X^{AT}_{i,j,t}$ is a vector of time varying characteristics of the i, j pair, $D_{i,j,t}$ represents a vector of deal characteristics other than caste proximity, $\eta_{i,j}$ denotes industry-pair fixed effects, τ_t are year fixed effects and γ_{ij} are deal fixed effects. The coefficient of interest, β_1, captures the association between board caste proximity of the firm-pair with the likelihood that the pair enters an M&A deal. The identification of this coefficient comes from within deal-set variation. Caste proximity is measured in all the ways described in section 3 – same-*varna*, same-*jati*, *varna* overlap, *jati* overlap, and *varna* hierarchical distance. Acquirer and target characteristics include their size (real assets), whether they are public, whether they are exporters, their ages, their board sizes, whether their CEOs also serve as the board chairs, and caste homophily of their boards. For acquirers, we additionally include their operating cash flow relative to total assets and leverage. The pair characteristics include their relative size, whether they belong to the same business group, whether they are located in the same state and whether their directors predominantly speak the same language. Deal characteristics include whether they are a vertical, horizontal, or unrelated M&A. The results are described in section 4.2.

4.2 Results

Figure 5 presents comparisons of the percentages of caste (*varna*) proximate M&A deals in our sample to corresponding percentages in the simulations described above. The figure is organized into four panels. Panel A presents results for simulations where we randomly choose both acquirer and target firms. Panel B presents results for simulations where we choose a random target for each observed acquirer firm in our sample. Panel C presents results for simulations where we choose a random acquirer for each observed target firm in our sample. Panel D presents results from simulations where we choose random targets and acquirers from our observed sample of firms engaged in M&A deals. For panels A, B, and C, the three graphs are for simulations that are: (a) unconditional, (b) conditional on observed industry-pairs, and (c) conditional on observed state-pairs. It is clear that across simulations, the percentage of observed caste-proximate M&As among all deals is systematically higher than the corresponding percentages in simulated samples. While the incidence of same-*varna* deals hovers around 40% in most years during 2000-2017, the corresponding mean incidence in the simulations is closer to 20%. Further, in all years except 2001 and 2003, the observed percentage of same-*varna* deals also lies above the confidence intervals around the simulated means. The results are equally remarkable for caste measured as *jati* presented in Figure 6.

Table 3 shows the overall comparison across all years of the percentages of caste-proximate M&A deals in the observed and simulated samples. In the top row we present the percentage of same-*varna* mergers in the observed sample (40.11%). Column 1 presents the average over all years of the mean percentages of same-*varna* deals across a hundred random samples for each type of simulation. In column 2, we present the difference between the observed percentage and the average percentage in the simulated sample. In column 3, we present the t-statistics for a test of whether the observed percentages of same-*varna* deals are statistically higher than the corresponding simulated means. The table shows that for each type of simulation, the observed proportions of same-*varna* M&As are substantially higher than the corresponding simulated means by a wide margin. The observed percentage of same-*varna* mergers, 40.11%, is about twice as high as the simulation means which range from 15.47% to 20.34% across the ten criteria. These differences are all highly statistically significant. We see analogous results when caste is

measured as *jati*. Table 4 shows that while the observed percentage of same-*jati* M&A deals is 22.53%, the simulated mean percentages are less than half of that, ranging from 5.6% to 7.67% across the ten simulations. Again, the differences are highly statistically significant.

Results in Figures 5 and 6 and Tables 3 and 4 together demonstrate that caste-proximate mergers do not occur by chance. Firms are systematically more likely to choose to enter M&A deals with other firms when their boards are dominated by directors belonging to the same castes.

Further, we show that caste has an independent role to play in increasing the likelihood of M&A deals even after controlling for other informal cultural channels of information or sources of bias. In particular, Appendix Tables C.1 and C.2 present the proportions of *varna* and *jati*-proximate mergers, respectively, in simulated versus observed samples, for two relevant sub-samples: (1) when the firms that actually merge are headquartered in the same state and (2) when the directors of the two boards dominantly speak the same language. State and language also have a bearing on agents' cultural identities, and hence may constitute alternative groups along which they share information or display biases. In both sub-samples, and for each different set of criteria for generating the simulated set of firm-pairs, the proportion of same-*varna* mergers in the observed sample is statistically significantly higher than that in the simulated sample, as evidenced by the positive and statistically significant t-statistics for the difference in means tests displayed in column 4 of both tables. This shows that even when other informal information channels exist, for example common language and geographical proximity, caste-proximity still systematically influences deal likelihood. Further, we also conclude that caste is a salient cultural factor influencing this important investment decision since it continues to play a role in M&A deals even after controlling for two other possible cultural proximities between firms – same state and same language.[23]

Next, in Table 5, we present results from the multivariate linear probability regression model (equation 4.1) estimated on a stacked sample of observed mergers and synthetically created pairs

[23]As mentioned earlier, people's last names are associated with their *jati* and *varna*. Given this, we consider the possibility that same last name, as opposed to same *jati* and *varna*, may be the relevant cultural dimension influencing deals. However, this possibility is not supported by the data. We see that of all the same-*varna* (*jati*) deals, only 25.11% (44.31%) are also same-last name. Thus, the majority of same-caste deals have different dominant last names in the target and acquirer boards, indicating that caste instead of last names, is the relevant cultural dimension driving M&A deals.

of firms which do not merge using the propensity score matching procedure described in section 4.1. The dependent variable is an indicator for whether a merger occurs. Across columns we use different measures of caste-proximity described in section 3. The main coefficient of interest is on caste-proximity, displayed in the first row of the table. We find that irrespective of how we measure caste-proximity, caste-proximate firm pairs are significantly more likely to merge than others. Specifically, column 1 (2) shows that when the boards of directors of the target and acquirer have the same dominant *varna* (*jati*), the likelihood of merger between them increases by 11.4% (17.4%) relative to when boards of the firms do not have the same dominant *varna* (*jati*). Similarly, in columns 3 and 4, when caste proximity is measured using the fraction of all possible director pairs across the two boards that are of the same *varna* or *jati*, respectively, we see that the coefficient on caste proximity is again positive and statistically significant. Finally, in column 5 we note that the larger the hierarchal distance between the dominant *varnas* of the acquiring and target firms' boards, the lower is the likelihood of the two firms merging. When the distance between two firms' dominant *varnas* increases one level in the hierarchy of five, the probability of mergers falls by 3.2%. Thus, our second approach also shows that caste-proximate firm pairs are significantly and systematically more likely to enter M&A deals than caste-distant firm pairs.

Our results in this section also rule out the possibility that firms' directors do not intentionally rely on caste connections for M&As but, rather, that we observe a large presence of such deals in the data since the caste diversity among directors and corporate boards itself is low. Several pieces of evidence indicate that the lack of caste diversity in the population of directors and on firms' boards is not mechanically driving the high incidence of caste-proximate deals. First, in our tenth criteria for simulations, we draw random samples of firm pairs from our baseline sample of firms observed to engage in M&As. Since the population of firms engaging in deals in both real and simulated samples is the same, both samples have the same distribution of castes across boards, and hence, the same level of caste diversity. Yet, the observed likelihood of deals between firms with boards dominated by the same castes is higher than the corresponding simulated likelihood. Thus, the lack of caste diversity in the underlying distribution of boards cannot be the driver of caste-proximate mergers. Second, if this were a factor driving the high incidence of caste-proximate mergers, then we would expect firms whose

boards are dominated by castes with small shares in the overall distribution to merge with firms with boards dominated by prominent castes. Instead, we see that even firms dominated by minority castes merge with others dominated by their own caste. Third, results in Table 5 show that the caste proximity continues to have a significant positive influence on the likelihood of two firms merging even after we control for their boards' caste homophilies.

5 Caste Proximate Deals Generate Less Value

In this section, we examine the role of caste proximity of the target and acquiring firm boards on the market's valuation of M&A deals. We discuss our empirical approach to address this question followed by results.

5.1 Empirical Approach

To assess the relationship between caste proximity and the market's valuation of an M&A deal, we analyze abnormal firm returns (of acquirer, target, and combined firm) in a small window centered around the date of announcement of the deal. We use the sample of observed M&A deals as described in section 3. Specifically, we include in our sample all announced deals during 2000-2017 whose deal status is recorded as either completed or pending in the SDC database, and for which we have data on all relevant variables. The variable of interest, cumulative abnormal return is defined as the return on a firm's stock over a window of (0,1) days centered on the announcement date of the deal minus the return on the BSE Sensex Index over the same window.[24]

We estimate the following model:

$$CAR_{i,j,t} = \beta_0 + \beta_1 CP_{i,j,t} + \beta_2 X^A_{i,t} + \beta_3 X^T_{j,t} + \beta_4 X^{AT}_{i,j,t} + \beta_5 D_{i,j,t} + \eta_{i,j} + \tau_t + \epsilon_{i,j,t} \qquad (5.1)$$

where $CAR_{i,j,t}$ is the cumulative abnormal return observed upon announcement of a merger between firms i and j in year t. All other variables are defined as in equation 4.1, with the addition of a few more deal related variables: whether the deal is financed through cash, stocks or other means, whether the acquirer has a toehold in the target firm, and whether there is a board interlock between the two firms. The coefficient of interest is β_1; it captures the association between caste proximity of dealing firms' boards and the market's valuation of the deal upon announcement. We estimate equation 5.1 for acquirer, target, and combined firm CARs.

[24]Note that our results are robust to the definition of the announcement window and hold for windows of (-1,1) and (-2,2) days centered on the announcement date.

5.2 Results

Results from regression equation 5.1 are presented in Tables 6, 7, and 8 for acquirer, target, and combined firm CARs, respectively. Specifications using different measures of caste-proximity are presented in different columns. Focusing on acquirer CARs first, we observe in Table 6 that for for all measures of caste proximity, caste-proximate deals entail lower CARs for the acquirers than caste-distant deals. However, these negative coefficients are statistically significant only for the *varna*-based measures of caste proximity. Specifically, column (1) shows that when boards of directors of target and acquirer have the same dominant *varna*, the CAR of the acquirer upon announcement of the deal is 0.9% lower than if boards of directors of the two firms were not *varna*-proximate. This percentage difference in CARs between caste-distant and caste-proximate deals is large, given that the return is realized over a two-day announcement window. Thus, the stock market has a substantially worse reaction to caste-proximate deals than to others.

A similar result emerges when examining CARs of target firms around the announcement of M&A deals (Table 7): caste proximity between boards of acquirer and target firms reduces market's valuation of the target. We again note a negative and statistically significant coefficient on caste proximity variables based on *varna* as indicated in columns 1 and 5. In column 1, for example, we see that target CARs are 2% lower in *varna*-proximate deals than in others. Taken together with results on acquirer CARs, we conclude that market's lower valuation of caste-proximate M&A deals reflects a significantly smaller value creation, and not a transfer from the acquiring to the target firm.

This net reduction in value of caste-proximate M&A deals is confirmed when we examine CARs of the combined entity in Table 8 below. Recall that CAR of the combined firm is a market value weighted average of the acquirer and target CARs.[25] The caste proximity variable is significant using all of the caste proximity measures for *varna*. In column 1 of Table 8, we note the negative and statistically significant coefficient on same-*varna* measure: if the acquirer and target firm boards share the same dominant *varna*, then the announcement day CARs of the combined firm are on average 2.2% lower than for mergers in which the two boards

[25]The market value is measured 43 days prior to the announcement of the deal.

do not share a dominant *varna*. In column 5, we observe that for a one level increase in the hierarchal distance between the dominant *varna* of the acquirer and target boards respectively, the combined firm CAR increases 0.7%.

These results indicate that the market penalizes caste-proximate firm pairs. This is consistent with the market's suspicion of agency or optimism bias dominating any information benefits that accrue from the caste-proximity of the target and acquirer firm boards. Note also that our results indicate that CARs for acquirer, target, and merged firms fall significantly only in specifications using *varna* based measures of caste proximity. This differs from our findings in section 4 where both *varna* and *jati* proximity were highly significant drivers of the likelihood of two firms entering an M&A deal. These different findings are quite intuitive, however, given that *jati* is the more relevant caste identity for people but is also likely more difficult to discern. Individuals feel stronger affinity toward others if they are of the same *jati* than if they are of the same *varna*. Marriages also tend to be within-*jati*. Finally, last names are indicative of *jati*; and *through* that, indirectly of *varna*. However, due to the large number of *jatis*, while we would expect an individual to be able to identify a member of her own *jati*, the market is less likely to be able to discern *jatis* and thus reacts to the easier to discern *varna*.

6 Other Deal Outcomes

6.1 Negotiation

In this section, we examine the role of caste proximity in the negotiation process between the acquirer and target firm, focusing on two outcomes: takeover premium paid by the acquiring firm and time taken to complete the deal. The takeover premium is measured by the ratio of price paid by the acquiring firm for the target firm's equity divided by the market value of the target firm's transferred equity 43 days prior to the announcement of the deal. The time to deal completion is measured by the days between the first public announcement of the M&A deal and the date the deal became effective. For this analysis, we use the sample of observed M&A deals described in section 2.2. Specifically, we include in our sample the subset of completed deals in the 2000-2017 sample period.

Empirical Approach

We estimate the following model:

$$Y_{i,j,t} = \beta_0 + \beta_1 CP_{i,j,t} + \beta_2 X^a_{i,t} + \beta_3 X^t_{j,t} + \beta_4 X^{a,t}_{i,j,t} + \beta_5 D_{i,j,t} + \eta_{i,j} + \tau_t + \epsilon_{i,j,t} \tag{6.1}$$

Note that this is identical to equation 5.1 above with the exception of the dependent variable. $Y_{i,j,t}$ represents a negotiation outcome, either the takeover premium or the time to completion of the deal between firms i and j in year t.

Results

Estimation results for equation 6.1 are presented below in Tables 9 and 10. Table 9 presents coefficient estimates for the regression of takeover premium on caste proximity and other controls. The coefficient estimates in the first row, for all caste proximity measures, show that greater proximity is associated with smaller takeover premiums. The sign of the caste proximity coefficient is negative consistently for the *varna* (*jati*) indicator measures (columns 1 and 2), the *varna* and *jati* continuous distance measures (columns 3 and 4) and positive for the hierarchical distance measure (column 5). However, none of the coefficients are significant. These results also confirm that the negative acquirer CARs for caste-proximate deals do not reflect a transfer of value between targets and acquirers, as would be evidenced by a significant positive association between takeover premium and caste proximity.

Table 10 presents coefficient estimates for regressions with time to completion of deal as the dependent variable. Examining the coefficient estimates on the caste proximity variable in the first row, we find weak evidence that caste proximate deals have shorter times of completion. The sign of the caste proximity coefficient is negative for the *varna* (*jati*) indicator measures (columns 1 and 2) and the *jati* continuous distance measures (column 4), and positive for the hierarchical distance measure (column 5). This negative coefficient estimate is consistent with increased trust, and consequent easier negotiation process, that can come with caste proximity between the two boards. Note, however, that the coefficient estimates are not statistically significant.

Overall, these results show that negotiation outcomes do not vary significantly between caste-proximate and caste-distant deals.

6.2 Long Run Performance

In this section, we examine the role of caste proximity in determining long-run performance of the merged entity. We focus on two measures of performance: return on assets (ROA) and operating cash flow ratio (OCF). The former is defined as the ratio of operating income to book value of total assets and the latter is defined as the ratio of cash flows from operating activities to total assets. Our sample is the same as described in section 2.2, with the additional requirement that we are able to observe the merged firm one or two years after the deal is completed. We examine how the long-run performance of the merged entities varies by the caste proximity of the boards at the time of the merger announcement.

Empirical Approach

We estimate the following model:

$$Y_{i,j,t+k} = \beta_0 + \beta_1 CP_{i,j,t} + \beta_2 X^a_{i,t} + \beta_3 X^t_{j,t} + \beta_4 X^{a,t}_{i,j,t} + \beta_5 D_{i,j,t} + \eta_{i,j} + \tau_t + \epsilon_{i,j,t} \tag{6.2}$$

Note that this is identical to equation 6.1 above with the exception of the dependent variable. $Y_{i,j,t+k}$ represents a long run performance measure, measured on the merged entity k years after the year of the merger completion (t), where k is either 1 or 2. Note also that among the variables included in vector $X^a_{i,t}$, we include the performance measure for the acquirer as measured at the time of the deal completion. Thus, the interpretation of the coefficient of interest (on caste proximity) is how a unit change in proximity is associated with the change in these performance measures of the merged firm relative to the acquiring firm in the year of the merger completion.

Results

Estimation results for equation 6.2 are presented in Tables 11 for ROA and 12 for OCF. For

ROA, the coefficient estimates in the first row, for all caste proximity measures, are negative (positive in columns 9 and 10 when the cultural proximity measure has the opposite interpretation). On average, same-caste deals see lower growth in return on assets one and two years post-merger relative to non same-caste deals. Note, however, that the coefficient estimates are not statistically significant.

Similar results emerge when examining the operating cash flow of the merged entity one and two years post merger in Table 12. The coefficient estimates on caste proximity, presented in the first row, are mostly negative, with one exception in column (3) (again, the estimates are positive in columns 9 and 10 when the cultural proximity measure has the opposite interpretation). On average, same-caste deals display slightly lower growth in the operating cash flow ratio one and two years post-merger relative to non-same caste deals. But, as for return on assets, the coefficient on caste proximity is not significant for any measure of proximity. We conclude that long run performance outcomes do not vary significantly between caste-proximate and caste-distant deals.

7 Mechanisms

Our results thus far show that firms display a systematically high likelihood of merging with other firms which are governed by directors belonging to similar castes as their own. Such caste proximate M&A deals are value reducing relative to non-proximate deals. This value reduction does not mechanically result from a transfer of value from acquirer to target, and also does not reverse in the long run through improved performance. Seen through the lens of our simple model in Section 2, these results suggest that either the information channel is absent, or its gains are dwarfed by the costs created by directors' optimism bias and agency. In this section, we look for evidence in the data that can shed light on these three mechanisms individually.

7.1 Information Channel

We investigate whether caste proximate deals do provide more information to firms. Our approach is to examine whether the likelihood of same-caste acquisitions reduces when targets are less informationally opaque. In particular, we estimate the following linear probability

model:

$$I(M_{i,j,t}) = \beta_0 + \beta_1 X^A_{i,t} + \beta_2 X^T_{j,t} + \beta_3 X^{AT}_{i,j,t} + \beta_4 D_{i,j,t} + \eta_{i,j} + \tau_t + \epsilon_{i,j,t} \tag{7.1}$$

where $I(M_{i,j,t})$ is a binary outcome that takes the value 1 if the firm pair (i, j) entered a same-caste M&A deal in year t, $X^A_{i,t}$ is a vector of time varying characteristics of the acquiring firm, $X^T_{j,t}$ is a vector of time varying characteristics of the target firm that includes proxies for the target's informational transparency, $X^{AT}_{i,j,t}$ is a vector of time varying characteristics of the i, j pair, $D_{i,j,t}$ represents a vector of deal characteristics, $\eta_{i,j}$ denotes industry-pair fixed effects, and τ_t are year fixed effects. The coefficient of interest, β_2, captures the association between the informational transparency of the target with the likelihood that it enters an M&A deal with an acquirer whose board is dominated by the same caste. Several firm characteristics can potentially serve as proxies for alternative information channels between firms. Size (real assets) and age of a target is likely to be correlated with the amount of public information available about the firm. We use these as proxies for informational transparency of the firm and hypothesize that the need to rely on caste to obtain information about a larger or older target is lower than that for smaller and younger ones. In addition, more information is available for public than for private targets. Similarly, exporting firms are larger, more productive, and more in the public view than non-exporting firms. We use the public and exporting status of a target as additional indicators of the presence of alternative information channels and expect that the reliance on caste to obtain information is lower for public and exporter targets than for others. Finally, a firm that is looking to acquire a target in a related industry is likely to have more information about that target relative to one in an unrelated industry, reducing the need to rely on caste to obtain information. We categorize a merger to be one between firms in related industries if the merger is either horizontal or vertical. [26]

[26]Note that there are other potential measures of sources of information between target and acquiring firms. For example, board interlocks between transacting firms can be a potentially useful source of information. Toeholds, or minority equity interests, form another channel through which acquirers can get information about targets. Toeholds are often observed in cases of hostile M&A deals wherein acquirers buy a minority stake in a potential target before they actually bid for control of the firm. This can reduce information asymmetry between the two firms aiding the assessment of synergies from a potential. Finally, if two firms are located in the same state or have directors that speak the same language, information asymmetry is potentially reduced. The aforementioned measures, however, could also represent sources of optimism bias and agency costs. So they are inappropriate for this analysis where we need measures that capture only information.

The results from the first approach are presented in Table 13. Column 1 presents results for the likelihood of same-*varna* deals and column 2 for the likelihood of same-*jati* deals. For size, the positive and significant coefficients in both columns, indicating that acquirers are more likely to enter same-caste deals with larger targets. There does not appear to be any association between age of the target and the likelihood of same-caste deals. The public status of the target also makes same-caste deals more likely but again this relationship is not significant. The exporter status of the target does not have consistent signs across the two measures of caste. The same is true for the relatedness of the merger. Both vertical and horizontal mergers have lower likelihood of being same-caste relative to unrelated mergers (omitted category) when caste is measured by *varna* but the opposite is true in case of *jati*. Further, these coefficients are also mostly insignificant. On the basis of these results, we infer that the acquirers' reliance on caste does not reduce when the targets are less informationally opaque. Thus, there is no evidence of informational gains in caste-proximate deals.

7.2 Agency Channel

We examine the data in two ways to assess if there is any evidence consistent with the agency channel. The first approach relies on the same linear probability model as in equation 7.1 above, but the coefficients of interest are on the caste homophily measures of the acquirer and target boards. Recall that the homophily on a board is simply the *varna*/*jati* HHI of a board. The more concentrated a board is, the higher the shares of just a few castes among its members. We consider high HHI boards to be reflective of firms whose top decision makers (directors and executives) care more about caste.[27] If high caste homophily on boards is associated with higher likelihood of same-caste M&A deals, that would suggest that the board members' decisions are influenced by their preferences to associate with others of the same caste which can drive both high homophily levels on the board and same-caste deals. Thus, a positive association between the two should indicate presence of the agency channel. Indeed, as Table 13, shows, board homophily is highly positively and significantly associated with the likelihood of same-caste M&A deals. A unit change in the acquirer's *varna* (*jati*) homophily increases the likelihood

[27] Bhagavatula et al. (2018) show that high levels of caste HHI on corporate boards are not simply coincidental or a function of lack of caste diversity in director supply.

of same-caste deals for that acquirer by 52.4% (73.7%). High target board homophily is also significantly and positively associated with the likelihood of same-caste deals.

In the second approach, we look for evidence of private gains of directors. Specifically, we compare the composition of the board and compensation of directors before and after a deal. While retaining board memberships is indicative of non-monetary benefits associated with directorships, compensational changes provide a measure of monetary gains. We focus on directors who are retained from the acquirer board in the merged firm's board and compare their caste identities to that of the dominant castes of acquirer boards. For the same directors, we also compare their compensations before and after the deal. We present these comparisons separately for the subgroup of directors who belong to the same caste as the dominant caste on the acquirer board, and the group that does not, as well as by deal and other board characteristics.[28] If we observe that a larger percentage of retained directors are of the dominant caste of the acquirer board and/or that their compensation increases by more than that of other retained directors, that would constitute evidence consistent with the preference channel.

Results are presented in Table 14.[29] Panel A presents results for directorship retention. We see that across all deals, a significantly higher percentage of those belonging to the dominant *varna* of the acquirer board are retained post deal compared to those who belong to a different *varna*. The difference in the proportions of retentions between the dominant and non-dominant *varna* subgroups is even higher and continues to be significant in cases where the CEO also belongs to the dominant *varna* of the board and when the board itself has high (above the sample median) *varna* homophily. Additionally, we observe that the favorable retention outcome of the dominant *varna* subgroup of directors is significantly higher in cases where *varna* homophily of the acquirer board is above-median than in cases where it is below-median. Finally, we note that the dominant *varna* subgroup of directors has a significantly higher retention rate in different *varna* deals, but not in same-*varna* deals. Similar patterns hold for *jati*.

Panel B shows the patterns for compensational changes of dominant and non-dominant caste subgroups of retained directors across the same deal categories and acquirer board's caste

[28] We consider only acquirer firm's directors since there are very few target firms for whom we have compensation data for all retained directors. We consider all deals where we had compensation data for at least 50% of the directors retained from the acquirer board in the merged board.

[29] We are unable to observe the required information for all deals in our baseline sample. Thus, the sample size is smaller in this analysis.

characteristics. We find that compensation more-than-doubles for all retained directors across all categories of deals and all caste characteristics of the acquirer board. In particular, for same-*varna* deals, the retained directors in the dominant-*varna* subgroup witness an average increase of a whopping 428% in their compensation. This is significantly higher than the, also large, 331% increase in their compensation when the acquirers enter a different-*varna* deal. We note that the largest increase in compensation occurs for the dominant-*varna* subgroup of directors when the acquirer board has above-median *varna* homophily. However, in the compensation analysis, we do not see many statistically significant differences, perhaps owing to the small sample size for which these data are available.

Overall, our findings from both approaches provide strong evidence of directors' caste-based preferences driving same-caste deals, and large non-monetary and monetary gains in such deals, especially when they belong to the dominant caste of the acquirer board.

7.3 Optimism Channel

We expect that if the acquirer firms' directors over-estimate the expected value from merging with a target firm with caste-proximate directors, then they may recognize this bias over time and update their beliefs. If we see evidence of such learning, that would be consistent with the presence of the optimism channel. For this analysis, we focus on serial acquirers observed to enter at least two deals during 2000-2017. In particular, we investigate how the likelihood of these firms entering a same-caste deal relates to whether a previous deal was same-caste and the market reaction to it. We estimate a regression of the following form:

$$I(M_{k,i,j,t}) = \beta_0 + \beta_1 I(M_{k-1,i}) + \beta_2 CAR_{k-1,i} + \beta_3 I(M_{k-1,i}) * CAR_{k-1,i} + \beta_4 k + \beta_5 X^A_{i,t} + \beta_6 X^T_{k,j,t} + \beta_7 X^{AT}_{k,i,j,t} + \beta_8 D_{k,i,j,t} + \eta_{k,i,j} + \tau_t + \epsilon_{k,i,j,t} \quad (7.2)$$

where $I(M_{k,i,j,t})$ is a binary outcome that takes the value 1 if the deal k that acquirer i enters with a target firm j in year t is same-caste, $I(M_{k-1,i})$ takes the value 1 if acquirer i's previous deal (k-1) was with another target whose board was dominated by the same caste as the acquirer's board, $CAR_{k-1,i}$ is the announcement day CAR for that previous deal, and other regressors

are as described earlier. Note that we also include which number deal is deal k for the acquirer in the sample period. The coefficients of interest are, β_1 and β_3, which capture the association between the likelihood of the current deal being same-caste and the previous deal being same caste and the market reaction to it, and β_4 which measures how the likelihood of same-caste deals changes as an acquirer enters more deals.

Results are presented in Table 15. Columns 1 and 3 include only the number of acquisition among the key variables of interest as described above, and columns 2 and 4 include other key variables too. Results are presented for both *varna* (columns 1-2) and *jati* (columns 3-4). We see that the coefficient on number of acquisition is small in all specifications, negative in three but positive in one. However, no specification has a significant coefficient on this variable. Thus, it does not appear that firms' likelihood of entering a same caste deal declines as they engage in more deals. We also see that the estimate for β_1 is negative and for β_3 is positive for both measures of caste, but only β_1 in significant when caste is measured by *jati*. The signs on these coefficients may suggest that (a) if the previous deal was between firms whose boards were dominated by the same caste, then the current deal by the same acquirer is less likely to be same-caste and (b) if the previous deal was same caste, then the lower the announcement day CARs in that deal, the less likely the current deal is to be same-caste. However, given the lack of statistical significance of most of the coefficients of interest, and, in the case of number of acquisitions, the inconsistency of the sign itself, we view these results as providing little evidence of the presence of optimism bias that reduces as firms learn through repeat deals.

8 Conclusion

We show that an important corporate investment decision, an M&A deal, can be heavily influenced by the cultural proximity between directors of two firms. Such cultural affinity among directors could potentially lead to greater trust and information sharing, thereby positively affecting deal outcomes. But it could also be a source of optimism bias or agency problems leading to perverse outcomes. We find that in the context of Indian firms, while the caste proximity of directors of two firms is a strong driver of M&A deals, it ultimately does not benefit the dealing firms. Although cumulative abnormal returns upon deal announcements do increase,

they remain significantly lower than for other deals that are not caste-proximate. Takeover premiums, time to deal completion, and long run performance also do not improve relative to other deals. We find evidence consistent with agency costs but not with any informational gains or optimism bias. This is particularly concerning since agency appears to persist even in the setting of large public firms with formal laws, regulations, and codes of conduct in place, and highlights the importance of good corporate governance mechanisms. There is a need to ensure that firms' internal workings and investment decisions are founded on sound economic rationale rather than driven by personal backgrounds and shared cultural identities. Simultaneously, since evidence of agency is stronger in firms whose boards have high caste concentrations, it also points to the need for cultural diversity in corporate boards, and groups of decision makers more generally. Overall, our findings highlight that shared cultural identities of decision makers can negatively influence their investment decisions, leading to sub-optimal economic outcomes.

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Table 1: Composition of Deals by Dominant Varnas of Acquirer and Target

Acquirer \ Target	Brahmin	Kshatriya	Vaishya	Shudra	Dalit	Total
Brahmin	48.6	12.3	23.2	15.8	0	284
Kshatriya	28.5	30.8	19.2	21.5	0	130
Vaishya	21.3	12.2	55.4	10.5	0.7	287
Shudra	23.8	14.8	15.9	45	0.5	189
Dalit	50	0	0	0	50	2

Source: Thomson One SDC, Prowess, Caste mapping. Each cell in columns 2-6 shows the percentage of M&A deals by firms whose boards are dominated by the *varna* stated in column 1 of that row that acquire targets whose boards are dominated by the *varna* in stated row 1 of that column. The cells in each row add to 100%. The last column provides the total number of deals by those acquirer firms.

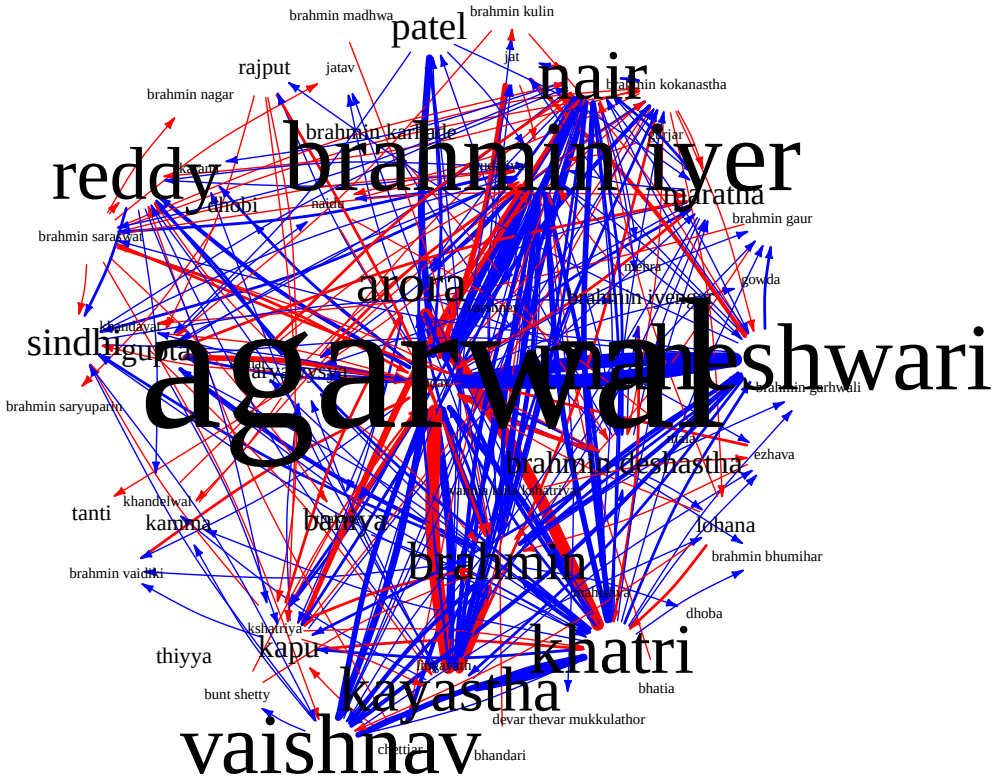

Figure 1: Composition of Deals by Dominant Jatis of Acquirer and Target

Source: Thomson One SDC, Prowess, Caste mapping. Each node represents a dominant *jati* on a board. Fontsize is proportional to the number of same-*jati* deals. Two nodes are connected if there is an M&A deal between firms whose boards are dominated by the corresponding *jatis*. Arrow points toward the target. Width of the arrow is proportional to the number of deals between those two jatis. The arrow is blue (red) if the number of same-*jati* deals for the acquirer's dominant *jati* is higher (lower) than that with firms dominated by other *jatis*.

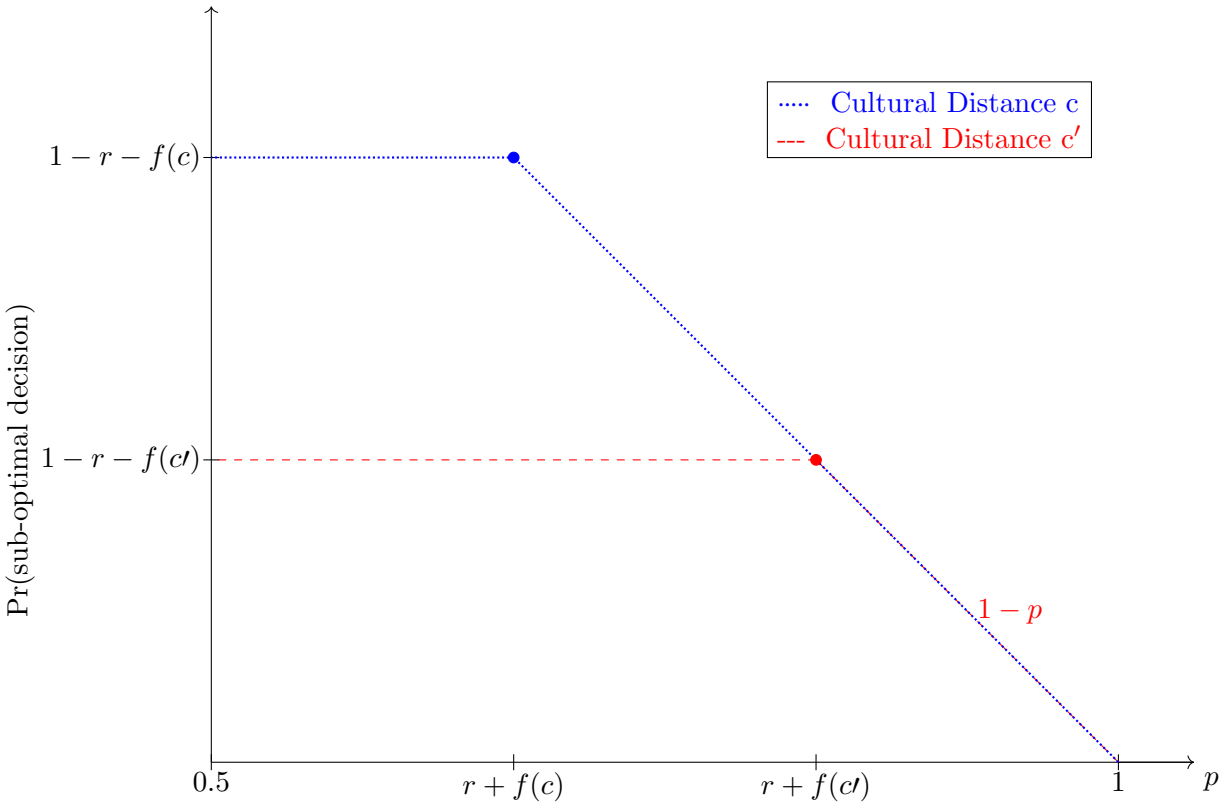

Figure 2: Likelihood of sub-optimal decision – Information Channel

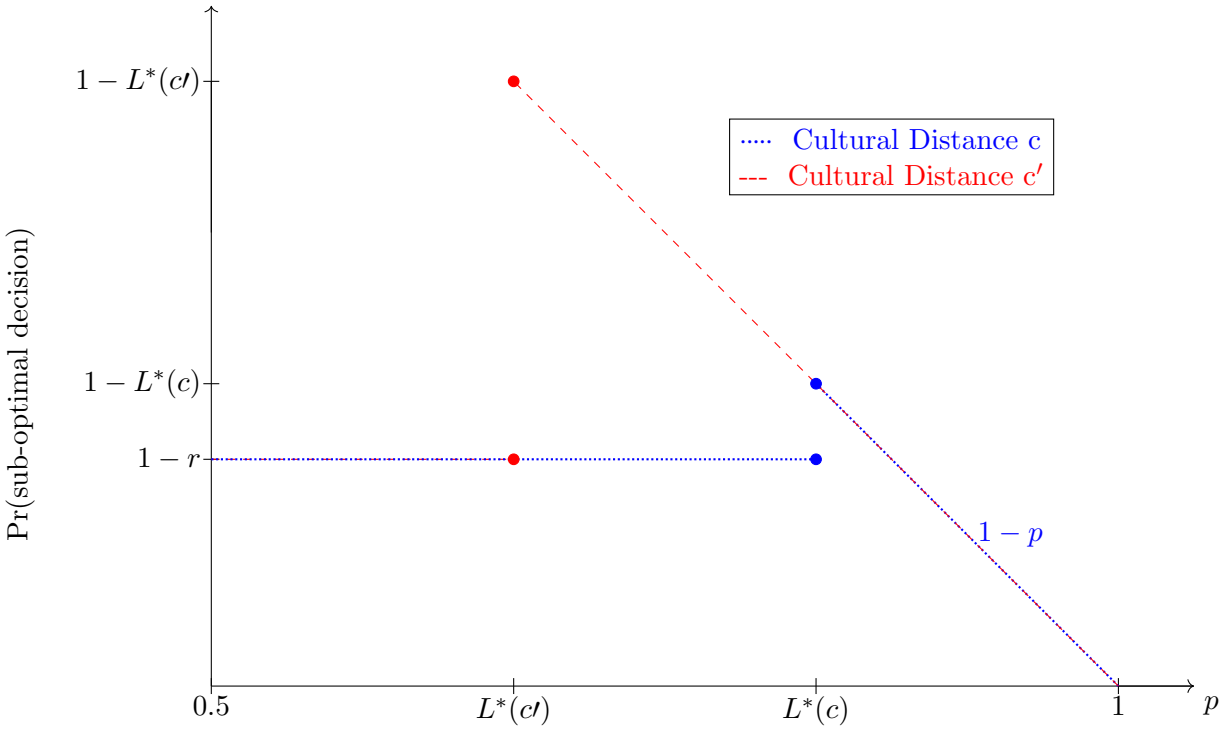

Figure 3: Likelihood of sub-optimal decision – Agency Channel

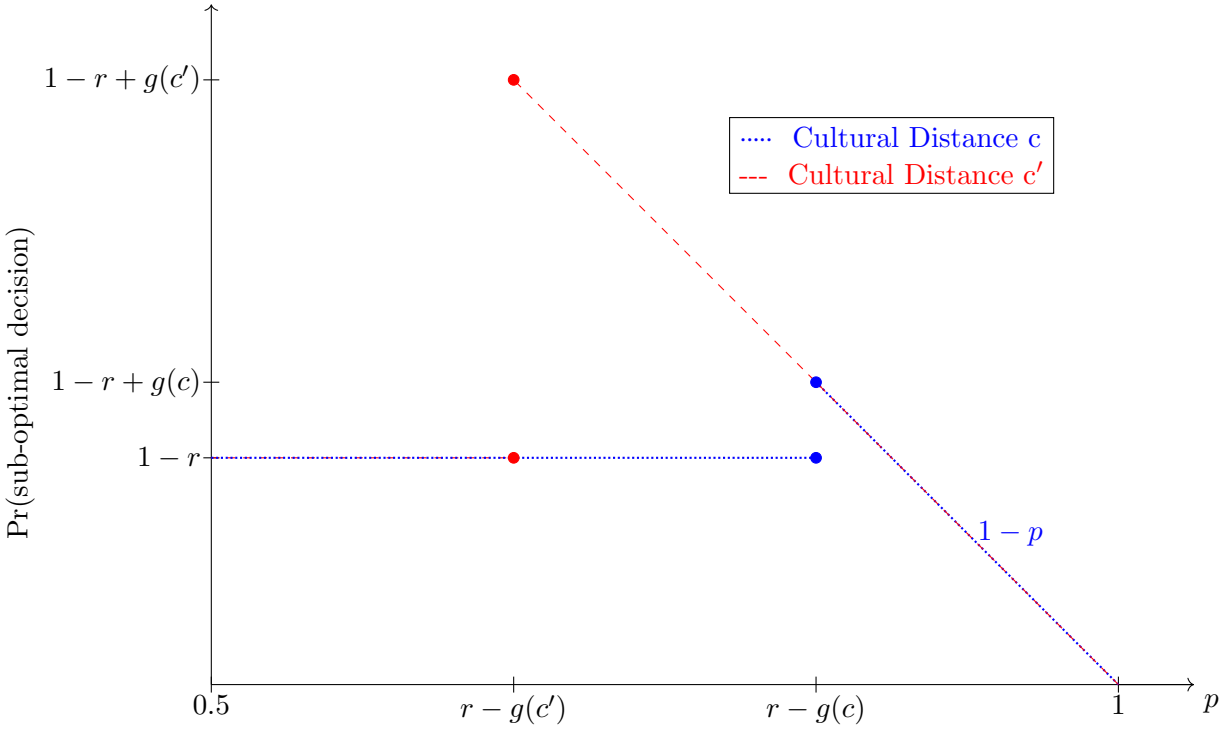

Figure 4: Likelihood of sub-optimal decision – Optimism Channel

Table 2: Summary Statistics

Panel A: Firm characteristics

Characteristic	2000	2017
N	2473	5448
Mean real assets (rupees million)	2928.84	15401.47
Mean return on assets (ROA)	0.05	0.02
Mean leverage	0.47	1.57
Mean tangibility	0.37	0.27
% Public	91.3	81.8

Panel B: Deal characteristics (financial and other)

Characteristic	Value
N	1132
% public-public	84.5
% same state	46.2
% same language	49.3
Median takeover premium	0.63
Mean time to completion	108.91
Mean transaction value (rupees million)	6342.66
Mean % cash financed	72.15
% public acquirers	95.76
% public targets	88.15

Characteristic	Acquirer	Target
Mean real assets (rupees million)	173369.38	13412.33
Mean ROA	0.09	0.05
Mean leverage	0.28	0.40
Mean tangibility	0.25	0.33
Mean board size	10.21	7.94
% dual CEOs	37.01	23.14
Mean *varna* HHI of board	0.35	0.42
Mean *jati* HHI of board	0.23	0.31
Mean CAR	0.009	0.030

Panel C: Deal characteristics (cultural)

Characteristic	Value
% same *jati*	22.53
% same *varna*	40.11
Mean *jati* overlap	9.39
Mean *varna* overlap	24.00
Mean absolute *varna* hierarchy	0.94

Source: Thomson One SDC, Prowess, Caste mapping. CAR is presented for the (0,1) event window. All variables in rupees million have been deflated by CPI (2001=1).

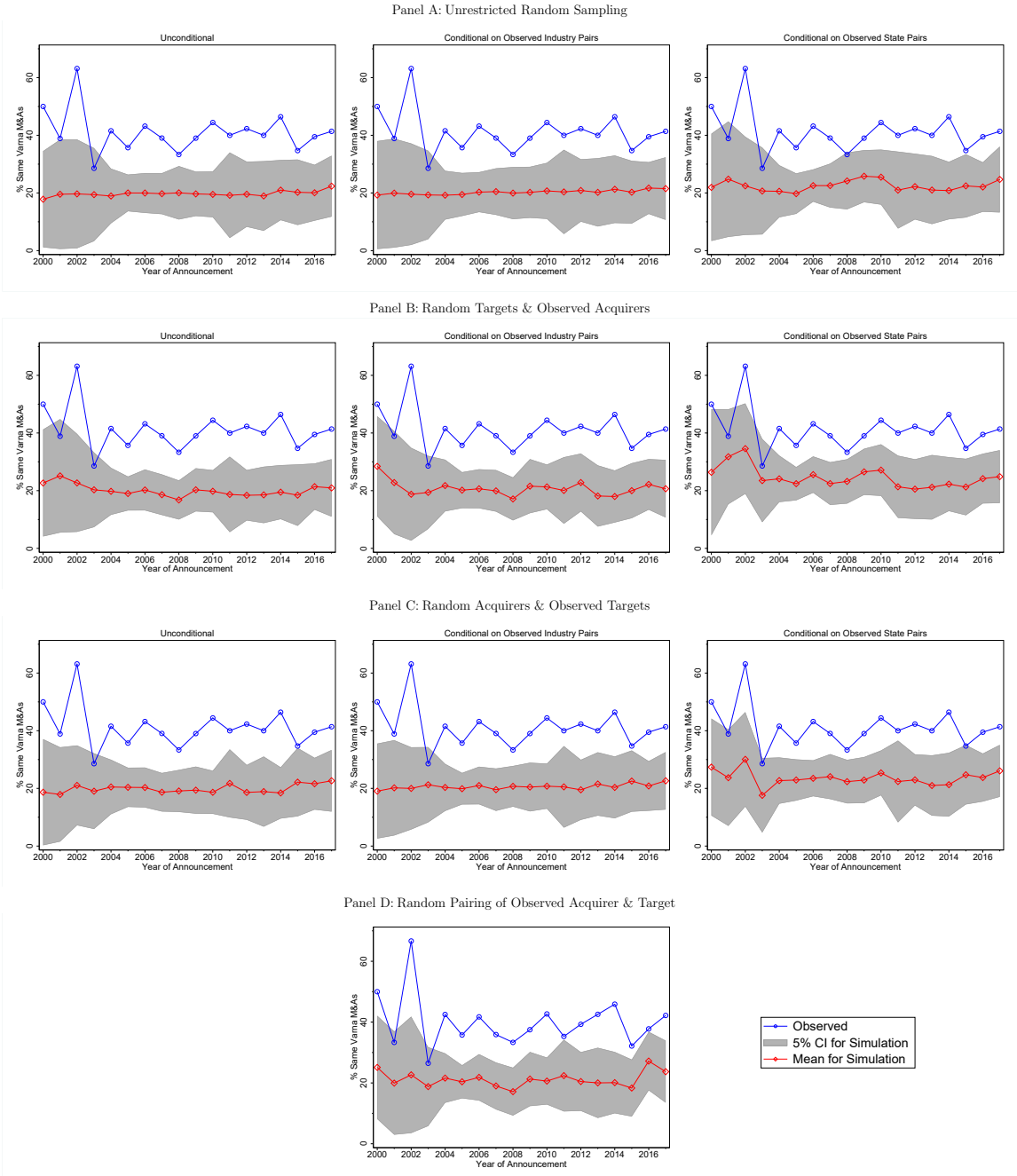

Figure 5: Percentage of Same-Varna Deals in Observed and Random Simulations

Source: Thomson One SDC, Prowess, Caste mapping. Each graph presents the percentage of same-*varna* mergers observed in every year of the sample period, and the corresponding percentage averaged over a hundred random samples, along with confidence intervals. These samples are drawn under a range of criteria and each individual graph plots the results of one such criterion. See Section 4.1 for descriptions of these criteria and Online Appendix B for examples.

Table 3: Comparison of Percentage Same-Varna Deals in Observed and Random Simulations

Percentage of Same-Varna Mergers in Observed Sample: 40.11%			
Simulation Criteria	(1) Mean Percentage of Same-Varna Mergers in 100 Simulated Samples	(2) Difference (Observed Percentage - Simulated Mean Percentage)	(3) t-stat
Unconditional	19.77	20.34	139.10***
Conditional on Industry Pairs	20.26	19.84	135.10***
Conditional on State Pairs	22.51	17.60	117.09***
Observed Acquirer Random Target (Unconditional)	20.07	20.03	141.73***
Observed Acquirer Random Target (Conditional on Industry)	20.77	19.33	135.11***
Observed Acquirer Random Target (Conditional on State)	24.63	15.47	96.99***
Observed Target Random Acquirer (Unconditional)	19.87	20.23	149.30***
Observed Target Random Acquirer (Conditional on Industry)	20.61	19.49	147.83***
Observed Target Random Acquirer (Conditional on State)	23.60	16.51	114.07***
Random Pairing of Firms Conditional on Participation in M & A Market	21.13	18.97	125.22***

Notes: This table presents comparisons of mean percentages of same-*varna* M&A deals in simulated samples to the percentage of same-*varna* M&A deals in the observed sample. For simulations, a pair of firms is randomly selected for each observed merger using ten different sets of criteria listed in the table and described in detail in section 4.1. Column 1 presents the mean across 100 simulated samples of the percentage of same-*varna* mergers for each of the ten different sets of criteria for random selection. Column 2 shows the difference between the percentage of same-*varna* deals in the observed sample and the mean percentage of same-*varna* deals in the simulated samples. Column 3 displays the t-statistic for a comparison of means test with the null hypothesis that the mean percentage in simulated samples equals the percentage in the sample of observed M&A deals. ***p<0.01, **p<0.05, *p<0.10

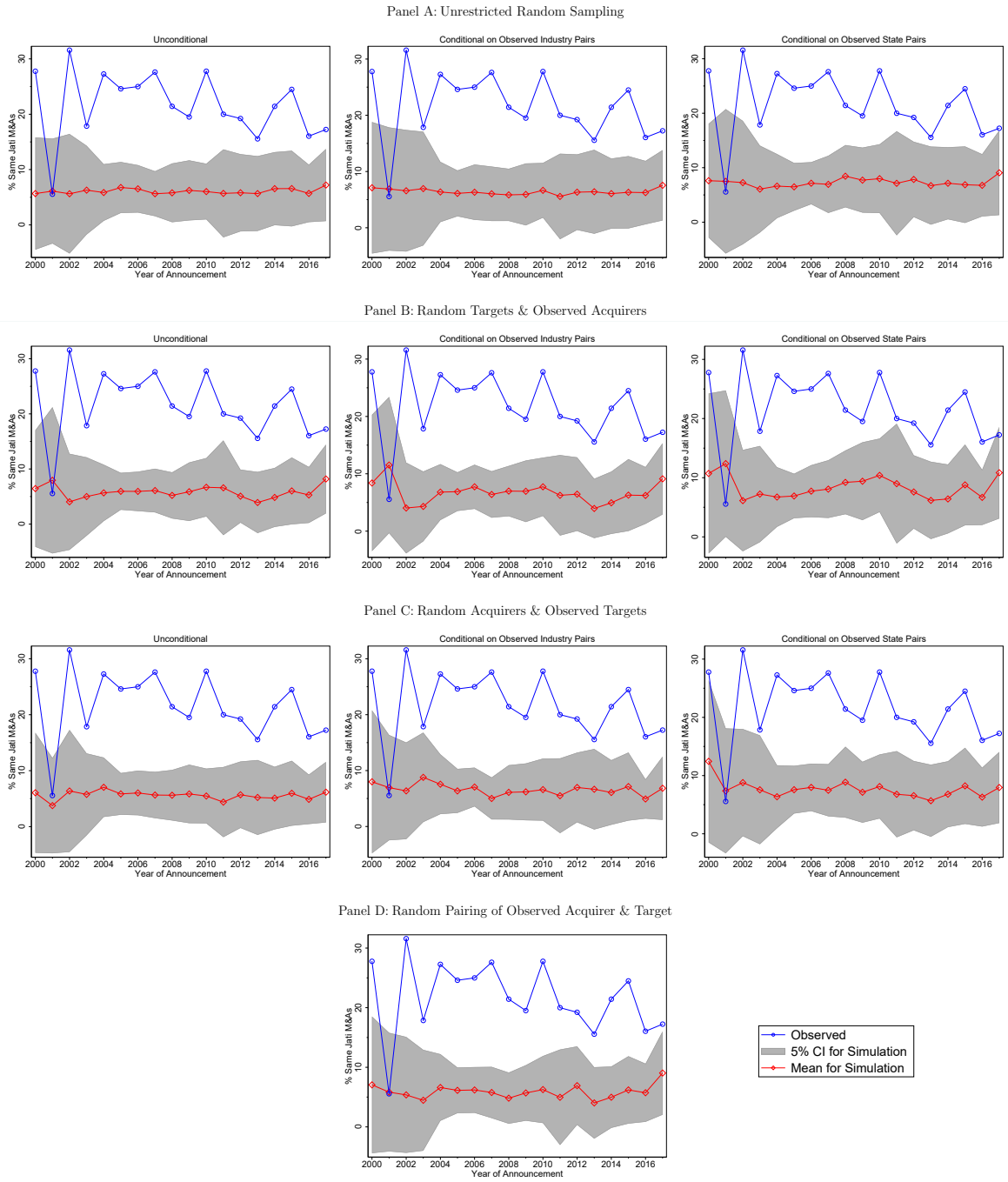

Figure 6: Percentage of Same-Jati Deals in Observed and Random Simulations

Source: Thomson One SDC, Prowess, Caste mapping. Each graph presents the percentage of same-*varna* mergers observed in every year of the sample period, and the corresponding percentage averaged over a hundred random samples, along with confidence intervals. These samples are drawn under a range of criteria and each individual graph plots the results of one such criterion. See Section 4.1 for descriptions of these criteria and Online Appendix B for examples.

Table 4: Comparison of Percentage Same-Jati Deals in Observed and Random Simulations

Percentage of Same-Jati Mergers in Observed Sample: 22.53%			
Simulation Criteria	(1) Mean Percentage of Same-Jati Mergers in 100 Simulated Samples	(2) Difference (Observed Percentage - Simulation Percentage)	(3) t-stat
Unconditional	6.10	16.43	197.32***
Conditional on Industry Pairs	6.40	16.12	183.46***
Conditional on State Pairs	7.30	15.23	163.19***
Observed Acquirer Random Target (Unconditional)	5.82	16.71	197.75***
Observed Acquirer Random Target (Conditional on Industry)	6.72	15.80	177.26***
Observed Acquirer Random Target (Conditional on State)	8.36	14.17	142.63***
Observed Target Random Acquirer (Unconditional)	5.60	16.92	215.17***
Observed Target Random Acquirer (Conditional on Industry)	6.62	15.91	192.96***
Observed Target Random Acquirer (Conditional on State)	7.67	14.86	161.13***
Random Pairing of Firms Conditional on Participation in M & A Market	5.89	16.63	195.72***

Notes: This table presents comparisons of mean percentages of same-*jati* M&A deals in simulated samples to the percentage of same-*jati* M&A deals in the observed sample. For simulations, a pair of firms is randomly selected for each observed merger using ten different sets of criteria listed in the table and described in section 4.1. Column 1 presents the mean across 100 simulated samples of the percentage of same-*jati* mergers for each of the ten different sets of criteria for random selection. Column 2 shows the difference between the percentage of same-*jati* deals in the observed sample and the mean percentage of same-*jati* deals in the simulated samples. Column 3 displays the t-statistic for a comparison of means test with the null hypothesis that the mean percentage in simulated samples equals the percentage in the observed sample of M&A deals. ***p<0.01, **p<0.05, *p<0.10

Table 5: Likelihood of Merger and Caste Proximity: Linear Probability Model Estimates on Observed and Matched Samples

	(1)	(2)	(3)	(4)	(5)
Caste Proximity Measure	Same Varna	Same Jati	Overlap Varna	Overlap Jati	Varna Hierarchy Distance
Caste Proximity	0.114***	0.174***	0.478***	1.063***	-0.032**
	(0.027)	(0.038)	(0.099)	(0.143)	(0.013)
Size (A)	0.053***	0.015	0.054***	0.036**	0.069***
	(0.013)	(0.010)	(0.006)	(0.015)	(0.010)
Size (T)	0.006	0.006	0.008	0.009	0.009
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
I(Public A)	-0.086**	-0.454***	-0.051	-0.429***	-0.026
	(0.041)	(0.048)	(0.038)	(0.104)	(0.055)
I(Public T)	0.117***	0.106***	0.115***	0.103***	0.124***
	(0.035)	(0.035)	(0.035)	(0.035)	(0.040)
I(Exporter A)	-0.036	0.202***	-0.079***	0.258***	0.020
	(0.023)	(0.074)	(0.009)	(0.041)	(0.037)
I(Exporter T)	0.049	0.039	0.059*	0.044	0.079**
	(0.033)	(0.033)	(0.033)	(0.032)	(0.040)
Age (A)	0.001	0.002**	0.000	-0.003***	0.015***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age (T)	0.003***	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Operating Cash Flow (A)	-0.859***	-0.087*	-0.833***	-0.986***	-0.635***
	(0.167)	(0.049)	(0.071)	(0.210)	(0.091)
Leverage (A)	-0.849***	-0.800***	-1.036***	0.370***	0.451***
	(0.114)	(0.048)	(0.054)	(0.058)	(0.051)
I(Vertical Merger)	0.125	0.145	0.109	0.125	0.243
	(0.224)	(0.217)	(0.227)	(0.224)	(0.319)
I(Horizontal Merger)	0.358	0.376*	0.344	0.352	0.447
	(0.226)	(0.220)	(0.230)	(0.226)	(0.320)
I(Same Business Group)	0.785***	0.758***	0.771***	0.724***	0.818***
	(0.022)	(0.024)	(0.022)	(0.024)	(0.024)
I(Same Language)	0.239**	0.206*	0.197*	0.152	0.061
	(0.118)	(0.118)	(0.118)	(0.119)	(0.118)
I(Same State)	-0.106	-0.073	-0.076	-0.045	0.030
	(0.119)	(0.118)	(0.118)	(0.119)	(0.118)
Relative Size	-0.000	-0.000	-0.000	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Board Size (A)	-0.042***	-0.061***	-0.040***	0.011*	-0.094***
	(0.004)	(0.004)	(0.002)	(0.006)	(0.004)
Board Size (T)	0.009**	0.008	0.009*	0.006	0.009
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
I(Dual CEO A)	0.444***	0.356***	0.345***	0.425***	0.073**
	(0.048)	(0.107)	(0.043)	(0.033)	(0.033)
I(Dual CEO T)	0.059*	0.071**	0.060*	0.067**	0.009
	(0.031)	(0.031)	(0.031)	(0.030)	(0.035)
Board Homophily (A)	0.945***	1.087***	1.048***	-0.156	-0.352***
	(0.074)	(0.065)	(0.065)	(0.165)	(0.110)
Board Homophily (T)	0.046	-0.007	0.036	-0.047	0.134*
	(0.067)	(0.069)	(0.068)	(0.069)	(0.077)
Constant	-0.896***	-0.430	-0.896***	-0.807	0.744**
	(0.326)	(0.269)	(0.248)	(0.535)	(0.355)
Observations	5,985	5,985	5,985	5,985	4,432
R-squared	0.659	0.659	0.661	0.667	0.722

Notes: This table presents coefficient estimates from linear probability regression models of the likelihood of a pair of firms completing an M&A deal on caste proximity, and firm and firm-pair level controls. The sample includes completed M&A deals between Indian firms during 2000- 2017. Additionally, it includes five more matched potential deals observations for each observed completed deal. The potential deals are selected from a population in which the original acquirers are matched with all potential target firms in the industry of the observed target. From this population, the five nearest neighbor observations are matched using a propensity score based on target size, acquirer size, and relative size; state pair fixed effects, industry pair fixed effects, and year fixed effects. In column 1 (2), caste proximity is measured as an indicator variable that takes the value 1 when the acquirer board and target boards have the same dominant varna (jati). In column 3 (4), caste proximity is measured as the total number of same-varna (jati) pairs of acquirer-target board members as a fraction of the number of all possible acquirer-target board member pairs. In column 5, caste proximity is calculated as the absolute value of the hierarchal distance between the dominant varnas of the acquirer and target boards. Size is the log of total assets; relative size is the ratio of total assets of the acquirer to that of the target. Indicators are included for public status of acquirer (only public targets are included since others do not have stock price information), exporter status of acquirer/target, whether the deal is horizontal, vertical or unrelated, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, and CEO duality. Other controls include age of acquirer/target, leverage and operating cash flow relative to total assets of the acquirer, sizes of the acquirer and target boards, and board homophily of acquirer and target, measured as their varna HHI (columns 1,3, and 5) or jati HHI (columns 2,4). All specifications include year, deal, and industry-pair fixed effects. All continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by deal are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 6: Announcement Day Acquirer CARs and Caste Proximity

	(1)	(2)	(3)	(4)	(5)
	Dependent Variable: Acquirer Firm Cumulative Abnormal Announcement Day Return				
Caste Proximity Measure	Same Varna	Same Jati	Overlap Varna	Overlap Jati	Varna Hierarchy Distance
Caste Proximity	-0.009***	-0.003	-0.039**	-0.028	0.003*
	(0.003)	(0.007)	(0.018)	(0.038)	(0.002)
Size (A)	-0.004**	-0.004**	-0.004**	-0.004**	-0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Size (T)	0.004**	0.004**	0.003*	0.003**	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
I(Public T)	0.003	0.002	0.002	0.002	0.000
	(0.006)	(0.006)	(0.006)	(0.006)	(0.008)
I(Exporter A)	0.005	0.005	0.005	0.005	0.001
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
I(Exporter T)	-0.008	-0.007	-0.007	-0.007	-0.005
	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)
Age (A)	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age (T)	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Operating Cash Flow (A)	-0.046*	-0.048*	-0.046*	-0.048*	-0.021
	(0.025)	(0.024)	(0.025)	(0.024)	(0.023)
Leverage (A)	-0.007	-0.010	-0.008	-0.009	-0.010
	(0.011)	(0.010)	(0.011)	(0.010)	(0.011)
I(Vertical Merger)	-0.009	-0.009	-0.009	-0.009	-0.012
	(0.014)	(0.014)	(0.014)	(0.014)	(0.018)
I(Horizontal Merger)	-0.006	-0.005	-0.005	-0.005	-0.005
	(0.012)	(0.012)	(0.012)	(0.012)	(0.016)
I(Cash Deal)	-0.008	-0.007	-0.007	-0.007	-0.006
	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
I(Stock Deal)	-0.009	-0.008	-0.009	-0.008	-0.011
	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)
I(Same Business Group)	0.000	-0.000	0.000	-0.000	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
I(Same Language)	0.003	0.004	0.005	0.005	0.004
	(0.011)	(0.011)	(0.011)	(0.012)	(0.013)
I(Same State)	0.002	0.001	0.001	0.000	0.001
	(0.010)	(0.010)	(0.010)	(0.010)	(0.012)
Relative Size	0.000**	0.000**	0.000**	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
I(Toe hold)	0.002	0.001	0.002	0.001	0.008*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
I(Board Interlock)	-0.005	-0.006	-0.004	-0.005	-0.010
	(0.006)	(0.006)	(0.005)	(0.007)	(0.007)
Board Size (A)	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Board Size (T)	-0.000	-0.000	-0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
I(Dual CEO A)	-0.004	-0.004	-0.004	-0.004	-0.006
	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)
I(Dual CEO T)	-0.005	-0.005	-0.004	-0.004	-0.004
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Board Homophily (A)	-0.003	-0.011	0.008	-0.003	0.002
	(0.017)	(0.017)	(0.016)	(0.021)	(0.021)
Board Homophily (T)	0.004	0.005	0.007	0.008	-0.000
	(0.013)	(0.012)	(0.013)	(0.014)	(0.016)
Constant	0.039	0.043	0.041	0.040	0.029
	(0.029)	(0.030)	(0.029)	(0.030)	(0.033)
Observations	769	769	769	769	626
R-squared	0.131	0.126	0.131	0.127	0.147

Notes: This table presents coefficient estimates from a regression of announcement day acquirer CAR on caste proximity, firm level controls, and deal level controls. The sample includes M&A deals between Indian firms during 2000-2017. CAR is calculated as the return on the acquirer firm's stock minus the return on the market return over a window of (0,1) days around the first public announcement of the deal. In column 1 (2), caste proximity is measured as an indicator variable that takes the value 1 when the acquirer and target boards have the same dominant varna (jati). In column 3 (4), caste proximity is measured as the total number of same-varna (jati) pairs of acquirer-target directors as a fraction of the number of all possible acquirer-target director pairs. In column 5, caste proximity is calculated as the hierarchal distance between the dominant varnas of the acquirer and target boards. Size is the log of total real assets; relative size is the ratio of total assets of the acquirer and target. Indicators are included for public status of acquirer/target, exporter status of acquirer/target, whether the deal is horizontal, vertical or unrelated, whether the deal was financed through cash, stock, or other means, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, whether their boards have at least one interlock, CEO duality, and whether acquirer had a toehold in the target before the merger. Other controls include age of acquirer/target, leverage and operating cash flow relative to total assets of acquirer, sizes of the acquirer and target boards, and board homophily of acquirer and target, measured as their varna HHI (columns 1,3, and 5) or jati HHI (columns 2,4). All specifications include year and industry-pair fixed effects. The dependent variable and all continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by year are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 7: Announcement Day Target CARs and Caste Proximity

	(1)	(2)	(3)	(4)	(5)
	Dependent Variable: Target Firm Cumulative Abnormal Announcement Day Return				
Caste Proximity Measure	Same Varna	Same Jati	Overlap Varna	Overlap Jati	Varna Hierarchy Distance
Caste Proximity	-0.020**	-0.018	-0.047	-0.084	0.008**
	(0.007)	(0.011)	(0.048)	(0.062)	(0.003)
Size (A)	0.001	0.000	0.001	0.001	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Size (T)	-0.004	-0.004	-0.005	-0.004	-0.006
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
I(Public A)	-0.023	-0.022	-0.024	-0.025	-0.007
	(0.030)	(0.035)	(0.032)	(0.035)	(0.024)
I(Exporter A)	0.004	0.008	0.003	0.007	0.008
	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)
I(Exporter T)	0.022*	0.022	0.022*	0.022*	0.012
	(0.012)	(0.013)	(0.012)	(0.012)	(0.011)
Age (A)	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age (T)	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Operating Cash Flow (A)	-0.029	-0.031	-0.029	-0.037	-0.042
	(0.045)	(0.045)	(0.045)	(0.043)	(0.034)
Leverage (A)	0.003	0.004	0.002	0.004	-0.009
	(0.015)	(0.015)	(0.014)	(0.014)	(0.018)
I(Vertical Merger)	0.063**	0.053*	0.061**	0.057*	0.043
	(0.026)	(0.030)	(0.028)	(0.031)	(0.027)
I(Horizontal Merger)	0.086**	0.078**	0.086**	0.084**	0.065*
	(0.032)	(0.035)	(0.034)	(0.037)	(0.034)
I(Cash Deal)	0.008	0.011	0.009	0.010	0.013
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
I(Stock Deal)	-0.010	-0.008	-0.009	-0.008	-0.005
	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)
I(Same Language)	0.026	0.025	0.027	0.028	0.027
	(0.025)	(0.026)	(0.026)	(0.025)	(0.038)
I(Same State)	-0.033	-0.033	-0.033	-0.034	-0.028
	(0.027)	(0.028)	(0.028)	(0.027)	(0.041)
Relative Size	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
I(Same Business Group)	0.013	0.012	0.013	0.011	0.012
	(0.012)	(0.012)	(0.012)	(0.012)	(0.011)
I(Toehold)	0.011	0.010	0.012	0.010	0.012
	(0.011)	(0.011)	(0.010)	(0.011)	(0.011)
I(Board Interlock)	0.003	0.005	0.002	0.005	-0.004
	(0.014)	(0.014)	(0.014)	(0.011)	(0.015)
Board Size (A)	-0.000	0.001	-0.000	0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Board Size (T)	-0.002	-0.002	-0.002	-0.003	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
I(Dual CEO A)	0.015	0.016	0.016	0.016	0.004
	(0.010)	(0.009)	(0.010)	(0.010)	(0.011)
I(Dual CEO T)	-0.010	-0.009	-0.009	-0.009	-0.014
	(0.012)	(0.012)	(0.012)	(0.012)	(0.014)
Board Homophily (A)	-0.039	0.008	-0.034	0.025	-0.047
	(0.035)	(0.038)	(0.035)	(0.038)	(0.043)
Board Homophily (T)	0.012	-0.029	0.015	-0.023	-0.006
	(0.035)	(0.039)	(0.036)	(0.040)	(0.055)
Constant	-0.008	0.007	0.003	-0.004	0.022
	(0.078)	(0.081)	(0.086)	(0.081)	(0.092)
Observations	454	454	454	454	370
R-squared	0.206	0.197	0.197	0.194	0.243

Notes: This table presents coefficient estimates from a regression of target CARS on caste proximity, firm level controls, and deal level controls. The sample includes M&A deals between Indian firms during 2000-2017. CAR is calculated as the return on the target firm's stock minus the return on the market return over a window of (0,1) days around the first public announcement of the deal. In column 1 (2), caste proximity is measured as an indicator variable that takes the value 1 when the acquirer and target boards have the same dominant varna (jati). In column 3 (4), caste proximity is measured as the total number of same-varna (jati) pairs of acquirer-target directors as a fraction of the number of all possible acquirer-target director pairs. In column 5, caste proximity is calculated as the hierarchal distance between the dominant varnas of the acquirer and target boards. Size is the log of total real assets; relative size is the ratio of total assets of the acquirer and target. Indicators are included for exporter status of acquirer/target, whether the acquirer is public (only public targets are included since others do not have stock price information), whether the deal is horizontal, vertical or unrelated, whether the deal was financed through cash, stock, or other means, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, whether their boards have at least one interlock, CEO duality, and whether acquirer had a toehold in the target before the merger. Other controls include age of acquirer/target, leverage and operating cash flow relative to total assets of acquirer, sizes of the acquirer and target boards, and board homophily of acquirer and target, measured as their varna HHI (columns 1,3, and 5) or jati HHI (columns 2,4). All specifications include year and industry-pair fixed effects. The dependent variable and all continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by year are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 8: Announcement Day CARs of Combined Firm and Caste Proximity

	(1)	(2)	(3)	(4)	(5)
	Dependent Variable: Combined Firm Cumulative Abnormal Announcement Day Return				
Caste Proximity Measure	Same Varna	Same Jati	Overlap Varna	Overlap Jati	Varna Hierarchy Distance
Caste Proximity	-0.022***	-0.001	-0.114***	-0.087	0.007**
	(0.004)	(0.007)	(0.038)	(0.059)	(0.003)
Size (A)	-0.004**	-0.003*	-0.004**	-0.003*	-0.003
	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
Size (T)	0.001	0.001	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
I(Exporter A)	0.009	0.007	0.007	0.008	0.005
	(0.008)	(0.007)	(0.008)	(0.007)	(0.009)
I(Exporter T)	-0.004	-0.003	-0.003	-0.003	-0.002
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
Age (A)	-0.000	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age (T)	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Operating Cash Flow (A)	-0.019	-0.034	-0.024	-0.034	-0.027
	(0.026)	(0.025)	(0.025)	(0.025)	(0.027)
Leverage (A)	-0.018	-0.025	-0.018	-0.019	-0.022
	(0.017)	(0.019)	(0.017)	(0.019)	(0.019)
I(Vertical Merger)	0.001	-0.007	0.000	-0.004	-0.002
	(0.022)	(0.022)	(0.021)	(0.022)	(0.028)
I(Horizontal Merger)	0.018	0.013	0.020	0.016	0.013
	(0.022)	(0.024)	(0.021)	(0.024)	(0.028)
I(Cash Deal)	-0.012	-0.008	-0.011	-0.009	-0.005
	(0.008)	(0.009)	(0.009)	(0.008)	(0.008)
I(Stock Deal)	-0.011	-0.007	-0.010	-0.008	-0.010
	(0.013)	(0.014)	(0.014)	(0.014)	(0.013)
Relative Size	-0.000	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
I(Same Business Group)	0.008	0.006	0.008	0.006	0.009
	(0.008)	(0.009)	(0.008)	(0.008)	(0.008)
I(Same Language)	0.016	0.016	0.021	0.015	0.021
	(0.054)	(0.052)	(0.054)	(0.053)	(0.058)
I(Same State)	-0.014	-0.013	-0.016	-0.011	-0.021
	(0.053)	(0.051)	(0.053)	(0.052)	(0.057)
I(Toehold)	-0.000	-0.000	0.002	-0.000	0.007
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
I(Board Interlock)	-0.009	-0.011	-0.008	-0.006	-0.008
	(0.007)	(0.008)	(0.007)	(0.009)	(0.007)
Board Size (A)	-0.001	-0.000	-0.001	-0.000	-0.001
	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
Board Size (T)	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
I(Dual CEO A)	-0.000	0.001	-0.001	0.001	-0.002
	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)
I(Dual CEO T)	-0.012*	-0.009	-0.011	-0.009	-0.015*
	(0.006)	(0.007)	(0.007)	(0.006)	(0.008)
Board Homophily (A)	0.015	0.061	0.047	0.098*	0.007
	(0.036)	(0.046)	(0.036)	(0.050)	(0.038)
Board Homophily (T)	-0.038*	-0.045	-0.023	-0.030	-0.042
	(0.021)	(0.033)	(0.023)	(0.036)	(0.027)
Constant	0.037	0.040	0.047	0.023	0.024
	(0.048)	(0.051)	(0.053)	(0.052)	(0.050)
Observations	352	352	352	352	296
R-squared	0.261	0.206	0.251	0.218	0.253

Notes: This table presents coefficient estimates from a regression of combined CARS on caste proximity, firm level controls, and deal level controls. The sample includes M&A deals between Indian firms during 2000-2017. The combined CAR is calculated as the market cap weighted return on the acquirer and target firms' stocks minus the return on the market return over a window of (-1,0) days around the first public announcement of the deal. In column 1 (2), caste proximity is measured as an indicator variable that takes the value 1 when the acquirer and target boards have the same dominant varna (jati). In column 3 (4), caste proximity is measured as the total number of same-varna (jati) pairs of acquirer-target directors as a fraction of the number of all possible acquirer-target director pairs. In column 5, caste proximity is calculated as the hierarchal distance between the dominant varnas of the acquirer and target boards. Size is the log of total real assets; relative size is the ratio of total assets of the acquirer and target. Indicators are included for exporter status of acquirer/target, whether the deal is horizontal, vertical or unrelated, whether the deal was financed through cash, stock, or other means, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, whether their boards have at least one interlock, CEO duality, and whether acquirer had a toehold in the target before the merger. Other controls include age of acquirer/target, leverage and operating cash flow relative to total assets of acquirer, sizes of the acquirer and target boards, and board homophily of acquirer and target, measured as their varna HHI (columns 1,3, and 5) or jati HHI (columns 2,4). All specifications include year and industry-pair fixed effects. The dependent variable and all continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by year are in parentheses. *** p<0.01, ** p<0.05, * p<0.10

Table 9: Takeover Premiums and Caste Proximity

	(1)	(2)	(3)	(4)	(5)
	Dependent Variable: Takeover Premium				
Caste Proximity Measure	Same Varna	Same Jati	Overlap Varna	Overlap Jati	Varna Hierarchy Distance
Caste Proximity	-3.005	-2.547	-5.144	-24.548	0.731
	(2.183)	(2.885)	(9.631)	(17.650)	(0.559)
Size (A)	-0.039	-0.230	-0.155	-0.181	-0.527
	(0.661)	(0.767)	(0.751)	(0.707)	(0.356)
Size (T)	-1.009	-0.906	-0.978	-1.014	-0.296
	(1.350)	(1.313)	(1.341)	(1.299)	(0.515)
I(Public A)	3.562	5.796*	4.365	5.375	2.349
	(3.134)	(3.125)	(3.098)	(3.695)	(1.766)
I(Exporter A)	4.631*	4.381	4.172*	4.468	2.651*
	(2.466)	(3.036)	(2.312)	(3.173)	(1.503)
I(Exporter T)	-4.877	-5.318	-5.118	-5.336	-3.205
	(3.634)	(3.829)	(3.813)	(3.745)	(2.432)
Age (A)	-0.057	-0.056	-0.056	-0.052	-0.018
	(0.057)	(0.062)	(0.058)	(0.058)	(0.016)
Age (T)	-0.009	-0.010	-0.009	-0.008	-0.012
	(0.027)	(0.028)	(0.025)	(0.028)	(0.018)
Operating Cash Flow (A)	-14.155	-13.673	-13.880	-14.552	-0.416
	(14.005)	(15.960)	(14.205)	(15.696)	(4.362)
Leverage (A)	-4.272	-3.859	-3.896	-2.941	-1.378
	(6.632)	(6.758)	(6.899)	(6.410)	(4.465)
I(Vertical Merger)	-1.223	-1.263	-1.307	-1.515	-1.620
	(1.922)	(1.983)	(1.973)	(2.178)	(1.772)
I(Cash Deal)	4.338	4.187	4.290	3.837	2.442
	(3.302)	(3.141)	(3.282)	(2.873)	(2.325)
I(Same Business Group)	0.185	0.181	0.071	-0.109	0.645
	(1.345)	(1.309)	(1.373)	(1.256)	(0.994)
I(Same Language)	0.998	1.452	1.586	2.487	-1.366
	(3.393)	(3.405)	(3.778)	(3.999)	(1.986)
I(Same State)	-1.850	-1.924	-2.312	-2.686	-0.038
	(3.262)	(3.285)	(3.632)	(3.802)	(1.694)
Relative Size	0.031***	0.031***	0.031***	0.031***	0.015
	(0.002)	(0.003)	(0.003)	(0.003)	(0.016)
I(Toehold)	-0.778	-0.806	-0.672	-0.956	-3.914
	(3.332)	(3.423)	(3.408)	(3.266)	(2.627)
I(Board Interlock)	0.839	0.991	0.317	1.684	1.704
	(1.722)	(2.485)	(2.044)	(2.293)	(2.181)
Board Size (A)	-0.005	0.019	0.076	0.077	0.106
	(0.153)	(0.166)	(0.212)	(0.199)	(0.107)
Board Size (T)	0.458	0.474	0.409	0.451	0.197
	(0.343)	(0.337)	(0.307)	(0.289)	(0.210)
I(Dual CEO A)	-0.762	-1.277	-0.828	-1.240	-0.388
	(1.359)	(1.509)	(1.318)	(1.509)	(0.792)
I(Dual CEO T)	0.728	0.734	0.833	0.725	2.034**
	(1.668)	(1.776)	(1.644)	(1.773)	(0.942)
Board Homophily (A)	-3.308	-6.930	-3.751	-0.942	2.620
	(10.410)	(8.136)	(11.548)	(7.850)	(3.217)
Board Homophily (T)	-0.710	1.112	-0.911	2.736	-6.832
	(3.876)	(7.678)	(3.689)	(8.164)	(5.248)
Constant	-6.770	-15.261	-8.267	-14.295	-3.500
	(7.810)	(11.877)	(7.721)	(9.520)	(10.680)
Observations	200	200	200	200	157
R-squared	0.571	0.567	0.565	0.571	0.631

Notes: This table presents coefficient estimates from a regression of takeover premiums of M&A deals on caste proximity, firm level controls, and deal level controls. The sample includes M&A deals between Indian firms during 2000-2017. Takeover premium is defined as the ratio of the transaction value to the market capitalization of the target firm's shares measured 43 days prior to the announcement date. In column 1 (2), caste proximity is measured as an indicator variable that takes the value 1 when the acquirer and target boards have the same dominant varna (jati). In column 3 (4), caste proximity is measured as the total number of same-varna (jati) pairs of acquirer-target directors as a fraction of the number of all possible acquirer-target director pairs. In column 5, caste proximity is calculated as the hierarchal distance between the dominant varnas of the acquirer and target boards. Size is the log of total real assets; relative size is the ratio of total assets of the acquirer and target. Indicators are included for public status of acquirer (only public targets are included since others do not have stock price information), exporter status of acquirer/target, whether the deal is horizontal, vertical or unrelated, whether the deal was financed through cash or stock, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, whether their boards have at least one interlock, CEO duality, and whether acquirer had a toehold in the target before the merger. Other controls include age of acquirer/target, leverage and operating cash flow relative to total assets of acquirer, sizes of the acquirer and target boards, and board homophily of acquirer and target, measured as their varna HHI (columns 1,3, and 5) or jati HHI (columns 2,4). All specifications include year and industry-pair fixed effects. The dependent variable and all continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by year are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 10: Time to Completion of Deal and Caste Proximity

	(1)	(2)	(3)	(4)	(5)
	Dependent Variable: Time to Completion of Deal				
Caste Proximity Measure	Same Varna	Same Jati	Overlap Varna	Overlap Jati	Varna Hierarchy Distance
Caste Proximity	-23.385	-10.025	39.103	-52.737	12.509
	(21.840)	(25.624)	(59.744)	(90.926)	(10.256)
Size (A)	-8.897***	-9.571***	-8.579**	-9.436***	-9.039*
	(3.022)	(3.087)	(3.157)	(3.073)	(4.311)
Size (T)	5.290	3.689	4.461	3.514	4.259
	(4.642)	(4.769)	(4.746)	(4.815)	(6.295)
I(Public A)	69.405***	69.994***	73.056***	69.143***	85.016***
	(21.213)	(21.434)	(19.901)	(21.353)	(21.968)
I(Public T)	56.092***	52.831***	55.026***	53.081***	66.108**
	(16.804)	(17.511)	(16.680)	(17.283)	(26.816)
I(Exporter A)	26.461*	21.113*	22.192	20.537	10.374
	(13.118)	(12.088)	(12.877)	(12.644)	(21.919)
I(Exporter T)	13.244	12.239	13.421	12.293	17.993
	(18.089)	(18.245)	(18.747)	(18.326)	(20.300)
Age (A)	0.088	0.055	0.076	0.049	0.565
	(0.276)	(0.264)	(0.267)	(0.263)	(0.448)
Age (T)	0.087	0.094	0.086	0.097	0.007
	(0.464)	(0.469)	(0.453)	(0.467)	(0.429)
Operating Cash Flow (A)	-34.309	-31.142	-36.831	-32.026	-19.552
	(62.229)	(68.642)	(65.061)	(68.059)	(63.110)
Leverage (A)	-0.775	-4.058	-8.321	-4.550	25.821
	(28.314)	(25.842)	(27.674)	(25.710)	(34.849)
I(Vertical Merger)	-105.092	-101.195	-102.946	-101.387	-121.702
	(69.265)	(70.175)	(69.672)	(69.958)	(86.783)
I(Horizontal Merger)	-102.172	-93.453	-96.962	-93.141	-135.848
	(69.334)	(70.920)	(70.784)	(70.950)	(85.246)
I(Cash Deal)	-1.871	-2.509	0.242	-2.585	-5.322
	(21.510)	(22.183)	(22.127)	(22.204)	(22.101)
I(Stock Deal)	161.696***	163.872***	165.116***	163.310***	177.064***
	(33.752)	(33.452)	(33.274)	(33.502)	(41.709)
I(Same Business Group)	-34.301*	-37.640*	-36.261*	-37.666*	-28.987
	(18.291)	(18.052)	(18.378)	(18.013)	(17.862)
I(Same Language)	83.767**	77.380**	77.117**	79.478**	83.363**
	(29.681)	(28.727)	(29.721)	(27.836)	(36.423)
I(Same State)	-57.238	-52.176	-54.278	-53.150	-53.866
	(34.896)	(33.048)	(34.731)	(32.934)	(37.527)
Relative Size	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
I(Toehold)	8.050	9.063	7.204	8.952	9.827
	(14.711)	(14.751)	(14.830)	(14.851)	(14.339)
I(Board Interlock)	39.716	40.711	35.960	42.240	24.701
	(24.394)	(24.826)	(23.203)	(25.441)	(25.856)
Board Size (A)	3.316	2.485	2.948	2.531	2.264
	(2.848)	(2.960)	(2.937)	(2.996)	(3.568)
Board Size (T)	-1.420	-2.694	-1.738	-2.761	-0.211
	(3.454)	(3.445)	(3.496)	(3.372)	(3.834)
I(Dual CEO A)	9.027	13.206	9.537	13.223	10.366
	(21.319)	(22.370)	(21.525)	(22.266)	(25.006)
I(Dual CEO T)	-10.519	-6.573	-6.860	-7.116	-22.046
	(18.040)	(17.959)	(17.843)	(17.844)	(18.842)
Board Homophily (A)	55.004	-6.478	28.022	0.134	85.133
	(51.907)	(49.019)	(53.825)	(52.345)	(55.576)
Board Homophily (T)	-4.872	-65.304	-20.482	-61.426	4.470
	(34.414)	(42.484)	(38.828)	(46.161)	(39.814)
Constant	134.368	192.660*	132.828	190.398*	167.351
	(93.432)	(103.639)	(92.045)	(107.508)	(125.081)
Observations	697	697	697	697	550
R-squared	0.269	0.268	0.266	0.269	0.323

Notes: This table presents coefficient estimates from a regression of the time to deal completion on caste proximity, firm level controls, and deal level controls. The sample includes M&A deals between Indian firms during 2000-2017. Time to completion is defined as the difference (in days) between the effective date and the announcement date of the deal. In column 1 (2), caste proximity is measured as an indicator variable that takes the value 1 when the acquirer and target boards have the same dominant varna (jati). In column 3 (4), caste proximity is measured as the total number of same-varna (jati) pairs of acquirer-target directors as a fraction of the number of all possible acquirer-target director pairs. In column 5, caste proximity is calculated as the hierarchal distance between the dominant varnas of the acquirer and target boards. Size is the log of total real assets; relative size is the ratio of total assets of the acquirer and target. Indicators are included for exporter status and public status of acquirer/target, whether the deal is horizontal, vertical or unrelated, whether the deal was financed through cash, stock, or other means, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, whether their boards have at least one interlock, CEO duality, and whether acquirer had a toehold in the target before the merger. Other controls include age of acquirer/target, leverage and operating cash flow relative to total assets of acquirer, sizes of the acquirer and target boards, and board homophily of acquirer and target, measured as their varna HHI (columns 1,3, and 5) or jati HHI (columns 2,4). All specifications include year and industry-pair fixed effects. The dependent variable and all continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by year are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 11: Long Run Performance: Return on Assets and Caste Proximity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent Variable: Merged Firm Return on Assets at time t+k									
Caste Proximity Measure	Same Varna		Same Jati		Overlap Varna		Overlap Jati		Varna Hierarchy Distance	
Timing of Dependent Variable	t+1	t+2	t+1	t+2	t+1	t+2	t+1	t+2	t+1	t+2
Caste Proximity	-0.005	-0.008	-0.005	-0.009	-0.041	-0.008	-0.027	-0.070	0.005	0.008*
	(0.006)	(0.008)	(0.009)	(0.009)	(0.029)	(0.034)	(0.060)	(0.074)	(0.004)	(0.004)
ROA at Deal Announcement (A)	0.600***	0.422***	0.600***	0.425***	0.598***	0.421***	0.603***	0.425***	0.641***	0.442***
	(0.054)	(0.054)	(0.052)	(0.055)	(0.054)	(0.054)	(0.049)	(0.054)	(0.074)	(0.069)
Size (A)	-0.000	-0.003	-0.001	-0.004	-0.000	-0.003	-0.000	-0.005	-0.002	-0.003
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)
Size (T)	-0.003	-0.002	-0.002	-0.001	-0.002	-0.002	-0.002	-0.001	-0.002	-0.002
	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)	(0.002)
I(Public A)	-0.034	-0.034	-0.035	-0.031	-0.037	-0.033	-0.035	-0.031	-0.042	-0.040
	(0.050)	(0.062)	(0.051)	(0.063)	(0.049)	(0.061)	(0.051)	(0.060)	(0.060)	(0.093)
I(Public T)	-0.008	0.013	-0.007	0.014	-0.008	0.013	-0.007	0.015	-0.005	0.013
	(0.012)	(0.015)	(0.012)	(0.014)	(0.012)	(0.014)	(0.012)	(0.014)	(0.010)	(0.014)
I(Exporter A)	-0.017	-0.018	-0.018	-0.019	-0.018*	-0.019	-0.019	-0.019	-0.023	-0.021
	(0.010)	(0.012)	(0.012)	(0.012)	(0.010)	(0.012)	(0.011)	(0.012)	(0.015)	(0.015)
I(Exporter T)	-0.002	-0.002	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001	-0.001	-0.003
	(0.009)	(0.010)	(0.008)	(0.011)	(0.009)	(0.011)	(0.009)	(0.011)	(0.011)	(0.012)
Age (A)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age (T)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Operating Cash Flow (A)	0.049	0.096***	0.057	0.105***	0.050	0.097***	0.055	0.104***	0.012	0.058
	(0.032)	(0.020)	(0.034)	(0.019)	(0.032)	(0.019)	(0.031)	(0.019)	(0.032)	(0.035)
Leverage (A)	-0.038***	-0.054***	-0.037**	-0.053**	-0.037**	-0.056***	-0.037**	-0.051**	-0.031*	-0.054**
	(0.012)	(0.018)	(0.014)	(0.019)	(0.014)	(0.019)	(0.015)	(0.020)	(0.016)	(0.022)
I(Vertical Merger)	-0.014	-0.007	-0.017	-0.009	-0.014	-0.006	-0.017	-0.006	-0.032	-0.040
	(0.012)	(0.021)	(0.011)	(0.021)	(0.012)	(0.022)	(0.011)	(0.023)	(0.020)	(0.041)
I(Horizontal Merger)	-0.004	0.001	-0.006	0.001	-0.003	0.003	-0.007	0.004	-0.019	-0.034
	(0.015)	(0.020)	(0.014)	(0.021)	(0.015)	(0.021)	(0.014)	(0.024)	(0.016)	(0.040)
I(Cash Deal)	0.016	0.009	0.016	0.007	0.016	0.010	0.016*	0.007	0.015*	0.012
	(0.010)	(0.011)	(0.009)	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)	(0.008)	(0.012)
I(Stock Deal)	0.007	0.004	0.008	0.005	0.007	0.005	0.007	0.005	0.004	0.004
	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.015)	(0.019)
I(Same Business Group)	0.000	0.010	0.002	0.012	0.000	0.010	0.002	0.011	0.002	0.011
	(0.006)	(0.013)	(0.006)	(0.011)	(0.006)	(0.013)	(0.006)	(0.011)	(0.010)	(0.015)
I(Same Language)	-0.022	-0.022	-0.021	-0.021	-0.019	-0.022	-0.020	-0.020	-0.022	-0.029
	(0.019)	(0.029)	(0.020)	(0.028)	(0.020)	(0.030)	(0.021)	(0.029)	(0.022)	(0.036)
I(Same State)	0.029	0.022	0.028	0.022	0.027	0.022	0.027	0.022	0.022	0.025
	(0.021)	(0.028)	(0.022)	(0.028)	(0.021)	(0.029)	(0.023)	(0.029)	(0.023)	(0.035)
Relative Size	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
I(Toehold)	-0.002	-0.001	-0.002	-0.001	-0.002	-0.001	-0.002	-0.001	0.001	0.005
	(0.009)	(0.012)	(0.009)	(0.012)	(0.008)	(0.012)	(0.009)	(0.012)	(0.008)	(0.012)
I(Board Interlock)	0.011	-0.001	0.011	0.001	0.012	-0.001	0.012	0.004	0.005	-0.003
	(0.010)	(0.009)	(0.011)	(0.010)	(0.010)	(0.009)	(0.011)	(0.010)	(0.010)	(0.011)
Board Size (A)	0.001	0.002	0.000	0.001	0.001	0.002	0.000	0.001	0.001	0.002
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Board Size (T)	-0.001	-0.002	-0.000	-0.001	-0.001	-0.002	-0.000	-0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
I(Dual CEO A)	-0.001	0.002	-0.001	0.004	-0.000	0.002	-0.001	0.003	0.003	0.001
	(0.005)	(0.008)	(0.006)	(0.008)	(0.005)	(0.008)	(0.006)	(0.008)	(0.007)	(0.011)
I(Dual CEO T)	0.002	-0.012	0.001	-0.014	0.002	-0.012	0.001	-0.014	-0.001	-0.006
	(0.006)	(0.010)	(0.007)	(0.011)	(0.006)	(0.010)	(0.006)	(0.010)	(0.009)	(0.012)
Caste Homophily (A)	0.015	-0.000	-0.004	-0.075	0.027	-0.003	-0.000	-0.063	-0.007	0.008
	(0.031)	(0.040)	(0.024)	(0.069)	(0.037)	(0.036)	(0.025)	(0.080)	(0.033)	(0.052)
Caste Homophily (T)	-0.018	-0.020	0.008	-0.000	-0.012	-0.022	0.010	0.006	-0.001	-0.004
	(0.011)	(0.018)	(0.010)	(0.015)	(0.013)	(0.018)	(0.011)	(0.018)	(0.013)	(0.022)
Constant	0.082	0.111	0.073	0.122	0.085	0.111	0.072	0.117	0.113	0.141
	(0.066)	(0.093)	(0.065)	(0.100)	(0.064)	(0.092)	(0.067)	(0.103)	(0.074)	(0.130)
Observations	488	422	488	422	488	422	488	422	381	328
R-squared	0.688	0.561	0.687	0.563	0.690	0.560	0.687	0.564	0.700	0.561

Notes: This table presents coefficient estimates from a regression of the merged firm's return on assets, measured one and two years after the announcement of the M&A deal, on caste proximity, acquirer's return on assets in the year of announcement, other firm level controls measured in the year of announcement, and deal level controls. The sample includes M&A deals between Indian firms during 2000-2017. In columns 1-2 (3-4), caste proximity is measured as an indicator variable that takes the value 1 when the acquirer and target boards have the same dominant varna (jati). In columns 5-6 (7-8), caste proximity is measured as the total number of same-varna (jati) pairs of acquirer-target board members as a fraction of the number of all pairs. In columns 9-10, caste proximity is calculated as the hierarchal distance between the dominant varnas of the acquirer and target boards. Size is the log of total assets; relative size is the ratio of total assets of the acquirer and target. Indicators are included for public and exporter status of acquirer/target, whether the deal is horizontal, vertical or unrelated, whether the deal was financed through cash, stock, or other means, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, whether their boards have at least one interlock, CEO duality, and whether acquirer had a toehold in the target before the merger. Other controls include age of acquirer/target, operating cash flow relative to total assets and leverage of acquirer, sizes of the acquirer and target boards, and board homophily of acquirer and target, measured as their varna HHI (columns 1, 2, 5, 6, 9, 10) or jati HHI (columns 3, 4, 7, 8). All specifications include year and industry-pair fixed effects. The dependent variable and all continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by year are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 12: Long Run Performance: Operating Cash Flow Ratio and Caste Proximity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent Variable: Merged Firm Operating Cash Flow Ratio at time t+k									
Caste Proximity Measure	Same Varna		Same Jati		Overlap Varna		Overlap Jati		Varna Hierarchy Distance	
Timing of Dependent Variable	t+1	t+2	t+1	t+2	t+1	t+2	t+1	t+2	t+1	t+2
Caste Proximity	-0.001	-0.011	0.011	-0.008	-0.088*	-0.064	-0.077	-0.065	0.004	0.007
	(0.007)	(0.012)	(0.009)	(0.011)	(0.050)	(0.073)	(0.057)	(0.067)	(0.003)	(0.006)
Size (A)	0.007*	0.000	0.006*	-0.003	0.006*	-0.000	0.006	-0.003	0.008**	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Size (T)	0.001	0.006*	0.002	0.007**	0.002	0.006**	0.003	0.007**	-0.000	0.001
	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.002)	(0.003)
I(Public A)	0.016	-0.005	0.008	-0.014	0.011	-0.011	0.010	-0.016	-0.012	-0.004
	(0.062)	(0.047)	(0.065)	(0.042)	(0.062)	(0.045)	(0.064)	(0.040)	(0.068)	(0.070)
I(Public T)	-0.002	0.012	0.001	0.015	-0.002	0.011	0.003	0.016	-0.009	0.007
	(0.010)	(0.015)	(0.010)	(0.014)	(0.010)	(0.016)	(0.009)	(0.015)	(0.018)	(0.024)
I(Exporter A)	0.010	-0.011	0.005	-0.017	0.009	-0.013	0.006	-0.017	0.011	-0.011
	(0.016)	(0.011)	(0.015)	(0.010)	(0.015)	(0.012)	(0.015)	(0.010)	(0.015)	(0.012)
I(Exporter T)	-0.016	-0.019	-0.015	-0.017	-0.015	-0.018	-0.014	-0.017	-0.007	-0.015
	(0.013)	(0.012)	(0.013)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.015)	(0.017)
Leverage (A)	-0.097***	-0.058**	-0.099***	-0.059**	-0.093***	-0.057**	-0.094***	-0.058**	-0.100***	-0.041
	(0.026)	(0.027)	(0.026)	(0.025)	(0.027)	(0.027)	(0.026)	(0.026)	(0.032)	(0.024)
OCF at Deal Announcement (A)	0.255***	0.140***	0.267***	0.157***	0.257***	0.142***	0.268***	0.157***	0.250***	0.111***
	(0.043)	(0.039)	(0.046)	(0.038)	(0.042)	(0.039)	(0.046)	(0.039)	(0.063)	(0.035)
Age (A)	0.000	0.001***	0.000*	0.001***	0.000*	0.001***	0.000**	0.001***	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age (T)	0.000	-0.000**	0.000	-0.000*	0.000	-0.000**	0.000	-0.000*	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
I(Vertical Merger)	0.012	0.025**	0.001	0.020*	0.010	0.025**	0.001	0.020*	-0.001	-0.001
	(0.028)	(0.010)	(0.028)	(0.010)	(0.027)	(0.010)	(0.027)	(0.010)	(0.036)	(0.021)
I(Horizontal Merger)	0.028	0.030	0.016	0.026	0.026	0.031	0.016	0.027	0.018	-0.002
	(0.034)	(0.022)	(0.034)	(0.022)	(0.032)	(0.021)	(0.034)	(0.022)	(0.046)	(0.021)
I(Cash Deal)	0.024**	0.001	0.022**	-0.004	0.022**	0.001	0.020*	-0.005	0.016	0.005
	(0.010)	(0.012)	(0.010)	(0.013)	(0.009)	(0.012)	(0.010)	(0.013)	(0.014)	(0.016)
I(Stock Deal)	-0.014	-0.007	-0.014	-0.007	-0.015	-0.007	-0.014	-0.007	-0.030	-0.010
	(0.024)	(0.013)	(0.024)	(0.013)	(0.024)	(0.013)	(0.024)	(0.013)	(0.025)	(0.015)
I(Same Business Group)	-0.007	-0.003	-0.002	0.001	-0.007	-0.003	-0.002	-0.000	-0.003	0.001
	(0.008)	(0.012)	(0.009)	(0.012)	(0.008)	(0.011)	(0.009)	(0.011)	(0.010)	(0.010)
I(Same Language)	-0.018	0.028	-0.016	0.031	-0.012	0.031	-0.011	0.033	-0.014	-0.001
	(0.047)	(0.035)	(0.046)	(0.036)	(0.047)	(0.035)	(0.046)	(0.035)	(0.046)	(0.022)
I(Same State)	0.006	-0.020	0.004	-0.022	0.003	-0.022	0.001	-0.023	0.005	0.005
	(0.045)	(0.035)	(0.044)	(0.036)	(0.046)	(0.035)	(0.044)	(0.036)	(0.045)	(0.026)
Relative Size	0.000	0.000**	0.000	0.000**	0.000	0.000**	0.000	0.000**	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
I(Toehold)	0.004	0.009	0.003	0.009	0.004	0.009	0.004	0.009	0.000	0.012
	(0.011)	(0.010)	(0.011)	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.012)	(0.013)
I(Board Interlock)	0.019*	-0.010	0.016	-0.011	0.023**	-0.009	0.024**	-0.008	0.028**	0.000
	(0.010)	(0.013)	(0.010)	(0.011)	(0.009)	(0.013)	(0.011)	(0.012)	(0.011)	(0.016)
Board Size (A)	-0.001	0.002	-0.002	0.000	-0.001	0.002*	-0.002	0.000	-0.001	0.001
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Board Size (T)	-0.004*	-0.002	-0.003	-0.001	-0.004*	-0.002	-0.003	-0.001	-0.003	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
I(Dual CEO A)	0.018*	0.009	0.019*	0.013	0.019**	0.009	0.021**	0.014	0.019	0.011
	(0.009)	(0.007)	(0.009)	(0.008)	(0.009)	(0.007)	(0.010)	(0.008)	(0.012)	(0.010)
I(Dual CEO T)	0.005	-0.010	0.003	-0.013	0.004	-0.009	0.003	-0.013	-0.008	-0.005
	(0.016)	(0.013)	(0.016)	(0.014)	(0.015)	(0.013)	(0.016)	(0.014)	(0.017)	(0.016)
Caste Homophily (A)	0.050	0.032	-0.039	-0.161***	0.082**	0.047	-0.018	-0.148**	0.033	0.061
	(0.033)	(0.050)	(0.039)	(0.053)	(0.035)	(0.055)	(0.042)	(0.059)	(0.037)	(0.065)
Caste Homophily (T)	-0.053**	-0.036	0.005	0.011	-0.037**	-0.028	0.018	0.017	-0.050*	-0.033
	(0.020)	(0.028)	(0.028)	(0.027)	(0.015)	(0.027)	(0.029)	(0.029)	(0.028)	(0.031)
Constant	0.018	0.031	0.027	0.088	0.026	0.038	0.021	0.087	0.044	0.032
	(0.083)	(0.072)	(0.081)	(0.065)	(0.078)	(0.070)	(0.081)	(0.064)	(0.084)	(0.086)
Observations	584	506	584	506	584	506	584	506	459	394
R-squared	0.346	0.319	0.341	0.327	0.351	0.321	0.341	0.328	0.348	0.336

Notes: This table presents coefficient estimates from a regression of the merged firm's operating cash flow relative to total assets, measured one and two years after the announcement of the M&A deal, on caste proximity, acquirer's operating cash flow ratio in the year of announcement, other firm level controls measured in the year of announcement, and deal level controls. The sample includes M&A deals between Indian firms during 2000-2017. In columns 1-2 (3-4), caste proximity is measured as an indicator variable that takes the value 1 when the acquirer and target boards have the same dominant varna (jati). In columns 5-6 (7-8), caste proximity is measured as the total number of same-varna (jati) pairs of acquirer-target board members as a fraction of the number of all pairs. In columns 9-10, caste proximity is calculated as the hierarchal distance between the dominant varnas of the acquirer and target boards. Size is the log of total assets; relative size is the ratio of total assets of the acquirer and target. Indicators are included for public and exporter status of acquirer/target, whether the deal is horizontal, vertical or unrelated, whether the deal was financed through cash, stock, or other means, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, whether their boards have at least one interlock, CEO duality, and whether acquirer had a toehold in the target before the merger. Other controls include age of acquirer/target, leverage of acquirer, sizes of the acquirer and target boards, and board homophily of acquirer and target, measured as their varna HHI (columns 1, 2, 5, 6, 9, 10) or jati HHI (columns 3, 4, 7, 8). All specifications include year and industry-pair fixed effects. The dependent variable and all continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by year are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 13: Likelihoog of Same-Caste Deals

	(1)	(2)
	Dependent Variable: M&A Deal Type	
	I(Same Varna)	I(Same Jati)
Size (A)	-0.010	-0.016**
	(0.009)	(0.007)
Size (T)	0.029***	0.023***
	(0.009)	(0.007)
I(Public A)	-0.021	0.089
	(0.101)	(0.061)
I(Public T)	0.081	0.032
	(0.050)	(0.041)
I(Exporter A)	0.086**	0.050
	(0.039)	(0.032)
I(Exporter T)	-0.034	0.047
	(0.036)	(0.029)
Age (A)	-0.000	0.001*
	(0.001)	(0.001)
Age (T)	-0.000	-0.001
	(0.001)	(0.001)
Operating Cash Flow (A)	0.055	0.043
	(0.126)	(0.096)
Leverage (A)	0.132*	0.103*
	(0.070)	(0.054)
I(Vertical Merger)	-0.017	0.056
	(0.084)	(0.062)
I(Horizontal Merger)	-0.149*	0.083
	(0.090)	(0.068)
I(Cash Deal)	-0.058*	-0.055**
	(0.034)	(0.027)
I(Stock Deal)	-0.069	-0.008
	(0.056)	(0.051)
I(Same Business Group)	0.059	0.068**
	(0.037)	(0.030)
I(Same Language)	0.033	0.074
	(0.104)	(0.075)
I(Same State)	0.050	-0.022
	(0.105)	(0.077)
Relative Size	-0.000	0.000
	(0.000)	(0.000)
I(Toehold)	0.039	0.001
	(0.031)	(0.025)
I(Board Interlock)	0.166***	0.266***
	(0.038)	(0.033)
Board Size (A)	0.011**	0.006
	(0.005)	(0.005)
Board Size (T)	0.011**	0.008*
	(0.006)	(0.005)
I(Dual CEO A)	-0.028	0.028
	(0.032)	(0.027)
I(Dual CEO T)	-0.077**	0.006
	(0.036)	(0.029)
Board Homophily (A)	0.471***	0.494***
	(0.118)	(0.120)
Board Homophily (T)	0.383***	0.380***
	(0.083)	(0.069)
Constant	-0.405*	-0.378**
	(0.239)	(0.186)
Observations	1,053	1,053
R-squared	0.183	0.291

Notes: This table presents coefficient estimates from linear probability regression models of the likelihood of a same-caste merger (conditional on the occurrence of a merger) on firm, firm-pair and deal level controls. The sample includes all completed M&A deals between Indian firms during 2000-2017. The dependent variable takes the value 1 if the dominant castes of the acquirer and target boards are the same and 0 otherwise. Caste is measured by varna in column 1 and jati in column 2. The variables of interest are the size of target, its public and exporter status, acquirer board caste homophily and the share of major investorts in its equity. Size is the log of total real assets; relative size is the ratio of total assets of acquirer and target. Indicators are included for public and exporter status of acquirer, whether the deal is horizontal, vertical or unrelated, whether the deal was financed through cash, stock, or other means, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, whether their boards have at least one interlock, CEO duality, and whether acquirer had a toehold in the target before the merger. Other controls include age of acquirer/target, operating cash flow relative to assets and leverage of acquirer, sizes of the acquirer and target boards, and board homophily of target, measured as their varna HHI in column 1 and jati HHI in column 2. All specifications include year and industry-pair fixed effects. The dependent variable and all continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by year are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 14: Director Retention and Compensation Post Deal

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Average Percentage of Directors Retained after M&A Deals						
	Varna			Jati		
Director caste same as the dominant caste of the acquirer board before deal?	Yes	No	Difference (Yes - No)	Yes	No	Difference (Yes - No)
All Deals	85.49	82.84	2.65**	88.81	85.93	2.88
Same Caste Deals	83.59	82.95	0.64	88.81	85.51	3.3
Different Caste Deals	86.62	82.77	3.85***	85.93	82.92	3.01**
Difference (same caste - different caste)	-3.03**	0.18		2.88	2.59	
Acquirer CEO - Board: Same Caste	85.43	80.73	4.7***	88.5	83.25	5.25***
Acquirer CEO - Board: Different Castes	85.45	85.72	-0.27	85.16	83.43	1.73
Difference (same caste - different caste)	-0.02	-4.99***		3.34*	-0.18	
Acquirer Above-Median Board Homophily	88	83.49	4.51**	87.16	83.94	3.22*
Acquirer Below-Median Board Homophily	83.55	82.36	1.19	86.07	83.11	2.96**
Difference (above median - below median)	4.45***	1.13		1.09	0.83	
Sample Size	588			594		
Panel B: Average Percentage Change in Compensation of Retained Directors						
	Varna			Jati		
Director caste same as the dominant caste of the acquirer board before deal?	Yes	No	Difference (Yes - No)	Yes	No	Difference (Yes - No)
All Deals	367.59	183.58	184.01	375.06	222.93	152.13
Same Caste Deals	427.85	156.35	271.5	159.66	156.98	2.68*
Different Caste Deals	330.82	200.2	130.62	428.91	239.42	189.49
Difference (same caste - different caste)	97.03*	-43.85		-269.25	-82.44	
Acquirer CEO - Board: Same Caste	294.42	136.15	158.27	179.46	161.29	18.17
Acquirer CEO - Board: Different Castes	133.62	161.77	-28.15	333.13	181.31	151.82
Difference (same caste - different caste)	160.8	-25.62		-153.67	-20.02	
Acquirer Above-Median Board Homophily	502.69	217.88	284.81	456.38	238.64	217.74
Acquirer Below-Median Board Homophily	289.15	163.67	125.48	342.95	216.73	126.22
Difference (above median - below median)	213.54	54.21		113.43	21.91	
Sample Size	330			325		

Notes: This table presents the mean percentages of acquirer's directors retained after M&A deals and the mean percentage change in their real compensations compared to before the deal. This is done for two subgroups of directors: those who belong to the dominant caste of the acquirer board (columns 1 and 4) and those that do not (columns 2 and 5). The percentages are calculated for all deals, based on whether they are same- or different-caste deals, based on whether the acquirer firm's CEO is of the same or different caste compared to the dominant caste of its board, and whether the acquirer board's caste homophily (measured as caste HHI) is above or below sample median. Columns 1-3 present results for varna and columns 4-6 present results for jati. Columns 3 and 6 provide the difference between the values in columns 1 and 2, and 4 and 5, respectively, along with whether the values are statistically different. The differences in values (within each subgroup of directors but between deal or acquirer board characteristics), and whether they are statistically different are also presented. The sample includes all completed M&A deals between Indian firms during 2000-2017 for which we can observe acquirer board composition before and merged board composition after the dea (panel A) and additionally for which we can observe compensation of at least 50% of retained directors before and after the deal (panel B). *** p<0.01, ** p<0.05, * p<0.10.

Table 15: Likelihood of Same-Caste Deals for Serial Acquirers

	(1)	(2)	(3)	(4)
M&A Deal Type	I(Same Varna)	I(Same Varna)	I(Same Jati)	I(Same Jati)
I(Previous Deal Same Caste)		-0.038		-0.283*
		(0.160)		(0.137)
CAR of Previous Deal		-0.929		0.474
		(1.862)		(1.336)
I(Previous Deal Same Caste) x CAR of Previous Deal		1.444		2.054
		(2.707)		(2.018)
Number of Acquisition	-0.004	-0.051	0.006	-0.006
	(0.010)	(0.040)	(0.007)	(0.019)
Size (A)	0.023	0.042	-0.012	0.028
	(0.105)	(0.225)	(0.045)	(0.150)
Size (T)	0.069***	0.108**	0.021	0.017
	(0.018)	(0.048)	(0.013)	(0.014)
I(Public A)	1.082	-0.523	-0.521	-0.339
	(1.125)	(4.273)	(0.607)	(1.895)
I(Public T)	0.014	0.072	0.126	0.174
	(0.149)	(0.360)	(0.083)	(0.138)
I(Exporter A)	-0.148	-0.698**	0.165*	-0.250
	(0.123)	(0.327)	(0.084)	(0.202)
I(Exporter T)	-0.052	0.065	0.058	0.052
	(0.083)	(0.169)	(0.045)	(0.082)
Age (A)	-0.029	0.018	0.012	-0.020
	(0.046)	(0.106)	(0.023)	(0.047)
Age (T)	-0.000	0.001	-0.001	-0.004
	(0.002)	(0.004)	(0.001)	(0.002)
Operating Cash Flow (A)	0.055	0.724	-0.032	0.072
	(0.507)	(1.158)	(0.226)	(0.442)
Leverage (A)	0.023	-0.562	0.028	0.107
	(0.228)	(0.658)	(0.171)	(0.276)
I(Vertical Merger)	-0.047	0.008	-0.146	-0.144
	(0.114)	(0.260)	(0.121)	(0.157)
I(Horizontal Merger)	-0.297*	-0.172	-0.059	-0.098
	(0.155)	(0.308)	(0.102)	(0.142)
I(Cash Deal)	-0.036	0.040	0.001	0.026
	(0.077)	(0.171)	(0.038)	(0.070)
I(Stock Deal)	0.106	0.077	0.026	-0.023
	(0.100)	(0.215)	(0.088)	(0.186)
I(Same Business Group)	-0.024	-0.255	-0.057	0.093
	(0.089)	(0.179)	(0.074)	(0.158)
I(Same Language)	-0.145	0.316	-0.050	-1.320**
	(0.183)	(0.770)	(0.160)	(0.606)
I(Same State)	0.256	-0.228	0.165	1.487**
	(0.164)	(0.805)	(0.174)	(0.620)
Relative Size	0.000*	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
I(Toehold)	0.036	0.056	-0.037	-0.051
	(0.045)	(0.096)	(0.035)	(0.067)
I(Board Interlock)	0.103	0.208	0.216**	0.140
	(0.111)	(0.258)	(0.080)	(0.126)
Board Size (A)	0.001	-0.009	-0.003	-0.032
	(0.014)	(0.031)	(0.013)	(0.023)
Board Size (T)	0.011	0.000	-0.004	-0.007
	(0.009)	(0.019)	(0.006)	(0.012)
I(Dual CEO A)	-0.050	-0.224	-0.052	-0.015
	(0.090)	(0.227)	(0.103)	(0.148)
I(Dual CEO T)	-0.114	-0.169	0.029	0.105
	(0.066)	(0.179)	(0.059)	(0.084)
Board Homophily (A)	-0.021	0.007	-0.689	-1.506
	(0.391)	(1.352)	(0.557)	(1.701)
Board Homophily (T)	0.443**	0.410	0.474***	0.474
	(0.194)	(0.452)	(0.159)	(0.386)
Constant	-0.377	-0.230	1.226	3.094
	(0.813)	(11.500)	(0.845)	(4.709)
Observations	602	323	602	323
R-squared	0.553	0.695	0.660	0.793

Notes: This table presents coefficient estimates from linear probability regressions of the likelihood of a same-caste merger (conditional on the occurrence of a merger) on firm and firm-pair level controls. The sample includes all completed M&A deals between Indian firms during 2000-2017 where the acquirer has completed at least two deals in the sample period. The dependent variable takes the value 1 if the dominant castes of the acquirer and target boards are the same and 0 otherwise. In columns 1-2 (3-4), caste is measured by varna (jati). The variables of interest are the announcement day CAR from the acquirer's previous deal, an indicator for whether the acquirer's previous deal was a same-caste deal, and an interaction term between the two. An additional variable of interest is acquisition number of the particular deal for each serial acquirer. Size is the log of total real assets; relative size is the ratio of total assets of acquirer and target. Indicators are included for public and exporter status of acquirer/target, whether the deal is horizontal, vertical or unrelated, whether the deal was financed through cash, stock, or other means, whether acquirer and target belong to the same business group, whether they are located in the same state, whether their directors predominantly speak the same language, whether their boards have at least one interlock, CEO duality, and whether acquirer had a toehold in the target before the merger. Other controls include age of acquirer/target, operating cash flow relative to total assets and leverage of acquirer, sizes of the acquirer and target boards, and board homophily of acquirer and target, measured as their varna HHI (columns 1, 2) or jati HHI (columns 3, 4). All specifications include year and industry-pair fixed effects. The dependent variable and all continuous independent variables are winsorized at the 1% level. Robust standard errors clustered by year are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Appendices

Appendix A Variable Definitions

Table A.1: Variable definitions

Variables	Definitions
Panel A: Measures of M&A performance	
Acquirer Cumulative Abnormal Returns (ACAR)	The difference between the return on the stock over the announcement window and the corresponding return on the market index for the acquirer
Target Cumulative Abnormal Returns (TCAR)	The difference between the return on the stock over the announcement window and the corresponding return on the market index for the target
Merged firm Cumulative Abnormal Returns (MCAR)	Cumulative abnormal return for a value-weighted portfolio of the acquirer and the target. The weights are based on the market capitalizations of the acquirer and the target at two months (43 trading days) prior to the announcement date.
Takeover Premium	Total value of compensation paid to target shareholders divided by target's market value of equity 43 trading days prior to the acquisition announcement less one
Time to Deal Completion	The number of days between the announcement date and the date on which the entire transaction is completed and effective
Panel B: Firm and Deal Characteristics	
From SDC	
Transaction Value	Total value of consideration paid by the acquirer, excluding fees and expenses in million Rupees (INR)
Stock deal	Indicator variable: one for deals financed partially (more than 50%) or fully with stock, zero otherwise

Cash deal	Indicator variable: one for deals financed partially (more than 50%) or fully with cash, zero otherwise
From Prowess	
Firm size	Real value of total assets in rupees million
Age of firm	Number of years since incorporation of firm
Export status	Indicator variable: one for exporting firms, zero otherwise
State of Registration	The Indian state in which the firm is registered
Industry	Two digit NIC-2008 sector
Public Status	Indicator variable: one for public firms, zero otherwise
Listing Status	Indicator variable: one for firms listed either in the Bombay Stock Exchange (BSE) or the National Stock Exchange (NSE) at that point in time, zero otherwise
Operating cash flow Ratio	Cash flow from operating activities before depreciation over book value of total assets
Leverage	Book value of debt over book value of assets
Operating income	Sales less operating expenses
Return on Assets (ROA)	Operating income over book value of total assets
Prior Year Stock Performance (PYSP)	Cumulative sum of natural logarithm of daily stock returns for 200 trading days starting the 264th trading day prior to deal announcement.
Prior Year Stock Volatility (PYSV)	Standard deviation of natural logarithm of daily stock returns for 200 trading days starting the 264th trading day prior to deal announcement.
Vertical Merger	Indicator variable: one if acquirer and target industries are linked by a buyer-supplier relationship, zero if they are from the same industry
Relative Size	Book value of assets of acquirer over book value of assets of target
Busyness	The mean number of other companies on which a director of the company is also a director

Diligence	Mean percentage of board meetings attended by the directors of a company
Same state	Indicator variable: one if acquirer and target are from same state, zero otherwise
Same language	Indicator variable: one if acquirer and target are from states whose dominant language is the same, zero otherwise *(Source:Census of India, 2011)*
Panel C: Measures of Caste	
Dominant *varna (jati)* of a board	The *varna (jati)* of the maximum number of directors of a board. In case of ties, dominant *varna (jati)* is chosen randomly from the tie
Board *varna (jati)* Homophily	*varna (jati)* HHI, i.e., sum of squared shares of all *varnas (jatis)* represented on the board.
Panel D: Caste Proximity Measures	
Same Dominant *varna (jati)*	Indicator variable: one if acquirer and target boards have the same dominant *varna (jati)*, zero otherwise
varna (jati) Overlap	Percentage of same *varna (jati)* director pairs between the acquirer and target firms $= 100 \times \frac{\#\text{ same } varna\ (jati) \text{ director pairs}}{\text{total director pairs}}$
varna Hierarchy distance	Absolute value of difference between *varna* rank of acquirer board and *varna* rank of target board, where *varnas* are ranked as: Brahmin - 1, Kshatriya - 2, Vaishya - 3, Shudra - 4, Dalit - 5

Appendix B Jati Network Graph Without Agarwal

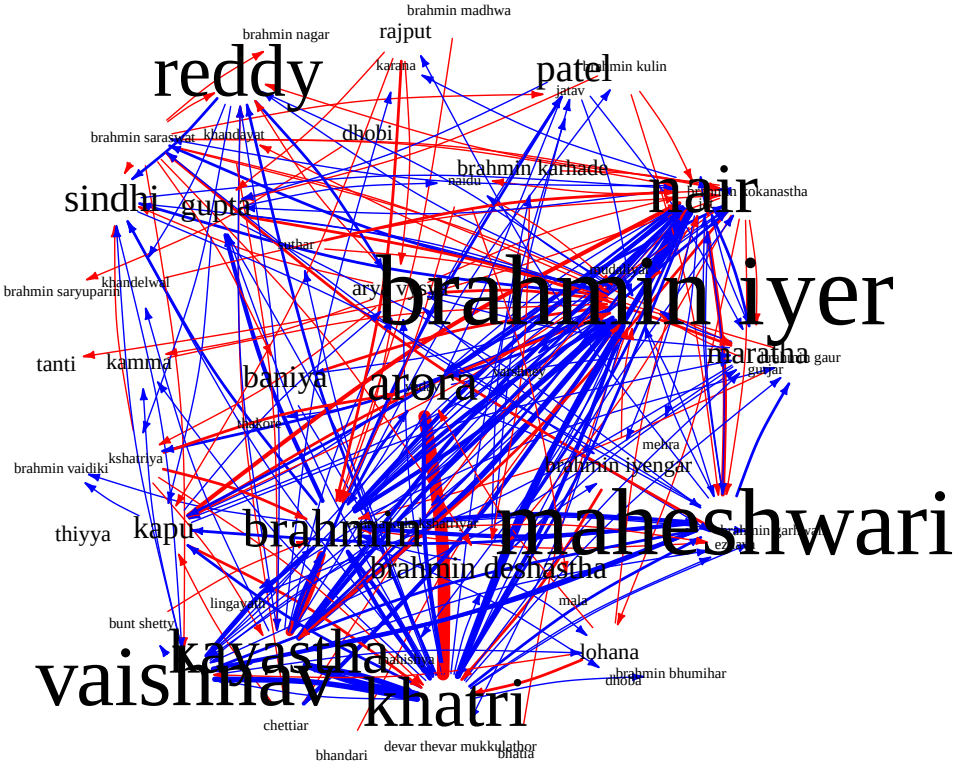

Figure B.1: Composition of Deals by Dominant Jatis of Acquirer and Target without *Agarwal*

Appendix C Simulation Results

Table C.1: Percentage of Same-Varna Deals in Simulations, Controlling for Same-State or Same-Language

	(1)	(2)	(3)	(4)
Panel A: Same-State Merger Subset				
Simulation Criteria	Mean Percentage of Same-Varna Mergers in 100 Simulated Samples	Percentage of Same-Varna Mergers in Observed Sample	Diff. Observed Percentage - Simulation Percentage	t-stat
Random Acquirer, Random Target	24.19%	48.95%	24.76%	55.75***
Observed Acquirer, Random Target	23.53%	48.95%	25.42%	64.39***
Observed Target, Random Acquirer	22.63%	48.95%	26.32%	62.87***
Panel B: Same-Language Merger Subset				
Simulation Criteria	Mean Percentage of Same-Varna Mergers in 100 Simulated Samples	Percentage of Same-Varna Mergers in Observed Sample	Diff. Observed Percentage - Simulation Percentage	t-stat
Random Acquirer, Random Target	24.76%	47.67%	22.91%	58.08***
Observed Acquirer, Random Target	24.56%	47.67%	23.11%	64.76***
Observed Target, Random Acquirer	23.44%	47.67%	24.23%	70.49***

This table presents comparisons of sample mean percentages of same-varna M&A deals in simulated samples to the percentage of same-varna M&A deals in the observed sample. In Panel A, we compare the average percent of same-varna deals in one hundred simulated trials to the percent of same-varna deals observed in the actual M&A sample *for the subset of mergers taking place between two firms headquartered in the same state.* In Panel B, we compare the average percent of same-varna deals in one hundred simulated trials to the percent of same-varna deals observed in the actual M&A sample for the subset of mergers taking place between two firms whose directors dominantly speak the same language. In Panel A (B), Column 1 presents the mean over 100 simulated samples of the percentage of same-varna mergers in the subset of same-state (same-language) mergers for each of the three different sets of criteria for random selection. Column 2 shows percentage of same-varna mergers in the observed sub-sample of same-state (same-language) mergers. Column 3 presents the difference between the average percentage in the simulated sample and the observed percentage. Column 4 displays the t-statistic for a comparison of means test between the observed and simulated samples. Simulations are created by randomly selecting a pair of firms for each observed merger using three different sets of criteria for the randomly selected population. The simulation criteria are described in detail in section 3.1. ***p<0.01, **p<0.05, *p<0.10

Table C.2: Percentage of Same-Jati Deals in Simulations, Controlling for Same-State or Same-Language

	(1)	(2)	(3)	(4)
Panel A: Same-State Merger Subset				
Simulation Criteria	Mean Percentage of Same-Jati Mergers in 100 Simulated Samples	Percentage of Same-Jati Mergers in Observed Sample	Diff. Observed Percentage - Simulation Percentage	t-stat
Random Acquirer, Random Target	8.61%	31.36%	22.75%	81.38***
Observed Acquirer, Random Target	7.62%	31.36%	23.74%	95.18***
Observed Target, Random Acquirer	7.49%	31.36%	23.87%	100.50***
Panel B: Same-Language Merger Subset				
Simulation Criteria	Mean Percentage of Same-Jati Mergers in 100 Simulated Samples	Percentage of Same-Jati Mergers in Observed Sample	Diff. Observed Percentage - Simulation Percentage	t-stat
Random Acquirer, Random Target	8.66%	30.47%	21.81%	91.33***
Observed Acquirer, Random Target	8.03%	30.47%	22.44%	97.35***
Observed Target, Random Acquirer	7.84%	30.47%	22.63%	104.69***

This table presents comparisons of sample mean percentages of same-jati M&A deals in simulated samples to the percentage of same-jati M&A deals in the observed sample. In Panel A, we compare the average percent of same-jati deals in one hundred simulated trials to the percent of same-jati deals observed in the actual M&A sample *for the subset of mergers taking place between two firms headquartered in the same state.* In Panel B, we compare the average percent of same-jati deals in one hundred simulated trials to the percent of same-jati deals observed in the actual M&A sample for the subset of mergers taking place between two firms whose directors dominantly speak the same language. In Panel A (B), Column 1 presents the mean over 100 simulated samples of the percentage of same-jati mergers in the subset of same-state (same-language) mergers for each of the three different sets of criteria for random selection. Column 2 shows percentage of same-jati mergers in the observed sub-sample of same-state (same-language) mergers. Column 3 presents the difference between the average percentage in the simulated sample and the observed percentage. Column 4 displays the t-statistic for a comparison of means test between the observed and simulated samples. Simulations are created by randomly selecting a pair of firms for each observed merger using three different sets of criteria for the randomly selected population. The simulation criteria are described in detail in section 3.1. ***p<0.01, **p<0.05, *p<0.10

Online Appendix to Accompany "Firms of a Feather Merge Together: Cultural Proximity and M&A Outcomes"

Online Appendix A Examples: Measures of Caste Proximity

Same Dominant Caste

Same dominant caste measures caste proximity between two boards as an indicator variable that takes on the value of 1 if the two boards have the same dominant *varna* or (*jati*), and 0 otherwise.

Consider the example in Table A.1 of two boards that have five board members each. Board A has four members of *Kshatriya varna* and one of *Vaishya varna*. Board T has three members of *Kshatriya varna* and one each of *Vaishya* and *Brahmin varnas*. Thus, caste proximity, as measured by the same dominant caste, for these two boards is one, since both have the same dominant *varna*.

Table Online Appendix A.1: Measure of Caste Proximity – Dominant Varna

		Board A	Board T
Board Size		5	5
Varna of Directors	Kshatriya	4	3
	Vaishya	1	1
	Brahmin	0	1
Dominant *varna* of Board		Kshatriya	Kshatriya
Same Dominant Varna		Yes	

Table Online Appendix A.2: Measure of Caste Proximity – Dominant Varna

		Board A	Board T
Board Size		5	5
Varna of Directors	Kshatriya	4	1
	Vaishya	1	3
	Brahmin	0	1
Dominant *varna* of Board		Kshatriya	Vaishya
Same Dominant Varna		No	

Now consider the example in Table A.2 of two boards that have five board members each. Board A has the same board composition as before. Board T has three members of *Vaishya varna* and one each of *Kshatriya* and *Brahmin varnas*. Caste proximity, as measured by the same dominant caste, for these two boards is zero, since they have different dominant *varnas*.

Table Online Appendix A.3: Measure of Caste Proximity – Dominant Varna

		Board A	Board T
Board Size		5	5
Varna of Directors	Kshatriya	4	2
	Vaishya	1	2
	Brahmin	0	1
Dominant *varna* of Board		Kshatriya	Kshatriya (Vaishya)
Same Dominant Varna			Yes (No)

Now consider the example in Table A.3 of two boards that have five board members each. Board A has the same board composition as before. Board T has two members of *Vaishya* and *Kshatriya varnas* and one of *Brahmin varna*. Board T does not have a unique dominant *varna*. For such cases, we randomly assign one top *varna* as a dominant *varna*. In this case, caste proximity between these two boards is zero and one with 50% probability each.

Overlap

We define a continuous measure of caste proximity with a variable, overlap, that measures the percentage of same *varna* (*jati*) pairs among all possible pairwise combinations of directors between the two boards. We provide examples in Tables A.4 and A.5.

Table Online Appendix A.4: *Varna* Composition of all Director Pairs

	Board T				
Board A	Kshatriya	Kshatriya	Kshatriya	Vaishya	Brahmin
Kshatriya	1	1	1	0	0
Kshatriya	1	1	1	0	0
Kshatriya	1	1	1	0	0
Kshatriya	1	1	1	0	0
Vaishya	0	0	0	1	0

Consider the case where acquirer and target board size is five each. *Varna* composition of

the two boards is the same as in Table A.1. Table A.4 illustrates the *varna* composition of all director pairs. The first row and column indicate the *varna* of board members of acquirer and target boards respectively. We consider a pair of board members to be connected if they belong to the same *varna*. Each cell takes value one if the board members of the two firms are from the same *varna* and zero otherwise. Two boards that have five board members each can have a maximum of twenty five possible connections of board members. This will happen when all board members are of the same *varna* in both the boards. In our example, the two boards have thirteen connections. Thus, our measure of overlap is:

$$\text{Overlap} = \tfrac{13}{25} = 0.52$$

Hierarchy

The caste system is hierarchical in nature, with *Brahmins* at the top of the echelon followed by *Kshatriyas, Vaishyas, Shudras* and *Dalits*, in that order. We define a measure of caste proximity that calculates the absolute distance between the dominant *varnas* of the two boards using the hierarchy of castes. Firms that have dominant *varnas* which are close in the hierarchy are assigned lower values than pairs of dominant *varnas* differ more in their ranking in the hierarchy. We assume that each *varna* is equidistant from its successor and predecessor.

Consider the board composition of two boards as in Table A.1. Since both firms have the same dominant *varna*, the hierarchy measure is assigned a value of 0. For the board composition in Table A.2, the two firms have distinct dominant *varnas*. The distance between these two *varnas* is one, which is the value of the hierarchy measure.

Online Appendix B Examples: Simulated Samples

In this section, we provide a few examples of the simulations that we present in Section 4 of the paper.

Unconditional Simulated Sample

We first perform an unconditional simulation where for every observed merger, we draw a completely random acquirer and completely random target from the set of firms for which

we observe financial and board information in the year of the observed merger. For example, suppose that in the year 2011 there are 200 unique firms and 50 mergers (see Table B.1). We put them in pairs of potentially merging firms, excluding the possibility that both firms in the pair are the same. Thus, we have (200 x 199)/2 pairs. We randomly draw a hundred samples of 50 firm pairs from this set, and calculate the percentage of same *varna* pairs for each sample, and then the average percentage across all hundred samples.

Table Online Appendix B.1: Example

Year	2011
Observed Number of Firms	200
Observed Number of M&A	50
Simulation	
Possible Number of Mergers	(200x199)/2
Randomly draw 50 mergers	100 times

State-Pair Conditional Simulated Sample

In a second simulation, we condition our choice of random firms on the state pairs in the sample of observed M&A deals. Specifically, for every observed merger deal, we randomly draw one firm from the acquiring firm's headquarter state and one firm from the target firm's headquarter state from the set of firms for which we observe financial and board information in the year of the observed merger. Consider the same example as in Table B.1, with additional information about the firms' headquarter states in Table B.2. We randomly draw a hundred samples of 30 pairs such that both firms are registered in Karnataka (excluding the possibility that both firms in the pair are the same), and 12 (8) pairs such that one firm is registered in Karnataka and the other in Maharashtra (Rajasthan). We calculate the percentage of same *varna* mergers in each of these hundred random samples, and then the average of these percentages across all samples. We analogously conduct simulations where we condition our choice of random firms on the industry pairs in the sample of observed M&A deals.

Table Online Appendix B.2: Example

Panel A:Number of Firms by State

State	N
Karnataka (KA)	100
Maharashtra (MH)	60
Rajasthan (RJ)	40

Panel B: No. of M&As by State Pairs

State Pair	N
KA – KA	30
KA – MH	12
KA – RJ	8

Panel C: Simulation

State-Pair	Population	Sample Size
KA – KA	$(100 \times 99)/2$	30
KA – MH	100×60	12
KA – RJ	100×40	8

Acquirer (Target) Conditional Sample

In a third simulation, we hold the observed acquirers (targets) fixed and match them with random targets (acquirers) chosen from the set of all firms for which we observe financial and board information in the year of the observed merger. In our random draws, we exclude the possibility that the acquirer (target) is matched with itself or its observed target (acquirer). Thus, as in Table B.3, if we have 200 firms to choose from, we can randomly draw a target (acquirer) from a set of 198 firms. We draw a hundred such random samples of targets (acquirers) for each observed acquirer (target). We then calculate the percentage of same *varna* mergers in each of these hundred random samples, and then the average percentage across all samples.

Table Online Appendix B.3: Example

Year	2011
Observed Number of Firms	200
Observed Number of M&A	50
Simulation for every observed acquirer	
Population	198
Randomly Pick	1

Acquirer and Target Conditional Sample

In our final simulation method, we randomly pair firms from the sample of firms that in fact entered M&A deals. Consider the example in Table B.4. Suppose we observe 50 deals in the data with 50 distinct acquirer and target firms. Then, in the simulation, an observed acquirer can be paired with any randomly chosen target other than its observed target, i.e., it can be paired with any of 49 other target firms. We create a hundred such random samples, calculate the percentage of same *varna* pairs in each, and then the average percentage across all samples.

Table Online Appendix B.4: Example

Year	2011
Observed Number of M&A	50
Simulation for every observed acquirer	
Population	49
Randomly Pick	1