Collusion and efficiency in horizontal mergers: Evidence from geographic overlap

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May 2016

ABSTRACT:

We explore the sources of gains in horizontal mergers by exploiting heterogeneity in the overlap between the merging firms' geographic footprints. We calculate the geographic overlap between the bidder, target, and their rivals to identify variation in the competitive impact of horizontal mergers. We document negative rival stock price reactions for "expansion" mergers when the bidder acquires a target with a different geographic footprint, indicating that these mergers are on average for efficiency reasons. Conversely, we detect significantly positive rival reactions for "concentrating" mergers when the bidder and target operating in similar geographic regions. Finally, we use data on state Attorneys General (AGs) to provide staggered, state-level variation in the political environment. We show that bidders avoid "concentrating" mergers in the presence of Democratic AGs, thereby supporting the argument that horizontal mergers that increase local industry concentration are likely to be anti-competitive, as well as documenting the significant role of state-level AGs in the M&A regulatory process.

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Collusion and efficiency in horizontal mergers: Evidence from geographic overlap

Although regulators appear deeply concerned about horizontal mergers and potential anti-competitive outcomes, finance academics have been largely unsuccessful in documenting evidence of collusion in horizontal mergers (e.g., Eckbo (1983), Fee and Thomas (2004), Shahrur (2005)). These studies collectively present evidence indicating that the average horizontal merger results in efficiency gains for the merged firm and not in anti-competitive behavior, and is therefore welfare-enhancing. This empirical result is unlikely to be the result of a selection bias or driven by regulatory activity; Eckbo (1992) uses variation in antitrust enforcement between the U.S. and Canada but does not find evidence of collusion in either sample. Indeed, the puzzling observation is that U.S. regulators pursue a vigorous antitrust policy to deter anticompetitive mergers while the academic evidence suggests that "there simply isn't much to deter" (Eckbo (1992)).[1]

Our paper explores this question in a different way by exploiting heterogeneity within a sample of horizontal mergers in the United States. Specifically, we consider the geographic regions of operation for bidders, targets, and rivals. Horizontal mergers where the bidder and target operate in the same industry but occupy different geographic regions are likely to have different motivations and different outcomes than horizontal mergers where the merger participants share the same geographic operating regions. The academic literature frequently considers all within-industry mergers to be "horizontal mergers," whereas U.S. regulators explicitly consider the geographic market when evaluating a horizontal merger for antitrust

[1] Bhattacharyya and Nain (2011) do document increased market power effects in the upstream direction. They show that consolidation in the customer industry triggers consolidation in the upstream supplier industries.

purposes.[2] We exploit the geographical overlap of bidders and targets reported in 10-K filings and test whether gains to horizontal mergers are driven by collusion and/or efficiency. Although our evidence is not inconsistent with the prior literature in that the average within-industry merger is likely driven by efficiency motives, we also document evidence of anti-competitive mergers when the bidder and target operate in similar geographic regions. Specifically, consistent with anti-competitive effects of horizontal mergers in local markets, we find a positive stock market reaction for rivals of the bidder and target in the affected market, suggesting they are benefitting from collusion. Interestingly, we document a negative response by local rivals when the newly-merged firm becomes more competitive by acquiring a target outside of the region, indicating that these horizontal mergers are indeed for efficiency reasons. Therefore, our study sheds new light on the question of horizontal merger gains by 1) showing evidence of potential collusion in horizontal mergers resulting in higher geographic concentration and 2) documenting worse rival returns when the horizontal merger enhances local competition. Further, supporting the view that high-concentration mergers are more likely to be perceived as anti-competitive, we also find that bidders are less likely to choose targets with high geographic overlap when a higher proportion of the Attorneys General in the bidders' states of operation are Democrats.

We calculate geographic overlap in horizontal mergers between bidders and targets at the state level. Specifically, we measure the geographic footprint of each firm using textual analysis of key sections of its 10-K filings (Garcia and Norli (2012)). We then calculate the cosine similarity between the geographic footprint of each bidder firm and its target as a measure of the geographic overlap between these two firms. This yields a measure of geographic overlap

[2] "Horizontal Merger Guidelines" – U.S. Department of Justice and the Federal Trade Commission, issued August 19, 2010.

between zero and one. We define a merger as "concentration" ("expansion") if the overlap measure is in the top (bottom) tercile of the distribution of the overlap measure across all deals.

Our measure additionally introduces variation among the firm's rivals, as some rivals have high geographic overlap with the bidder and/or target and others do not compete in the same regions. The extant literature typically uses rival returns as a way to test competiting collusion/efficiency hypotheses; our study considers this question by further distinguising between rivals that operate in the same geographic region and rivals that do not have the same geographic footprint and therefore do not directly compete with the bidder and/or target. We therefore observe rivals for both concentration and expansion horizontal mergers that operate in similar geographic regions as the bidder and/or target. We analyze the responses of these two groups of rivals relative to other firms in the industry that do not operate in the same region as the bidder-target pair. This allows us to difference out any reaction due to information about the industry as a whole resulting from the merger announcement (e.g., signals of future merger activity within the industry (Eckbo (1983))).

Our first hypotheses is that horizontal concentration mergers are more likely to be anticompetitive at the local level. Given the extant literature (i.e., Eckbo (1983); Fee and Thomas (2004); Shahrur (2005)), we expect an overall positive market reaction by rival stock prices. Further, we expect local rivals to have an even better market reaction to these merger announcements as any gains due to increased local concetration should disproportionately benefit these rivals. For our second hypothesis, we predict that horizontal expansion mergers occur for efficiency reasons on average. Eckbo (1983), Fee and Thomas (2004), and Shahrur (2005) predict that poor rival returns are evidence of a merger for efficiency reasons.[3] We

[3] This literature points out that rival returns can be either positive or negative if there are efficiency gains because rivals may either face increased competition or it may spawn rivals to start merging and also increase efficiency;

additionally expect that the rival returns will be worse when the rival has high geographic overlap with the geographically-expanding merged firm, as these rivals should be disproportionately negatively affected by a more efficient merged firm increasing local competition.

Our study examines horizontal mergers announcements between publicly-traded bidders and publicly-traded targets from 1994 to 2012 that meet certain criteria common to the extant literature and allow for the calculation of the geographic overlap between bidder and target. Our sample contains 632 bidder firm-years and 17,403 rival-years, where rivals are defined by the Hoberg-Phillips TNIC definitions. We measure wealth gains for bidders, rivals, and targets using cumulative abnormal returns (CARs) for the (-2, +2) window around the merger announcement date.

We begin our empirical tests by confirming that our data is similar to prior studies. As in much of the extant literature, we document a slightly negative return for bidders, a large positive return for targets, and a slight positive return for rivals (e.g., Eckbo (1983); Fee and Thomas (2004); Shahrur (2005)). Next, we consider the reaction of the rivals' stock prices to the announcement of a horizontal merger bid. We find a significantly positive return for rivals with low overlap. Because these rivals do not compete directly with the merged firm, we view this evidence as consistent with the information dissemination hypothesis of Eckbo (1983); the announcement of a merger by firms in the same industry may have information about future acquisition activity. We next examine the rival returns for a concentration merger when the rival has high overlap with the merged firm. Here, the rival returns are nearly three times higher than

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however, efficiency gains are usually the only hypothesis that predicts worse returns for rivals. Therefore, while efficiency gains to the merging firm can result in good or bad rival returns, bad rival returns should be evidence of efficiency gains. We believe that our evidence further rules out efficiency reasons for horizontal mergers where a local bidder aquires a local target.

rivals with low overlap. Because the local rivals should disproportionately benefit from a reduction in local competition, we view these results as supporting the collusion hypothesis. Finally, we examine the merger returns for rivals with high overlap with a firm undergoing an expansion merger. We document that these returns are significantly worse than those for rivals with no overlap, indicating that this merger is potentially for efficiency reasons and increased local competition.

Further, two observations suggest that these results cannot be explained with an information dissemination hypothesis (e.g., Eckbo (1983)). First, we examine these returns relative to industry rivals that do not compete directly with the bidder and the target. As these firms would also be affected by industry-wide information dissemination, we essentially difference out these returns. Second, if the positive returns of local rivals for a concentration merger are due to information dissemination, we should observe similar returns for expansion mergers rather than the negative reaction we actually observe. These observations indicate that the positive returns for local rivals of concentration mergers are likely to be due to a decrease in the competitive environment and not the market's expectation of a wave of efficiency-based mergers in the industry. Therefore, our evidence broadly supports the hypotheses that 1) horizontal mergers where bidders and targets share similar geographic footprints are more likely to be anti-competitive, 2) horizontal mergers where the bidder and target operate in different geographic regions are likely to enhance efficiency, and 3) the majority of horizontal mergers are not anti-competitive (and may not really involve bidders and targets who operate in the same competitive market), consistent with the findings in the extant literature.

We next supplement our analysis with cross-sectional tests. We focus on situations where the FTC or Justice Department is more likely, *ex-ante*, to be particularly concerned about

potential collusion. As in the government's regulatory guidelines, we consider industry, deal, and geographic characterics in these tests. Specifically, we consider industries that produce differentiated output, deals where the targets are large, and regions that have high levels of local industry concentration. In these situations where the threat of regulatory actions is higher in expectation, the returns of rivals with high overlap are not statistically different from the returns of rivals with low overlap for concentration bids. Conversely, these situations are also likely to represent opportunities where an expansion merger will improve the local competitive environment. We document significantly worse returns to local rivals when the bidder attempts an expansion merger with a large target, when the local industry is heavily concentrated, and when the industry produces differentiated goods.

We next consider time-series variation in our tests. First, we re-estimate our cross-sectional tests based on the party of the U.S. Attorney General in power at the time. Democrats are considered to be more aggressive in the enforcement of antitrust law than Republicans. Since the intuition for our cross-sectional tests is based on the expectation of antitrust enforcement, we expect the cross sectional variation to be more pronounced when there is a Democratic Attorney General. Indeed, we find no evidence of the above cross-sectional variation when a Republican is in office. All of the statistically significant cross-sectional variation occurs during periods with Democratic Attorneys General, supporting the claim that regulator pressures are indeed driving the above cross-sectional results. Second, we use the political parties of the Attorneys General for individual states to introduce staggered time-series variation in firm-level antitrust enforcement. We then document that bidders appear to avoid concentrating horizontal mergers when they have more operations in states with Democratic Attorneys General, supporting the

view that horizontal mergers resulting in geographic concentration are more likely to be perceived as anti-competitive.

Our study contributes to the finance literature exploring gains in horizontal mergers (e.g., Stigler (1964), Landes and Posner (1981), Eckbo (1983, 1992), Stillman (1983), Kim and Singal (1993), Singal (1996), Fee and Thomas (2004), Shahrur (2005), and Bhattacharyya and Nain (2011)). Our contribution to this literature is twofold: first, we use geography to identify situations where horizontal mergers appear to be anticompetitive on average. This heterogenity in horizontal mergers sheds new light on the existing literature, which generally presents limited evidence of antitrust behavior when considering all within-industry mergers collectively. Second, we identify efficiency-based mergers based on geographic expansion and document worse performance for rivals in these cases due to enhanced local competition; prior studies often document positive reactions for rivals on average due to more aggregated geographic data.

Our paper also adds to the economics literature, where the evidence regarding efficiency/collusion in horizontal mergers is more mixed. Kim and Singal (1993) and Singal (1996) find that airline prices increase following horizontal mergers. Focarelli and Panetta (2003) find that bank mergers create short-term price increases and long-run efficiency gains. We also contribute to the literature examing the effect of politics on financial and economic outcomes (e.g., Cohen, Coval, and Malloy (2011), Belo, Gala, and Li (2013), and Durnev (2012)). Specifically, our paper provides evidence that variation in government enforcement impacts corporate decision making. Finally, our paper contributes to the growing literature linking corporate finance with state-level characterics (e.g., Rice and Strahan (2010), Garcia and Norli (2012)). We view the focus on the state-level effects as a particularly important contribution of our study. Antitrust enforcement at the state level has grown in importance since

the 1980s to the point where it is a major activity of state-level Attorney Generals (Dove and Dove (2014)). In fact, from 1990 to 2006, the number of antitrust investigations by the Department of Justice is roughly comparable to the number of cases filed by state-level Attorney Generals (Feinberg and Reynolds (2010)). Given that the extant literature typically focuses on the federal level and does not often consider the geographic footprint of M&A activity, our study provides important evidence of state-level effects in horizontal mergers.

I. Hypothesis Development

As noted in Eckbo (1983), firms involved in horizontal mergers experience large wealth gains. These large positive gains may exist for two reasons. First, the merger increases industry concentration and may be anti-competitive, thereby leading to collusion between the merged firm and its rivals. This increases profit margins in the industry and increases the value of the merged firm. Second, horizontal merger gains may be driven by increases in efficiency created by the merger. These efficiency gains could be the result of taking advantage of technological complementarities, removal of inefficient managers, consolidation of distribution networks and/or marketing efforts. The first hypothesis is typically called the "Collusion" or "Anti-competitive" hypothesis and the second the "Efficiency" or "Synergy" hypothesis in the extant literature (e.g., Eckbo (1983), Fee and Thomas (2004), Shahrur (2005), Shenoy (2012)).

Following the above literature, we use rival returns to distinguish between the two hypotheses. Generally speaking, the above literature predicts that the collusion hypothesis should lead to positive returns to rivals, while efficiency can lead to either positive or negative rival returns. We document these predictions in Figure 3. The difference is that in our study, we know the geographic overlap between the bidder, target, and rival firms. We can therefore

identify horizontal mergers where the bidder and target both compete in the same geographic area (concentration mergers) and cases where the bidder and target compete in different geographic areas (expansion mergers). We can also identify variation in the response of rival firms based on their relative geographic overlap with the merged firm. We therefore have two classes of horizontal mergers (concentration and expansion) and two corresponding sets of rivals (concentration rivals and expansion rivals). We use these product market participations differently impacted by the merger to generate hypotheses designed to explore collusion and efficiency in horizontal mergers.

1.1) Concentration mergers

Our first hypothesis concerns concentration mergers, that is, cases where the bidder and target operate in similar geographic regions. If the merger is for anticompetitive reasons, we expect rivals to experience a positive abnormal return due to the consolidation in the industry and the subsequent increase in market power. Further, the gains from this industry consolidation should be more pronounced for rivals that also share the same geographical area, as these local rivals are better able to exploit the reduction of local competition.

H1: Collusion hypothesis: The announcement returns of rivals to bidders and targets in horizontal mergers resulting in higher geographic concentration should be positive. The rival returns should be further enhanced if the rival also has high overlap with the merged firm.

1.2) Expansion mergers

Our second hypothesis concerns expansion mergers, that is, horizontal mergers where a bidder buys a target firm that does not operate in their geographical area. Although Eckbo (1983) points out that efficiency mergers may result in either positive or negative returns for rivals, a negative stock price reaction by rivals likely indicates increased competition from the

merged firm. The more-efficient merged firm increases competition in both product and factor markets, increasing input prices and lowering output prices for the industry. We therefore predict that a negative rival reaction to an "expansion" horizontal merger indicates that the merger is for efficiency reasons and the acquisition of the new target will increase local competition.

H2: Efficiency hypothesis: If horizontal mergers with high expansion are efficiency-enhancing, the announcement returns of rivals to bidders and targets in horizontal mergers resulting in higher geographic expansion should be negative.

1.3) Cross-sectional predictions

We also focus on cross-sectional variation between industries, target firm characteristics, and the local economy that may affect the propensity of a collusion or efficiency merger. We view any additional evidence here as supportive of H1 and H2. We consider characteristics that should affect the probability of a deal attracting regulatory scrutiny. Specifically, we focus on industries that produce differentiate goods, bids for large targets, and bids when the local industry concentration is particularly high.

Differentiated product industries attract particular scrutiny from regulators.[4] These industries tend to be high-margin and/or high-end and a merger may result in even more pricing power (e.g., high-end automobiles). Likewise, larger targets result in a larger shift in the size of merged firms and presumably a greater increase in market power. Finally, regulators should be more likely to involve themselves if the local industry is already highly concentrated and a horizontal merger will only enhance this. Our prediction is that anti-competitive deals are less

[4] The government guidance highlighted in footnote 2 has a complete section dedicated to horizontal mergers in differentiated product industries. Specifically, they note "A merger between firms selling differentiated products may diminish competition by enabling the merged firm to profit by unilaterally raising the price of one or both products above the pre-merger level. Some of the sales lost due to the price rise will merely be diverted to the product of the merger partner and, depending on relative margins, capturing such sales loss through merger may make the price increase profitable even though it would not have been profitable prior to the merger."

likely to pass regulatory muster in these situations.[5] Therefore, we expect that rivals competing directly with the bidder and target should not have significantly different market reactions than other industry participants in these cases. Conversely, these situations represent cases where increasing local competition via an expansion merger may significantly negatively affect the local rivals.

H3: Cross-sectional hypotheses: We expect less cross-sectional variation in announcement returns between high and low rival overlap when 1) the industry produces differentiated products, 2) the target is large, and 3) the local industry is concentrated.

II. Data, Sample Selection, and Empirical Methodology

2.1 Sample construction

Our sample of mergers is drawn from the Securities Data Corporation (SDC) Mergers and Acquisitions database. We include mergers and acquisitions seeking a majority interest with a deal value greater than $50 million that were announced between January 1, 1994 and December 31, 2012. We begin in 1994 as we require 10-K filings collected from the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system; almost no electronic filings exist prior to 1994.

As our research question focuses on horizontal mergers, we require that the bidder and target firm operate in the same industry. We use the 10-K text-based network industry classifications (TNIC) developed by Hoberg and Phillips (2010, 2015). These time-varying, firm-pair industry definitions are based on the cosine similarity of the text in the product

[5] Note that for our tests, it does not matter if the deal is blocked by a regulator or if firms self-select out of deals that are likely to fail in expectation because we look at announcement returns. If the market assumes that the deal will be blocked, we should see little or no response by rivals, and if firms self-select out of these deals then we only observe truly non-collusion mergers. In either case, we should observe no variation in rival returns based on geography.

descriptions reported by firms. Industry cutoffs are defined so that the TNIC measure is roughly comparable to the three-digit SIC industry definition.

In addition to these criteria, we require Compustat data for both the bidder and target firms. We also require the firms to have announcement returns in Eventus for bidders, rivals, and targets around the date the merger is publicly announced. Finally, we require the availability of an electronic version of the both the bidder and target firm's 10-K filings in the year prior to the merger announcement. This requirement ensures the ability to identify the geographic coverage of the firm prior to the merger. The methodology used to measure the geographic coverage is described in the following subsection.

2.2 Geographic expansion measure

To calculate the extent to which bidder and target firms operate in the same geographic markets, we first measure each firm's geographic footprint prior to the merger. Yet, the geographic footprint of a firm is difficult to capture using traditional data for several reasons. Specifically, Compustat provides the state of the firm's headquarters location. This variable is backfilled, including only the most recent state in which a firm is headquartered. As such, it fails to capture time series variation in firms' locations.[6] More importantly, a firm's operations often expand far beyond the location of its headquarters. As such, the headquarters location typically only captures a portion of the firm's geographic operations. We note that several studies use the headquarters location as a proxy for the location of a firm's operations (e.g., Acharya, Bahai, and Subramanian (2014); Agrawal and Matsa (2013)). However, this approach is particularly problematic in this study as a more precise measure of a firm's geographic coverage is necessary to capture the overlap in footprint between a bidder firm and a target firm. Further, regulators

[6] Some papers have addressed this issue by using alternative data sources with historic headquarter locations or through hand collection of historic headquarter locations (e.g. Pirinsky and Wang (2006)).

are likely to respond based on the regions a firm actually operates in, not the data in the Compustat header file.

Garcia and Norli (2012) take a different approach to identifying the geographic footprint of firms' operations. They identify a firm's geographic dispersion using textual analysis of key sections of the firms' 10-Ks. Firms systematically report properties and also discuss operations by state. As such, this method captures a more broad measure of geographic dispersion that also varies in the time series. The first step of our methodology is based off of theirs.

We first use data from the EDGAR system of the U.S. Securities and Exchange Commission (SEC). Using computerized parsing of this text, we determine whether a firm mentions each of the 50 states in the United States (U.S.) in any of the following sections in the 10-K: "Item 1: Business," "Item 2: Properties," "Item 6: Consolidated Financial Data," and "Item 7: Management's Discussion and Analysis."[7] If a state is mentioned at least one time, the firm is considered to have operations in that state. The result is a vector of 50 indicator variables for each firm-announcement denoting geographic presence in each of the states in the U.S. Following Garcia and Norli (2012), geographic dispersion is measured as the sum of the 50 indicator variables. In our sample of horizontal mergers, the mean (median) geographic dispersion is 15.4 (13.0) for bidding firms and 12.3 (10.0) for target firms. The differences in distributions can be seen graphically in Figure 1. The difference in geographic dispersion bidder and target firms is not necessarily suprising given the size differential between these two groups of firms.

After measuring the geographic footprint of bidder and target firms, we measure the geographic overlap of the bidder and target firms for each merger announcement. To do so, we

[7] Here and throughout the paper '10-K' is used generically for all variations of the annual report including the following forms: 10-K, 10-K405, 10-KT, and 10-KSB.

use the cosine similarity of each firm's geographic footprint. Cosine similarity is a measure used to calculate the similarity between two vectors and is commonly used to measure similarities in text such as product descriptions between bidder and target firms in mergers and acquisitions (Hoberg and Phillips (2010)) and filings of IPO prospectuses (Hanley and Hoberg (2012); Hanley and Hoberg (2010)). We measure the geographic overlap of the bidder and target firm in horizontal merger *i* using the following formula:

$$G(b_i, t_i) = \frac{\sum_{s=1}^{50} \omega_{b,s,i}\omega_{t,s,i}}{\sqrt{\sum_{s=1}^{50} \omega_{b,s,i}^2}\sqrt{\sum_{s=1}^{50} \omega_{t,s,i}^2}} \quad (1)$$

where b_i is the bidding firm in merger *i*, t_i is the target firm in merger *i*, and ω is the weight of the geographic dispersion for the firm in state *s*. Specifically, in this case ω is equal to one for each state in which a firm has a presence and zero otherwise. This function is bounded between zero and one. A value of zero means that the bidder and target firm have no states in common while a value of one means the bidder and target have complete overlap in their geographic coverage.

There appears to be large variation in the amount of geographic concentration across deals. As reported in Table 1, the mean (median) level of geographic overlap for deals in our sample is 0.40 (0.41). The min (max) of geographic expansion is 0 (1). For our empirical tests, we compare the announcement returns of bidders and targets from deals that have either high or low levels of geographic concentration to a base sample of deals that have moderate levels of geographic expansion. Specifically, *High Concentration* deals are defined as merger announcements in which the geographic overlap of the bidder and target firm is in the top tercile of the sample distribution. Further, *High Expansion* deals are defined as merger announcements

in which geographic overlap of the bidder and target firms is in the bottom tercile of the sample distribution.

Figure 1 provides an illustration of deal that is classified as *High Concentration*. On November 12, 1998, it was announced that Ames Department Stores, Inc. (bidder) and Hills Stores Co. (target) agreed to terms on a merger. These two firms mentioned 17 unique states in their 10-K filings in the year prior to the merger announcement. Of these 17 states, the two firms shared a presence in 7 of these states, resulting in a concentration of 0.54.

Contrast this first example with the example in Figure 2, which shows the geographic overlap of Discount Auto Parts, Inc. (bidder) and Hi-Lo Automotive, Inc. (target) in a deal that was announced on October 20, 1997. The two firms had a presence in 9 unique states in the year prior to the merger. However, the firms shared a presence in none of these states, yielding a geographic concentration of 0 for this deal. As such, this deal placed in the bottom tercile of geographic expansion for all sample deals and is classified as a *High Expansion* merger.

2.3 Definition of rival firms

As discussed in Section 1, theory suggests that the source of gains in horizontal mergers can be partially inferred from the impact on rival firms. Following previous studies, we consider the reaction to the announcement of a horizontal merger by rival firms in the equity markets. However, in our study, we set two requirements for a firm to be considered as a geographic rival. First, we follow the previous literature and require that the rival firm operates in the same industry as the bidder-target pair. Second, we further require that there is significant overlap in the geographic markets where the rival firm operates and the combined firm will operate following the merger. We then analyze the announcement returns of these rival firms *relative to*

firms in the same industry but that do significantly overlap the geographic markets that the combined firm will operate in.

The second requirement above has two key advantages. First, we are primarily considering the impact on rivals that operate in the same geographic market as the combined firm as this is where firms compete directly. As such, our analysis is consistent with the standards applied by the U.S. Department of Justice and the Federal Trade Commission (see footnote 2). Second, by analyzing returns of rivals with high geographic overlap *relative to* other firms in the industry, we essentially difference out any information that affects the industry through channels other than a direct impact on the competitive environment. For instance, Eckbo (1983) suggests that the announcement of a horizontal merger may signal technological innovation that could result in future merger activity. In this case, the reaction to a merger announcement by a rival firm represents the combined information of direct changes to competition in the markets that the rival operates in as well as any information dissemination regarding the probability of future merger activity. By analyzing returns of rivals with high geographic overlap *relative to* other firms in the industry, we isolate the direct competition channel which allows us to directly address our research question.

Consistent with our definition of horizontal mergers, all firms in the same TNIC as the bidder and target (other than the bidder and target) are considered as rival firms. A rival is then classified as a local rival if its geographic overlap with the bidder and/or the target is in the top tercile of the distribution of overlap between rival-bidder and/or rival-target pairs. A *Concentration Rival* is a rival that has a value for geographic overlap between itself and the bidder and/or the target that is in the top tercile of the sample distribution in a deal that is classified as a *High Concentration* deal. Analogously, an *Expansion Rival* is a rival that has a

value for geographic overlap between itself and the bidder or the target that is in the top tercile of the sample distribution in a deal that is classified as a *High Expansion* deal. Any rival not classified as either a concentration or expansion rival is included as part of the reference group.

2.4 Sample description

After imposing our sample requirements for horizontal mergers and the geographic expansion measure, we are left with a sample of 632 deals. Table I presents summary statistics describing the sample. The sample deal characteristics are similar to the broader literature. Specifically, about ten percent of sample deals are considered hostile. One-fifth of sample deals involved a tender offer. Cash was used as the only consideration in 34% of deals. Final, target firms were about one-third of the size of bidder firms on average. Table I also reports the mean, median, and standard deviation for firm size and M/B for the bidder, target and rival firms.

2.5 Calculating announcement period abnormal returns

We calculate the cumulative abnormal returns (CARs) for the bidder, target, and rival firms for the five days surrounding and centered on the announcement date of the merger using data from Eventus, yielding a window of (-2, +2). The CARs are risk-adjusted based on the market model. Parameters for the market model are estimated using up to 255 days of returns ending 46 trading days prior to the announcement. Market returns used in the market model are measured by the CRSP value-weighted index returns.

Our announcement CARs are consistent with the stylized observations that the average bidding firm has a negative CAR, the average target has a large-positive announcement CAR, and the average rival firm has a small, positive announcement CAR (e.g., Eckbo (1983)). Specifically, in our sample the mean (median) five-day CAR for a bidding firm is -1.96% (-

1.21%). The corresponding mean (median) for target firms and rivals firms is 24.40% (20.51%) and 0.24% (-0.25%), respectively.

III. Empirical Results

3.1 Bidder and target returns

We begin our empirical tests by examining wealth effects for bidders and targets. Table II reports univariate statistics. For both the bidder and target, we compare the CARs for the base group (horizontal mergers that are neither high concentration nor high expansion) with the *High Concentration* group and the *High Expansion* group. The results for all three subsamples largely mirror the extant literature: We document negative announcement returns between 1.27% and 2.44% for the bidder, and large positive announcement returns between 22.97% and 25.87% for the target. Neither the *High Concentration* nor the *High Expansion* group is significantly different from the base case. Further, in unreported tests, we also note that the *High Concentration* and the *High Expansion* bidders are not statistically different from each other. We repeat the analysis in a multivariate setting in Table III by regressing bidder and target CARs on the *High Concentration* and/or *High Expansion* variables, as well as industry, deal, and firm characteristics (models 1-3 and 4-6, respectively). We also include industry*year fixed effects to control for any potential omitted industry factor that varies across time and that is correlated with both the extent to which a horizontal merger results in geographic expansion and the abnormal return realized by the bidder or target firm shareholders. As a potential example of such a factor, there is evidence that mergers occur in waves across both time and industries (Harford (2005)). Finally, all standard errors are robust to heteroskedasticity. As in Table II, we do not detect

significant differences between the base case and either high concentration or expansion mergers.

In summary, Tables II and III provide intuition similar to the extant literature in that bidders have slightly negative returns and targets have large positive returns. We also document overall wealth gains to the firm. Note that according to the predictions in our hypothesis section and Figure 3, positive returns for the merged firm are consistent with both an efficiency merger and an anticompetitive merger; that is, we expect firm value to be in enhanced in both situations. We next consider the returns of rivals based on their geographic overlap to distinguish between these two hypotheses.

3.2. Rival returns

We next focus on the returns of the rival in order to distinguish between merger types. As discussed in Eckbo (1983), Fee and Thomas (2004), and Shahrur (2005), rival returns should be positive if the merger is anticompetitive, and may be either positive or negative if the merger results in efficiency gains. Our goal is to exploit variation in both merger type (high concentration or high expansion) and the geographic overlap of the rival (low overlap and high overlap) to distinguish between the two hypotheses.

We report univariate CARs for all rivals in Table IV. Consistent with the extant literature, we document an average positive return for all firms in the same industry as the bidder and target of 0.24% (see Table I). The sub-sample of firms without significant geographic overlap (our "base sample") had a return of 0.25%. When we compare this group with *Concentration Rivals*, the CAR increases by 0.46%, nearly tripling the abnormal return. The difference is significant at the 5% level. Further, we document a decrease of 0.35% for *Expansion Rivals*.

Table V presents a similar analysis at the multivariate level. We regress rival CARs on indicator variables for *Concentration Rivals* and *Expansion Rivals*. Model 1 only includes the indicator variable for *Concentration Rivals* and Model 2 includes the indicator *Expansion Rivals*. Model 3 includes both variables. We also control for deal, industry, firm, rival, and target characteristics, along with industry-year fixed effects in all models. Our results provide similar intuition as those in Table IV. Horizontal mergers where the rival, bidder, and target all have high overlap have significantly higher CARs than the base case in models 1 and 3, whereas horizontal mergers result in significantly lower returns for *Expansion Rivals*.

The variation in rival geography and returns help us identify heterogeneity in horizontal mergers. We view the increase in *Concentration Rival* returns as evidence that these mergers are anti-competitive. Conversely, the decrease in returns for *Expansion Rivals* is likely to indicate a merger for synergistic reasons and therefore increased regional competition. Further, the fact that we allow the merger type to vary while holding the type of rival constant helps strengthen our inference. Specifically, the extant literature suggests that positive returns of rivals are not necessarily indicative of collusion, because these could be positive due to information leakage, etc. (e.g., Eckbo (1983)). For example, the initial takeover could signal a takeover wave in the industry and the rival's future wealth gains may be priced in to its stock price in expectation. However, this is unlikely to drive gains to *Concentration Rivals* only (we should observe similar effects for *Expansion Rivals* in these cases because the rival is local in both cases). Given that bidder returns are not significantly different across the different types of horizontal mergers, these effects are unlikely to drive the variation in the rival returns that we observe. Further, the worse rival returns observed in expansion mergers are unambiguously associated with

synergy/efficiency type mergers in the literature. As such, we document both efficiency and collusion in horizontal mergers after considering heterogeneity in geographic dispersion.

3.3. Cross-sectional tests

We next consider cross-sectional variation in industry output, target firm characteristics, and local industry structure. Specifically, we focus on cross-sectional variation where regulators are likely to be more or less aggressive in blocking a proposed horizontal merger. If we are correctly identifying *High Concentration* mergers as anti-competitive, we should find stronger market reactions for rival firms in situations where the regulator is less likely to intervene. If the regulator is likely to intervene, we should see less reaction in rivals' stock prices for bid announcements. This latter argument is true whether the market expects the bid to be challenged and eventually fail, or whether the firms who would otherwise make anti-competitive bids self-select out of the bidding process (and therefore we only observe bids for non-collusion reasons). We also expect the inverse for *High Expansion* deals, as rivals in industries where regulators are concerned about potential anti-competitive activity are likely to disproportionately suffer if competition increases due to a horizontal merger done for efficiency reasons.

We first consider whether or not an industry produces a differentiated output, as the Justice Department and Federal Trade Commission specifically remark on differentiated goods industries in their guidance (cited in Footnote 1). We define *Differentiated Goods* using the definition in Rauch (1999) adapted into SIC codes by Gianetti, Burkart and Ellingson (2011). The *Non-Differentiated Goods* category includes both the "service" and "homogenous" industries using the Rauch (1999) definitions. In Panel A of Table VI, we report the CARs for both *Concentration Rivals* and *Expansion Rivals* in both *High Concentration* and *High*

Expansion deals. We split the sample based on differentiated and non-differentiated goods. We indeed find that the increase in CARs from low overlap rivals to the *Concentration Rivals* group is only statistically significant in the non-differentiated goods group. This is the subsample where the FTC or Justice Department is likely to become involved, supporting our hypothesis that *High Concentration* horizontal mergers may be anti-competitive. We do not find that the *Expansion Rivals* CARs are significantly more negative than low overlap rival CARs.

We next split our sample of bids based on the median target size. For *High Concentration* deals with *High Overlap*, we expect that attempted takeovers of larger targets are likely to increase consolidation in the local industry and increase the potential of anticompetitive behavior, triggering reactions by regulators. We report the above/below median *Target Size* subsamples in Panel B of Table VI. We indeed find that the increase in rival CARs for *Concentration Rivals* relative to the base group only occurs with small targets. We observe almost no difference for large targets. Conversely, an efficiency-based merger with a large target is likely to increase local competition and negatively affect rivals. We document the significantly negatively decrease in *Expansion Rivals* only when the target is large.

Our final cross sectional test is based on level of industry competition in the market where the rival operates. Regulators should be more likely to involve themselves in a *High Concentration* merger when the local industry is already highly concentrated. Ironically, these are industries where rivals are vulnerable to an increase in competition. To test this prediction, we create the measure *Local HHI.* We calculate this measure as the Herfindahl index of the sales of industry firms, based on the TNIC, that have a measure of geographic overlap with the bidding firm that is in the top quartile of the sample distribution.

We report these cross-sectional splits in Panel C of Table VI. We again find that *Concentration Rivals'* CARs only increase over the base group when the *Local HHI* is below the median, or in cases where the regulator is less likely to become involved. We also find that the *Expansion Rivals'* CARs in the *High Expansion* deals are only significantly worse off when the local HHI is above the median.

Finally, we repeat the above analysis in a multivariate setting in Table VII. We find similar results. *Concentration Rivals* only experience higher announcement returns relative to the base group in the sub-samples where the U.S. regulators appear less likely to intervene (*Non-Differentiated Goods, Target Size Below Median,* and *Local HHI Below Median*), and *Expansion Rivals* mostly experience negative announcement returns in deals that would seem to increase competition for rivals (*Differentiated Goods, Target Size Above Median,* and *Local HHI Above Median*). We view the cross-sectional evidence as additional support to our hypotheses that the average deal where the bidder, target, and rival share geographic overlap may be anticompetitive. Further, expansion-type horizontal mergers appear to enhance local competition and thereby improve efficiency.

3.4. Time-series evidence

We recognize that we observe correlations in our data and that our empirical models are not identified using exogenous shocks or natural experiments. Although our correlations and cross-sectional evidence support hypotheses drawn from economic theory, we nevertheless conclude by introducing variation in the time-series as a quasi-experiment. Our hope is that these tests will also add support to the above cross-sectional tests.

Republican administrations are known to be less likely to engage in regulatory actions against horizontal mergers (Feinberg and Reynolds (2010; Dove and Dove (2014)). If our above

cross-sectional tests in Table VI and VII are truly capturing cross-sectional variation in regulatory enforcement, we expect to see less variation when the Justice Department is controlled by a Republican administration than when it is controlled by a Democratic administration. We test this hypothesis in Table VIII. We re-estimate Table VII after splitting the sample into years when a Republican attorney general is in power and years where a Democratic attorney general is in power. We observe cross-sectional variation only in years where the Justice Department was headed by a Democrat, lending further support to our results being driven by regulatory pressure and providing further evidence of both collusion and efficiency in horizontal mergers.

3.5. State-level Attorneys General

To better capture time-series and cross-sectional variation in antitrust enforcement, we consider the political party of the Attorneys General (AGs) at the state level. Specifically, we test whether firms avoid aquiring rivals with high geographic overlap if they are in states where antitrust enforcement is high. Perhaps surprisingly, antitrust enforcement is a major activity of state-level Attorney Generals (Dove and Dove (2014)). Feinberg and Roberts (2010) document that the number of antitrust investigations by the federal Department of Justice is roughly equivalent to the number of cases filed by state Attorney Generals. We use news articles and collect data on each state's Attorneys Generals from 1994 until 2015. There is considerable variation across states. For example, in 2015, there were 26 Republicans and 24 Democrats serving as their state's AG. The AG is elected in 43 states, and selected/appointed in some way in the other seven.[8] There is also considerable time-series variation. For example, many of the

[8] Specifically, the governor selects the AG in five states. In Maine, the state legislature elects the AG and in Tennessee the AG is selected by the state Supreme Court.

southern states have Democratic AGs at the beginning of our sample and Republicans at the end, while other states follow the opposite trend.[9]

Next, we use the information about the bidder's states of operation and assign a "1" for every state where there is a Democratic AG in office, "0" otherwise. The intuition is similar to the arguments in Section 3.4., that antitrust enforcement will be stronger when a Democratic AG is in power. We then aggregate all of the firm's operating states into an antitrust enforcement index by calculating the proportion of states the firm operates in that have a Democratic state AGs. This index, named *%Democrat AGs*, ranges from 0 (all states have GOP AGs) to 1 (all states have DNC AGs).

To construct our dependent variable, *Real Target,* we first use our sample of targets described in Section II and set *Real Target* = 1 for these firms. We next select five placebo targets for each real target and set *Real Target* = 0 for these firms. These five placebo targets are selected from other rivals as defined by the Hoberg-Phillips TNIC definitions using a propensity score match based on total assets and book-to-market equity. We then estimate the following empirical model, based on Bena and Li (2014):

$$Real\ Target = \beta_1\ High\ Concentration + \beta_2 High\ Concentration\ x\ \%Democrat\ AGs + \sum_{i=3}^{n} \beta_i\ Control_i + \varepsilon \quad (2)$$

where the direct effect of *%Democrat AGs* is included as a control variable. We include firm fixed-effects in some specifications, so we use a linear probability model rather than a logit or probit (Angrist and Pischke (2009)). An intercept is included in the non-firm fixed effects models.

[9] Even this general pattern has exceptions. For example, Thurbert E. Baker (D) was elected as Georgia's AG three times between 1997 and 2011 despite Republicans dominating other statewide offices.

We present the results in Table IX. Models 1 and 2 serve as our benchmark models that do not include the interaction term, with firm fixed effects included in Model 2. Notably, *High Concentration* significantly predicts the actual target firm, implying that bidders may indicate a preference for *High Concentration* deals. In Models 3 and 4 we include the interaction term, with Model 4 additionally containing firm fixed effects. We note that the coefficient for *High Concentration* is again significantly positive. However, the interaction term *High Concentration x %Democrat AGs* is significantly negative. Therefore, bidders are less likely to pick targets with high geographic overlap when higher proportions of their geographic operations have Democratic AGs. We view the results in Table IX in two ways. First, they provide staggered variation in the cross-section and time-series and support our previous evidence using merger announcement returns indicating that high-concentration mergers appear more anticompetitive on average. Second, our findings document an important role for state-level Attorneys General in the regulation of interstate M&A activity.

IV. Conclusion

An open question in the literature on horizontal mergers has been why regulators spend so many resources on anti-trust activity when academics have found scant evidence of its existence. This question is even more puzzling given that existing studies show the average horizontal merger is not anti-competitive even in the presence of lax regulation (Eckbo (1992)). We shed light on this question by identifying heterogeneity in horizontal mergers based on geographic dispersion. We also use variation in the rivals' geographic footprints to distinguish between efficiency-based and collusion-based horizontal mergers.

Consistent with the extant literature, horizontal mergers appear to improve efficiency when the bidder and target have different geographic footprints. Additionally, we do detect evidence of anti-competitive mergers when the bidder and target have similar geographic footprints, therefore increasing industry concentration in their region. Further, tests using staggered, state-level political variation suggest that bidders avoid concentrating mergers when their operations are located in states with Democratic Attorneys General, further suggesting that horizontal mergers with high levels of geographic overlap are more likely to be anticompetitive. These latter results document empirical evidence that the state-level Attorneys General play an important role in antitrust enforcement, supporting arguments in the law and IO literature (e.g., Feinburg and Reynolds (2010), Dove and Dove (2014)). Our paper hopes to help to reconcile observed regulatory behavior with the academic literature by considering the geographic footprint of merged firm as well as the geographic dispersion of the firm's rivals.

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Figure 1 – Pre-Merger Geographic Footprint of Ames Department Stores, Inc. (Bidder) and Hills Stores Co. (Target)

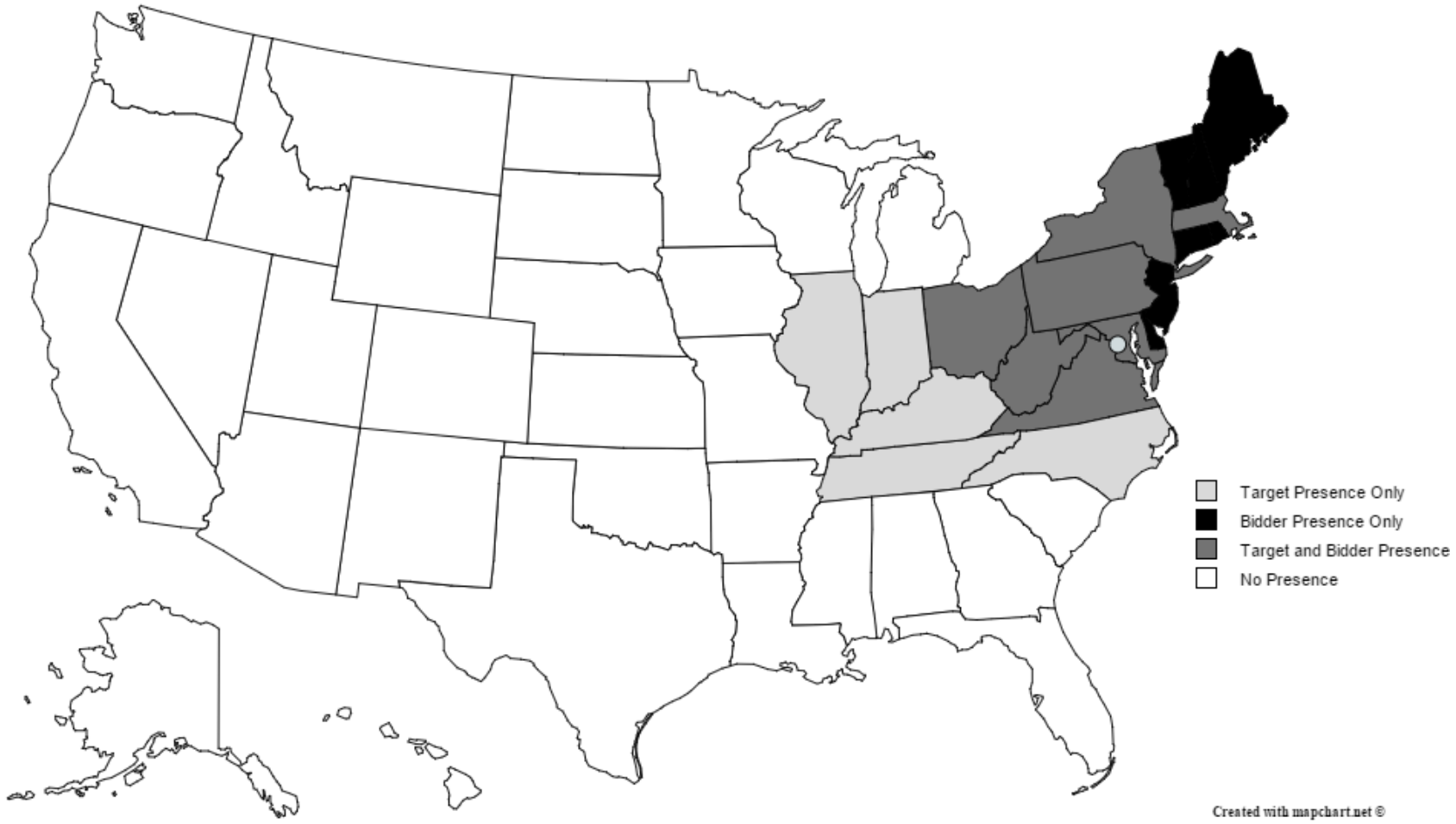

Figure 2 – Pre-Merger Geographic Footprint of Discount Auto Parts, Inc. (Bidder) and Hi-Lo Automotive (Target)

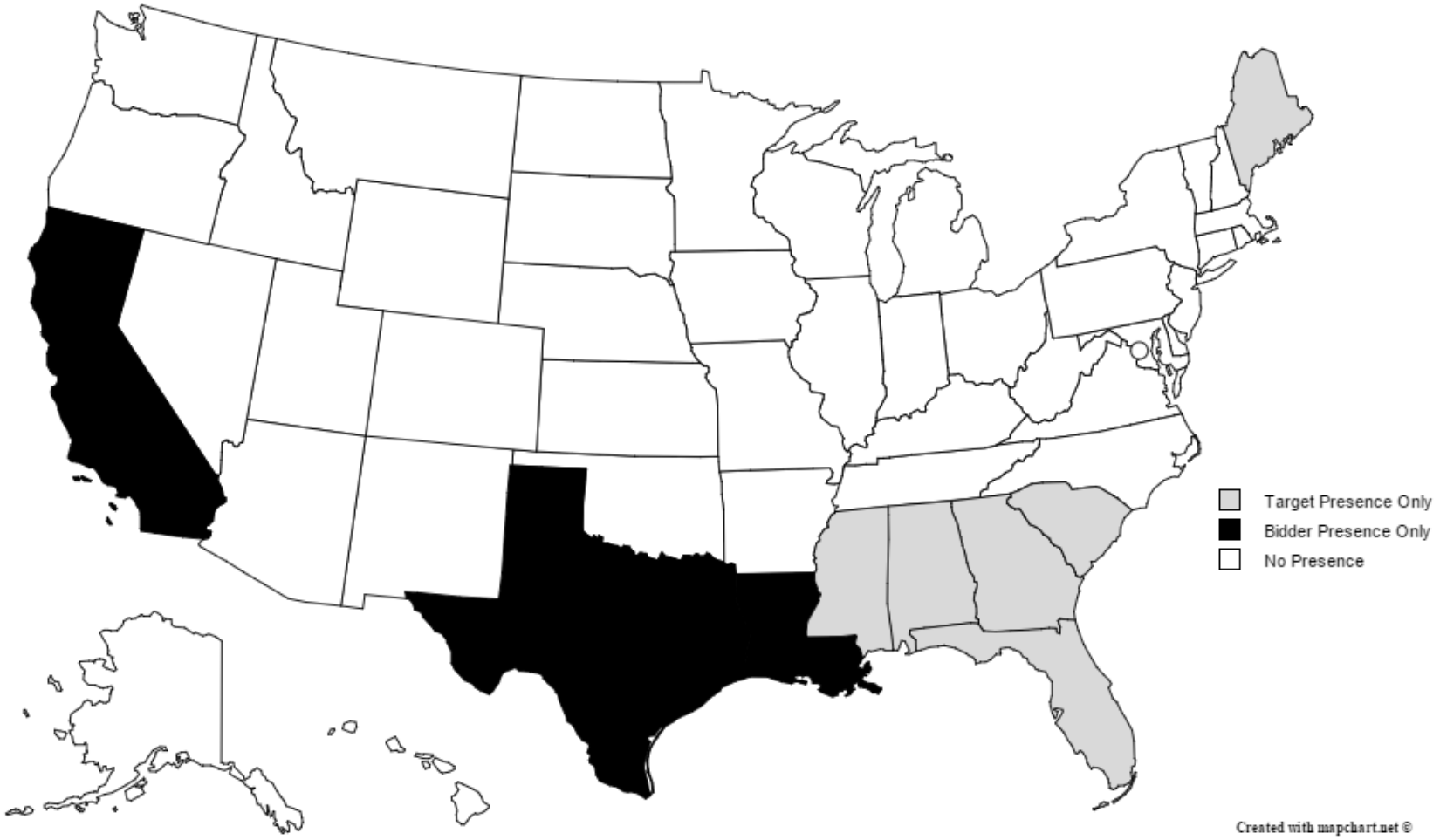

Figure 3 – Predictions from Hypothesis section

Predicted CARs		
	Bidder/Target	Rival
Efficiency	+	+ or -
Collusion	+	+

Table I – Summary Statistics

This table reports deal characteristics, bidder, target, and rival characteristics, and market returns for our sample of horizontal mergers from 1994-2012.

	N	Mean	Median	Std Dev
Deal Characteristics				
Bidder/Target Overlap	717	0.40	0.41	0.21
Deal Value	717	1,739.59	372.28	6,228.58
Hostile	717	0.10	0.00	0.30
Tender Offer	717	0.20	0.00	0.40
All Cash Offer	717	0.34	0.00	0.47
Relative Size	699	0.33	0.17	0.43
Firm Characteristics				
Bidder Size	705	4,387.96	863.55	7,802.86
Bidder M/B	703	2.44	1.61	2.81
Target Size	709	984.29	171.58	2,970.29
Target M/B	713	1.97	1.30	2.12
Rival Size	19,078	765.70	116.49	2,902.33
Rival M/B	19,041	3.20	2.16	2.75
Cumulative Abnormal Returns Around Deal Announcement				
Bidder CARs	715	-1.96%	-1.21%	9.78%
Target CARs	716	24.40%	20.51%	24.85%
Rival CARs	20,059	0.24%	-0.25%	11.32%

Table II - Bidder and Target Cumulative Abnormal Returns and Geographic Concentration

This table reports bidder and target CARs from (-2, +2) for the base group, high concentration (top tercile of geographic expansion), and high expansion (bottom tercile of geographic expansion) horizontal mergers.

Bidder CARs

	Base Group	*High Concentration*	*High Expansion*
Abnormal Return	-2.44***	-2.17%***	-1.27%**
	(-3.93)	(-3.41)	(-1.99)
Difference from Base Group		0.27%	1.16%
		(0.29)	(1.30)

Target CARs

	Base Group	*High Concentration*	*High Expansion*
Abnormal Return	24.38%***	22.97%***	25.87%***
	(14.92)	(16.60)	(14.50)
Difference from Base Group		-1.42%	1.49%
		(-0.66)	(0.61)

Table III - Bidder and Target Cumulative Abnormal Returns and Geographic Concentration (Multivariate)

This table reports multivariate estimates of Bidder and Target CARs. CARs use the (-2, +2) window. All models include industry*year fixed-effects and all standard errors are robust to heteroskedasticity.

	Bidder Announcement CARs			Target Announcement CARs		
	(1)	(2)	(3)	(4)	(5)	(6)
High Concentration	-0.059		0.191	-1.734		-0.568
	(-0.06)		(0.18)	(-0.71)		(-0.21)
High Expansion		0.463	0.549		2.703	2.440
		(0.48)	(0.52)		(1.10)	(0.88)
Deal Value (2009 Dollars)	-0.084*	-0.084*	-0.084*	0.057	0.048	0.049
	(-1.70)	(-1.69)	(-1.70)	(0.38)	(0.31)	(0.32)
Bidder Local Industry HHI	4.437**	4.182**	4.218**			
	(2.44)	(2.26)	(2.26)			
Target Local Industry HHI				-1.507	-2.016	-2.129
				(-0.32)	(-0.43)	(-0.45)
Hostile Deal	3.150**	3.126**	3.135**	0.460	0.413	0.387
	(2.51)	(2.50)	(2.50)	(0.11)	(0.10)	(0.10)
Tender Offer	1.149	1.154	1.159	5.231	5.247	5.229
	(1.04)	(1.04)	(1.04)	(1.56)	(1.57)	(1.56)
All Cash Offer	2.751***	2.736***	2.730***	1.436	1.331	1.346
	(2.73)	(2.73)	(2.72)	(0.51)	(0.48)	(0.48)
Natural Logarithm of Relative Size	-1.493***	-1.484***	-1.489***	-2.851***	-2.889***	-2.876***
	(-3.94)	(-3.93)	(-3.91)	(-3.33)	(-3.40)	(-3.36)
Rival Size	-0.563*	-0.551*	-0.552*			
	(-1.89)	(-1.84)	(-1.84)			
Bidder Size				-1.156	-1.088	-1.090
				(-1.44)	(-1.34)	(-1.34)
Target Size	-0.111	-0.118	-0.121	-1.350**	-1.395**	-1.388**
	(-0.42)	(-0.45)	(-0.46)	(-2.14)	(-2.20)	(-2.20)
Bidder M/B	-0.514**	-0.514**	-0.513**	0.525	0.529	0.528
	(-2.10)	(-2.09)	(-2.08)	(0.99)	(1.00)	(0.99)
Target M/B	-0.153***	-0.147***	-0.151***	-0.153***	-0.147***	-0.151***
	(-3.01)	(-2.91)	(-2.99)	(-3.01)	(-2.91)	(-2.99)
Industry-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	0.097	0.097	0.096	0.127	0.129	0.127
N	632	632	632	631	631	631

Table IV - Rival Cumulative Abnormal Returns and Geographic Concentration
This table reports CARs (-2, +2) for rivals of bidders and targets. Rivals are segmented into *Concentration Rivals* (top tercile of concentration), *Expansion Rivals* (bottom tercile of concentration), and the base group (all other mergers).

	5 day return window		
	Base Group	*Concentration Rivals*	*Expansion Rivals*
Abnormal Return	0.25%**	0.71%***	-0.10%
	(2.14)	(4.26)	(-0.66)
Difference from Low Overlap		0.46%**	-0.35%*
		(2.26)	(-1.85)

Table V - Rival Cumulative Abnormal Returns and Geographic Concentration (Multivariate)

This table reports multivariate regressions estimating Rival CARs (-2, +2). All models include industry*year fixed-effects and all standard errors are robust to heteroskedasticity.

	(1)	(2)	(3)
Concentration Rivals	0.595***		0.476**
	(2.61)		(1.97)
Expansion Rivals		-0.446**	-0.311
		(-2.29)	(-1.51)
Deal Value (2009 Dollars)	0.035**	0.034**	0.035**
	(2.25)	(2.20)	(2.25)
Local Industry HHI	-0.091	-0.383	-0.226
	(-0.20)	(-0.83)	(-0.48)
Hostile Deal	0.630	0.601	0.642
	(1.56)	(1.49)	(1.59)
Tender Offer	-1.341***	-1.342***	-1.341***
	(-5.23)	(-5.23)	(-5.22)
All Cash Offer	0.852***	0.860***	0.844***
	(3.08)	(3.12)	(3.06)
Natural Logarithm of Relative Size	-0.199***	-0.194***	-0.208***
	(-3.06)	(-2.97)	(-3.19)
Rival Size	-0.020	-0.008	-0.014
	(-0.36)	(-0.14)	(-0.25)
Rival M/B	-0.124***	-0.121***	-0.122***
	(-2.98)	(-2.90)	(-2.94)
Bidder M/B	-0.010	-0.010	-0.011
	(-0.19)	(-0.19)	(-0.20)
Target M/B	-0.153***	-0.147***	-0.151***
	(-3.01)	(-2.91)	(-2.99)
Industry-Year FEs	Yes	Yes	Yes
N	17403	17403	17403
Adj. R-sq	0.018	0.018	0.018

Table VI - Cross Sectional Variation in Rival Cumulative Abnormal Returns and Geographic Concentration

This table reports univariate rival CARs split across various cross-sections. Panel A splits the sample between differentiated and non-differentiated goods, using the Rauch (1999) definitions converted into SIC codes by Gianetti et al (2011). Panel B splits the sample based on above/below median target size. Panel C splits the sample based on high/low local HHI.

Panel A: Differentiated Goods

	Differentiated Goods			Non-Differentiated Goods		
	Base Group	*Concentration Rivals*	*Expansion Rivals*	Base Group	*Concentration Rivals*	*Expansion Rivals*
Abnormal Return	0.73%***	0.43%	0.17%	0.12%	0.77%***	-0.18%
	(3.05)	(1.37)	(0.60)	(0.90)	(4.95)	(-1.06)
Difference from Low Overlap		-0.30%	-0.56%		0.65%***	-0.30%
		(-0.77)	(-1.50)		(2.75)	(-1.39)

Panel B: Target Size

	Target Size Above Median			Target Size Below Median		
	Base Group	*Concentration Rivals*	*Expansion Rivals*	Base Group	*Concentration Rivals*	*Expansion Rivals*
Abnormal Return	0.81%***	0.82%***	0.36%*	-0.30%*	0.60%**	-0.60%***
	(5.03)	(3.82)	(1.89)	(-1.81)	(2.34)	(-2.62)
Difference from Low Overlap		0.01%	-0.45%*		0.90%***	-0.30%
		(0.07)	(-1.83)		(2.97)	(-1.04)

Panel C: Market Competition

	Local HHI Above Median			Local HHI Below Median		
	Base Group	*Concentration Rivals*	*Expansion Rivals*	Base Group	*Concentration Rivals*	*Expansion Rivals*
Abnormal Return	0.31%**	0.61%**	-0.30%	0.16%	0.77%***	0.06%
	(2.09)	(2.27)	(-1.41)	(0.86)	(3.63)	(0.30)
Difference from Low Overlap		0.30%	-0.61%**		0.61%**	-0.10%
		(1.00)	(-2.34)		(2.11)	(-0.38)

Table VII - Cross-Sectional Variation in Rival Cumulative Abnormal Returns and Geographic Concentration (Multivariate)

This table reports multivariate estimates where the dependent variable is rival CARs (-2, +2), split across various cross-sections. Panel A splits the sample between differentiated and non-differentiated goods, using the Rauch (1999) definitions converted into SIC codes by Gianetti et al (2011). Panel B splits the sample based on above/below median target size. Panel C splits the sample based on high/low local HHI. All models include industry*year fixed-effects and all standard errors are robust to heteroskedasticity.

Panel A: Differentiated Good

	Differentiated Goods			Non-Differentiated Goods		
	(1)	(2)	(3)	(4)	(5)	(6)
Concentration Rivals	0.518		0.114	0.659**		0.642**
	(1.31)		(0.27)	(2.33)		(2.16)
Expansion Rivals		-0.988***	-0.953**		-0.216	-0.047
		(-2.69)	(-2.41)		(-0.94)	(-0.19)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
N	4599	4599	4599	12804	12804	12804
Adj. R-sq	0.024	0.025	0.025	0.018	0.018	0.018

Panel B: Target Size

	Target Size Above Median			Target Size Below Median		
	(1)	(2)	(3)	(4)	(5)	(6)
Concentration Rivals	0.110		-0.058	1.374***		1.307***
	(0.34)		(-0.17)	(4.09)		(3.71)
Expansion Rivals		-0.474*	-0.488*		-0.553*	-0.191
		(-1.74)	(-1.69)		(-1.85)	(-0.61)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
N	8549	8549	8549	8854	8854	8854
Adj. R-sq	0.018	0.018	0.018	0.035	0.034	0.035

Panel C: Market Competition

	Local HHI Above Median			Local HHI Below Median		
	(1)	(2)	(3)	(4)	(5)	(6)
Concentration Rivals	0.498		0.291	0.702**		0.723**
	(1.37)		(0.77)	(2.27)		(2.12)
Expansion Rivals		-0.725***	-0.664**		-0.209	0.048
		(-2.61)	(-2.30)		(-0.73)	(0.15)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
N	8737	8737	8737	8666	8666	8666
Adj. R-sq	0.016	0.016	0.016	0.016	0.016	0.016

Table VIII - Cross-Sectional Variation in Rival Cumulative Abnormal Returns and Geographic Concentration (Multivariate)

This table reports multivariate estimates where the dependent variable is rival CARs (-2, +2), split across various cross-sections. We further split our tests in the time series based on the AG in office. Panel A splits the sample between differentiated and non-differentiated goods, using the Rauch (1999) definitions converted into SIC codes by Gianetti et al (2011). Panel B splits the sample based on above/below median target size. Panel C splits the sample based on high/low local HHI. All models include industry*year fixed-effects and all standard errors are robust to heteroskedasticity.

Panel A: Differentiated Good

	Republican in Office		Democrat in Office	
Differentiated Goods?	Yes	No	Yes	No
	(1)	(2)	(3)	(4)
Concentration Rivals	-0.089	-0.553	0.154	1.525***
	(-0.15)	(-1.47)	(0.24)	(3.55)
Expansion Rivals	-0.414	-0.041	-1.190**	-0.187
	(-0.72)	(-0.12)	(-2.23)	(-0.53)
Controls	Yes	Yes	Yes	Yes
Industry-Year FEs	Yes	Yes	Yes	Yes
N	1731	5163	2801	7395
Adj. R-sq	0.009	0.014	0.046	0.028

Panel B: Target Size

	Republican in Office		Democrat in Office	
Above Median Target Size?	Yes	No	Yes	No
	(1)	(2)	(3)	(4)
Concentration Rivals	-0.317	-0.049	0.117	2.094***
	(-0.70)	(-0.11)	(0.21)	(4.25)
Expansion Rivals	-0.380	0.044	-0.588	-0.310
	(-1.03)	(0.09)	(-1.33)	(-0.76)
Controls	Yes	Yes	Yes	Yes
Industry-Year FEs	Yes	Yes	Yes	Yes
N	4068	2826	4324	5872
Adj. R-sq	0.013	0.032	0.042	0.041

Panel C: Market Competition

	Republican in Office		Democrat in Office	
Above Median Local HHI?	Yes	No	Yes	No
	(1)	(2)	(3)	(4)
Concentration Rivals	-0.773	-0.056	1.477**	1.136**
	(-1.62)	(-0.13)	(2.44)	(2.39)
Expansion Rivals	0.045	-0.214	-1.184***	0.022
	(0.11)	(-0.48)	(-2.68)	(0.05)
Controls	Yes	Yes	Yes	Yes
Industry-Year FEs	Yes	Yes	Yes	Yes
N	3832	3062	4663	5533
Adj. R-sq	0.013	0.007	0.029	0.025

Table IX - Target Selection and Geographic Overlap

This table reports multivariate estimates of models of the selection of a target firm in horizontal mergers. Observations include one actual bidder-actual target pair and up to five actual bidder-pseudo target pairs for each deal. The dependent variable takes the value of one for the actual bidder-actual target pair. %Democrat AGs is the proportion of states the bidder has a presence in that have a Democrat Attorney General.

	(1)	(2)	(3)	(4)
High Concentration	0.048***	0.069***	0.122***	0.157***
	(3.72)	(4.37)	(3.20)	(3.36)
*High Concentration * %Democrat AGs*			-0.117**	-0.140**
			(-2.06)	(-2.01)
High Expansion	-0.005	-0.014	-0.003	-0.011
	(-0.26)	(-0.64)	(-0.20)	(-0.52)
Target BM	0.017	0.079***	0.017	0.079***
	(1.55)	(3.29)	(1.57)	(3.29)
Target Size	-0.002	-0.003	-0.002	-0.003
	(-0.70)	(-0.76)	(-0.71)	(-0.82)
Bidder BM	-0.015	-0.064	-0.015	-0.059
	(-1.04)	(-1.02)	(-1.07)	(-0.93)
Bidder Size	0.000	-0.000	0.000	0.001
	(0.04)	(-0.01)	(0.10)	(0.04)
%Democrat AGs			0.046	0.030
			(1.30)	(0.38)
N	4162	4162	4162	4162
Year Fixed Effects	Yes	Yes	Yes	Yes
Acquirer Fixed Effects		Yes		Yes
Adjusted R-Squared	0.000	-0.134	0.001	-0.133