Investment in a Smaller World: The Implications of Air Travel for Investors and Firms*

Zhi Da, Umit G. Gurun, Bin Li, and Mitch Warachka

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Abstract

Air travel facilitates portfolio investment in distant firms and reduces local investment bias. These results are confirmed using the initiation of connecting flights through recently opened air hubs. Portfolio investment in firms headquartered at destinations served by these connecting flights increases after, not before, their initiation. Air travel also broadens the investor base of small firms headquartered at destinations receiving more air passengers, and lowers their cost of equity. This improvement in risk sharing is also confirmed using recently opened air hubs. Overall, air travel improves the diversification of investor portfolios and lowers the cost of equity for firms.

Keywords: Air Travel, Diversification, Cost of Equity

*Zhi Da (zda@nd.edu) is at the University of Notre Dame, Umit Gurun (umit.gurun@utdallas.edu) and Bin Li (bin.li2@utdallas.edu) are at the University of Texas at Dallas, and Mitch Warachka (mwarachka@sandiego.edu) is at the University of San Diego. All errors are our own.

"Mobility of population is death to localism"

Frederick Jackson Turner, The Significance of the Frontier in American History (1873)

Aviation has made the world smaller by dramatically reducing the time required to travel long distances. We study the implications of air travel for investor portfolios and the cost of equity for firms. Instead of focusing on firms headquartered within a fixed distance of investors, we examine air travel's influence on portfolio investment in firms headquartered throughout the United States. We also examine the influence of air travel on the cost of equity for firms since a geographically diversified investor base is associated with a lower expected return (Merton, 1987).

The intuition underlying our paper's first empirical test is simple: suppose air traffic between Orlando (Florida) and Austin (Texas) increases relative to air traffic between other cities and Austin. We examine whether investors in Orlando increase their portfolio allocations in firms headquartered at Austin by acquiring shares from investors in other cities. This reshuffling of the investor base between investors in different cities due to variation in air traffic between their location and Austin is difficult to attribute to investment opportunities in Austin that are available to investors throughout the United States.

Air traffic represents the number of air passengers flying between an origin, where investors are located, and a destination, where firms are headquartered. We find that higher air traffic increases the number of institutional investors at the origin with equity positions in firms at the destination, and the dollar-denominated amount of these positions. Thus, air traffic improves the diversification of investor portfolios. Moreover, larger portfolio allocations to distant firms as a result of air traffic reduce local investment bias, defined as the tendency for investors to overweight firms headquartered near their location. These results hold for destinations with small populations that have fewer investment opportunities. Therefore, our results are not driven by air traffic between the primary location of institutional investors and their regional investment offices.

To address the potential endogeneity involving air traffic and investment opportunities, we examine the initiation and cancellation of connecting flights attributable to recently opened air hubs. Destinations with limited investment opportunities are most affected by the initiation of connecting flights through a recently opened air hub since destinations with exceptional investment opportunities are served by direct flights. To clarify, our analysis examines portfolio investment in firms headquartered at destinations served by connecting flights through a recently opened air hub. Portfolio investment near the air hub is not examined since the origins and destinations of recently initiated connecting flights are distinct from the air hub's location. Intuitively, our results are confirmed by taking advantage of variation in air traffic between two peripheral nodes in a network (origin and destination) whose connectivity is re-optimized in response to the opening of a central node (air hub).

Figure 1 illustrates the increase in both the number of investors and their dollar-denominated portfolio holdings due to the initiation of connecting flights through a recently opened air hub. Observe that increased portfolio investment occurs after air hub openings and not before. Thus, our conclusion that portfolio investment responds to air traffic is not driven by the response of air traffic to investment opportunities.

As an example, the opening of the air hub in Salt Lake City (Utah) leads to the initiation of connecting flights through this airport. While investment opportunities in Salt Lake City may partially explain the decision to open an air hub in Salt Lake City, this decision did not depend on investment opportunities in any single destination served by a connecting flight through Salt Lake City. Intuitively, we examine portfolio investment in Portland (Oregon) firms by Orlando (Florida) investors following the initiation of an air route from Orlando to Portland that connects through Salt Lake City. Portfolio investment in Salt Lake City is not examined, nor is the decision to locate an air hub in Salt Lake City driven by investment opportunities in Portland. Although aggregate investment opportunities across multiple destinations throughout the Pacific Northwest may justify opening an air hub in Salt Lake City, each individual destination served by a connecting flight through this air hub has insufficient investment opportunities to justify its opening.

To examine local investment bias, we define air traffic share as the fraction of total air traffic from an origin to a destination. These fractions are analogous to portfolio weights. Air traffic share has a positive relation with the market-adjusted portfolio weights assigned by investors located at the origin to firms headquartered at the destination. Therefore, by facilitating portfolio investment in distant firms, air travel mitigates local investment bias.

However, air traffic does not increase the return of investor portfolios, which suggests that air traffic increases the familiarity of investors with distant firms without conferring any informational advantage. This finding is similar to Pool, Stoffman, and Yonker (2012)'s conclusion that familiarity motivates fund managers to overweight firms headquartered in their home state without any corresponding improvement in their performance. Huberman (2001) also concludes that familiarity influences investment decisions. In our context, air travel can stimulate indirect word-of-mouth communication and social interactions at both the origin as well as the destination (Hong, Kubik, and Stein, 2004). Familiarity does not require investors to fly to a destination for the explicit purpose of researching investment opportunities or monitoring existing investments.

As a robustness test, we examine the impact of air travel on corporate acquisitions. We find that greater air traffic increases the likelihood of acquisitions involving target firms at the destination and acquiring firms at the origin. Consequently, air traffic has implications for the decisions of corporate managers as well as investors.

Air routes initiated by the opening of an air hub confirm that air traffic facilitates portfolio investment in distant firms, which mitigates local investment bias as a consequence. Route initiations attributable to air hub openings also facilitate corporate acquisitions. Conversely, air route cancellations attributable to air hub openings have the opposite effects on portfolio investment and corporate acquisitions. Moreover, variation in air traffic attributable to air hub openings has an inverse relation with investor returns. Therefore, the initiation of connecting flights through a recently opened air hub leads to greater portfolio investment in firms headquartered at the destination but lower returns for investors at the origin. This evidence is consistent with air traffic's ability to lower expected returns through improved risk sharing.

To further examine the impact of air travel on the cost of equity, we define air passenger volume as the number of air passengers entering and departing a destination. This analysis ignores the location of investors since improved risk sharing can be achieved by attracting portfolio investment from anywhere in the United States. We report that greater air passenger volume broadens the investor base of small firms and lowers their cost of equity by approximately 1% to 2% per annum (Merton, 1987). Air hub openings confirm both of these air travel implications for firms. Specifically, the initiation of a connecting flight through a recently opened air hub results in firms at the destination attracting more institutional investors. This broadening of the investor base lowers their cost of equity, and offers an explanation for air travel's inability to increase investor returns.

Several recent studies examine the economic implications of air travel. Giroud (2013) concludes that air travel facilitates internal monitoring within firms that improves their performance. Bernstein, Giroud, and Townsend (2015) use airline data to examine the performance of venture capitalists, while Chemmanur, Hull, and Krishnan (2015) examine the performance of private equity investments in foreign countries using open-sky agreements. These studies highlight the return implications of improved monitoring due to air travel. Our study finds that air travel benefits investors through an alternative channel; improved diversification that reduces local investment bias. Our study also identifies a benefit of air travel for firms; a lower cost of equity due to improved risk sharing.

1 Data

The Research and Innovative Technology Administration (RITA) at the United States Department of Transportation publishes monthly data on airports and the number of air passengers starting from January 1990. We study all flights with scheduled passenger service between airports within the United States. A total of 1,501 airports with corresponding zip codes are studied. The zip code of each airport is hand collected. Institutional investors are located at the origin zip code denoted i while firm headquarters are located at the destination zip code denoted j. We exclude zip code pairs within 100 miles of each other. The location of institutional investors is obtained from Nelson's Directory of Investment Managers and the headquarter location of firms is obtained from COMPUSTAT.

We compute three air travel metrics each quarter denoted t. Air traffic represents the log number of air passengers flying between airports within 30 miles of zip code i, the origin, and airports within 30 miles of zip code j, the destination. Specifically, air traffic denoted $\text{AT}_{i,j,t}$ is computed as

$$\text{AT}_{i,j,t} = \log\left(\text{Air passengers flying between zip code } i \text{ and zip code } j\right) . \tag{1}$$

Our results are not sensitive to an alternative definition of air traffic based on the number of air passengers flying one way since the number of air passengers on the return flight is nearly identical for most air routes. Air passengers on return flights are included in equation (1) since the familiarity of investors with firms can increase due to interactions at the origin as well as the destination.

Air traffic is suitable for studying the number of institutional investors at the origin with equity positions in firms at a destination and the dollar-denominated amount of their positions. However, air traffic is not suitable for studying portfolio weights, which are fractions. Instead, we define air traffic share as the fraction of air passengers flying from an origin to a destination. This fraction denoted $\text{ATS}_{i,j,t}$ is computed as

$$\text{ATS}_{i,j,t} = \frac{\text{Air passengers flying from zip code } i \text{ to zip code } j}{\text{Air passengers departing from zip code } i} \,. \tag{2}$$

While air traffic is symmetric between the origin and destination, air traffic share is not symmetric. Instead, air traffic share is lower at the origin than the destination if the number of air passengers departing from the origin is greater (larger airport at the origin).

While air traffic and air traffic share examine the implications of air travel for investors, our second analysis studies the implications of air travel for firms. This analysis does not condition on the location of investors. Instead, air passenger volume represents the total number of air passengers flying into and out of a destination where firms are headquartered. This metric denoted $\text{APV}_{j,t}$ is computed as

$$\text{APV}_{j,t} = \log\left(\text{Air passengers flying into and out of zip code } j\right) . \tag{3}$$

Table 1 contains summary statistics for each of the three air travel metrics. Each origin-destination zip code pair requires an investor at the origin to have a positive holding in at least one firm headquartered at the destination. Thus, the average AT and the average ATS are computed between zip code pairs with positive air traffic. Air travel connects more investors with firms over time, as the number of zip code pairs increases from 74,577 in 1991 to 170,016 in 2009. However, this increase is not monotonic as air routes are cancelled as well as initiated.

2 Investor Implications of Air Travel

This section presents our main results regarding the impact of air travel on the portfolios of institutional investors as well as corporate acquisitions.

2.1 Portfolio Investment

We first examine the impact of air traffic on the number of institutional investors at the origin with equity positions in firms headquartered at the destination using the following panel regression

$$\log\left(\text{Investors}\right)_{i,j,t+1} \;=\; \beta_1\,\text{AT}_{i,j,t} + \beta_2\log(\text{DIST})_{i,j} + \alpha\,\text{FC}_{j,t} + \gamma\,\text{DEST}_{j,t} + \epsilon_{i,j,t}\,. \quad (4)$$

Standard errors are clustered by year. A positive β_1 coefficient in equation (4) signifies that greater air traffic results in firms at the destination attracting more institutional investors from the origin. DIST denotes the distance between the origin and destination. FC contains value-weighted average characteristics of firms headquartered at the destination. These firm characteristics include the book-to-market ratio (BM), market capitalization (SIZE), past returns over the prior twelve months (PRET), capital expenditures (CAPEX), equity issuance, debt issuance, idiosyncratic return volatility (IVOL), leverage, and return on assets (ROA). CAPEX and the security issuance variables are normalized by total assets. The log population (Population) and log per capita income (Income) are included in DEST to control for demographics at the destination (Dougal, Parsons, and Titman, 2015).[1]

Our first specification includes origin-destination pairwise fixed effects without year fixed effects. This specification captures the impact of time series variation in air traffic, with the pairwise fixed effects subsuming the distance between the origin and destination. The origin-destination pairwise fixed effects also account for common industries in both locations. In two subsequent specifications, fixed effects are included separately for each origin and each destination along with year fixed effects. In these specifications, equation (4) captures cross-sectional variation due to differences in either the origin or destination. Origin fixed effects

[1]Missing values in DEST are replaced with the median values of log population and log per capita income, which equal 13.60 and 9.99, respectively.

may capture financial centers, while destination fixed effects provide an additional control for investment opportunities.

The panel regression in equation (4) is estimated separately for destinations that are less than 500 miles from the origin and more than 500 miles from the origin. Alternatives to flying such as driving are less feasible for distances above 500 miles. We report the results for both subsets with pairwise origin-destination fixed effects. For brevity, the results with either origin or destination fixed effects are reported for distances above 500 miles.

Panel A of Table 2 reports consistently positive β_1 coefficients. Thus, greater air traffic is associated with more institutional investors at the origin having equity positions in firms at the destination. Intuitively, air traffic has the potential to improve risk sharing by broadening the investor base of firms. This implication of air travel is investigated more thoroughly in Section 4. In the basic specification with origin-destination pairwise fixed effects, the β_1 coefficient is nearly three times larger, 0.034 (t-statistic of 6.18) compared to 0.012 (t-statistic of 4.78), over distances greater than 500 miles compared to distances less than 500 miles, respectively. Thus, the importance of air traffic increases over longer distances. With the inclusion of all control variables, time series variation in air traffic continues to exert a positive impact on the number of investors as the β_1 coefficient remains positive, 0.007 (t-statistic of 4.47).

Replacing the origin-destination pairwise fixed effects with origin fixed effects does not affect the β_1 coefficient, which equals 0.007 (t-statistic of 27.64) in the full specification. However, destination fixed effects produce a larger β_1 coefficient of 0.035 (t-statistic of 36.42) but a lower adjusted R^2, providing further evidence that the relation between air traffic and portfolio investment is not driven by investment opportunities at the destination.

Several firm characteristics have consistent coefficients across the different specifications. Important to our later analysis is firm size. The positive coefficients for SIZE indicate that investors are more willing to invest in large firms. Falkenstein (1996) reports that institutional investor portfolios exhibit a preference for visible stocks. With regards to destination characteristics, institutional investors appear more likely to invest in destinations that have a higher per capita income and a larger population as Income and Population have consistently positive coefficients. The importance of population motivates a later empirical test that examines small and large destinations separately.

For distances greater than 500 miles, the specification with origin-destination pairwise fixed effects and no further controls has a β_1 coefficient of 0.034 (t-statistic of 6.18). However, this impact ignores the possibility that investors increase portfolio investment to firms at the destination as a result of air travel. Our next panel regression addresses this possibility by examining the dollar-denominated portfolio holdings of investors

$$\log\left(\text{Holdings}\right)_{i,j,t+1} \;=\; \beta_1\,\text{AT}_{i,j,t} + \beta_2\log(\text{DIST})_{i,j} + \alpha\,\text{FC}_{j,t} + \gamma\,\text{DEST}_{j,t} + \epsilon_{i,j,t}\,. \quad (5)$$

The portfolio holdings of institutional investors are obtained from 13F statements reported to the Securities and Exchange Commission (SEC). As the minimum reporting threshold is \$200,000, portfolio holdings can fluctuate above or below this threshold in consecutive quarters due to stock price fluctuations rather than the buy or sell decisions of institutional investors. To alleviate the confounding effect of price fluctuations, we impose a minimum value on investor holdings equal to their third decile (approximately \$500,000) across the entire sample period.

A positive β_1 coefficient in equation (5) implies that higher air traffic leads to greater dollar-denominated portfolio investment in firms at the destination by investors at the origin. With origin-destination pairwise fixed effects, Panel B of Table 2 reports that the β_1 coefficient increases as the distance between investors and firms becomes larger. Specifically, the β_1 coefficient more than triples from 0.049 (t-statistic of 3.24) to 0.167 (t-statistic of 4.81).

For the full specifications, the β_1 coefficients are similar with either origin-destination pairwise fixed effects or origin fixed effects, 0.029 (t-statistic of 3.34) and 0.022 (t-statistic of 26.58), respectively. In contrast, destination fixed effects lead to a larger β_1 coefficient but a lower adjusted R^2. These patterns parallel the results in Panel A as firm headquarter locations explain less variation in portfolio holdings than investor locations. According to Panel B, the specification with origin-destination pairwise fixed effects and no control variables has a β_1 coefficient equal to 0.167 (t-statistic of 4.81) over distances greater than 500 miles. Thus, a doubling of air traffic is associated with a 16.7% increase in the dollar-denominated amount of portfolio investment in firms headquartered at the destination by investors at the origin. A doubling of air traffic is consistent with later results involving the opening of air hubs.

The control variable coefficients indicate that investors have larger portfolio holdings in firms headquartered at destinations with a higher per capita income and a larger population. Investors also have larger dollar-denominated portfolio holdings in distant firms with a high past return and a high return on assets since PRET and ROA have positive coefficients. Furthermore, the positive coefficients for Equity Issuance and Debt Issuance indicate that investors increase their portfolio holdings in firms issuing securities.

2.2 Portfolio Investment in Small Destinations

To ensure our results are not driven by air traffic between large destinations, such as New York and San Francisco, we divide destinations into two subsets. These subsets differentiate between destinations above and below the median population.

The results in Table 3 indicate that the impact of air traffic on the number of investors is similar for small and large destinations. Furthermore, air traffic continues to increase dollar-denominated portfolio holdings in firms headquartered at small destinations. Overall, the positive relation between portfolio investment and air traffic is not attributable to large cities. Consequently, our results are not driven by air traffic between the primary location of institutional investors and their regional investment offices.

For example, besides its primary location in Boston, Fidelity has regional offices located in large cities such as San Francisco. As regional offices are located near greater investment opportunities, air travel between Boston and a regional office coincides with air travel between Boston and the headquarter location for many of its portfolio holdings. However, the results in Table 3 indicate that this alternative explanation is not responsible for our earlier findings in Table 2.

2.3 Local Investment Bias

Our next analysis examines whether air travel mitigates local investment bias. Local investment bias is defined as the tendency to overweight local firms relative to their market portfolio weights. Coval and Moskowitz (1999), Pirinsky and Wang (2006), as well as Hong, Kubik, and Stein (2008) document the tendency of investors to overweight firms headquartered near their location.

Deviations between the portfolio weights assigned to firms by investors and their respective market portfolio weights are computed using a two-step procedure. First, for each institutional investor at an origin, we compute deviations between their investor-specific portfolio weights and the respective market portfolio weights of every firm. Second, these investor-specific deviations are then value-weighted according to each investor's assets under management to create a portfolio weight deviation variable denoted PWD for the representative investor at each origin. A positive (negative) value for PWD signifies that the representative investor at the origin is overweight (underweight) firms at the destination.

Observe that PWD and ATS in equation (2) are both defined as fractions. For easier interpretation of the coefficients, we multiply PWD and ATS by 100. As more portfolio investment in distant firms implies less portfolio investment in local firms, a positive β_1 coefficient in the following panel regression

$$\mathrm{PWD}_{i,j,t+1} = \beta_1 \,\mathrm{ATS}_{i,j,t} + \beta_2 \log(\mathrm{DIST})_{i,j} + \alpha \,\mathrm{FC}_{j,t} + \gamma \,\mathrm{DEST}_{j,t} + \epsilon_{i,j,t} \,, \tag{6}$$

indicates that a higher air traffic share mitigates local investment bias. Standard errors are clustered by year in equation (6).

According to Table 4, the β_1 coefficients are positive. Thus, by facilitating portfolio investment in distant firms, air travel reduces the local bias of investors. Moreover, beyond 500 miles, the β_1 coefficient becomes larger. Specifically, the β_1 coefficient more than doubles from 0.135 (t-statistic of 11.40) below 500 miles to 0.312 (t-statistic of 14.64) above 500 miles. These coefficients are insensitive to the inclusion of control variables and different fixed effects.

Furthermore, firms headquartered at a higher income destination are underweighted by distant investors. This finding is consistent with affluent local investors providing a disproportionate amount of funding for nearby firms. In unreported results, the β_1 coefficient remains positive, 0.311 (t-statistic of 14.39), with the inclusion of origin-destination and year fixed effects. However, the inclusion of year fixed effects in specifications that have pairwise origin-destination fixed effects requires quarterly rather than annual time series variation in air traffic to explain variation in local investment bias over the same horizon. As the impact of air traffic on investor decisions is not necessarily immediate, we examine the time series implications of air traffic over a longer annual horizon by omitting year fixed effects in specifications that have origin-destination pairwise fixed effects.

2.4 Familiarity versus Monitoring

Our next empirical test examines the implications of air traffic for investment performance. The portfolio investment facilitated by air travel may be driven by increased familiarity or increased monitoring, with the later enabling investors to acquire private information and earn superior returns (Korniotis and Kumar, 2013). We differentiate between these two channels by estimating the following panel regression

$$\text{Return}_{i,j,t+1,t+12} = \beta_1 \, \text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \, \text{FC}_{j,t} + \gamma \, \text{DEST}_{j,t} + \epsilon_{i,j,t} \,, \tag{7}$$

whose dependent variable is the portfolio return of investors over the subsequent three years (quarter $t+1$ to quarter $t+12$). The same fixed effects in previous specifications are included, with standard errors clustered by year.

A positive β_1 coefficient would indicate that investors earn higher returns as a result of air travel, while an insignificant β_1 coefficient is consistent with familiarity motivating their investment in distant firms. The insignificant β_1 coefficients in Table 5 are consistent with air traffic increasing the familiarity of institutional investors with distant firms without conferring an informational advantage. Intuitively, air traffic's ability to mitigate local investment bias does not undermine the informational advantage of local investors (Coval and Moskowitz, 1999). Although later results indicate that air travel reduces the expected returns of firms at the destination, this reduction does not apply to the portfolio returns earned by investors at the origin.

2.5 Corporate Acquisitions

Our next analysis studies the impact of air traffic on corporate investment instead of portfolio investment. Our sample of acquisitions is from the Securities Data Companys (SDC) Mergers and Acquisitions database. We identify acquisitions between January 1991 and December 2011 that satisfy the following criteria:

1. The acquiring and target firm both have 5-digit zip codes available.

2. The acquisition is completed.

3. The acquiring firm controls less than 50% of the target firm's shares before the acquisition and more than 50% afterwards.

The impact of air traffic on the likelihood that an acquiring firm at the origin acquires a target firm at the destination is first examined by sorting acquisitions into portfolios. We form portfolios according to the distance between the acquiring firm and target firm. The frequency of acquisitions is then reported for different distance and AT quartiles. The results in Panel A of Table 6 indicate that air traffic in the highest quartile is associated with more acquisitions than air traffic in the lowest quartile. Thus, air traffic appears to facilitate corporate acquisitions.[2]

To conduct a formal statistical test, we construct a sample of potential acquiring firms using unique pairs of four-digit SIC codes for acquiring and target firms each year. A minimum (maximum) of two (ten) acquisitions per year within each SIC code pair is required. All acquiring firms in a four-digit SIC code are considered to be a potential acquiring firm for every target firm in the pair. For each target firm, an indicator variable distinguishes the actual acquiring firm from other pseudo acquiring firms. As an illustration, suppose three acquisitions occur within a year: A (SIC 1234) buys B (SIC 5678), C (SIC 1234) buys D (SIC 5678), and E (SIC 4321) buys F (SIC 8765). The third acquisition is ignored since the target firm in SIC code 8765 has no other potential acquiring firm in SIC code 4321. However, there are two potential acquiring firms in SIC code 1234 for target firms in SIC code 5678. Therefore, the final sample contains four observations, two actual acquisitions (A buys B, C buys D) and two pseudo acquisitions (A buys D, C buys B). An indicator variable denoted

[2]Fich, Starks, and Tran (2016) find that advertising by target firms increases their takeover premium at the expense of acquiring firms. In unreported results, air travel does not alter the post-acquisition returns of acquiring firms. This result is consistent with air travel improving the familiarity of acquiring firms with distant target firms.

DEAL distinguishes an actual completed acquisition from a pseudo acquisition. Specifically, DEAL equals 1 for each completed acquisition of a target firm at the destination and zero otherwise.

The impact of air traffic between the origin and destination on the DEAL indicator function is estimated using the following logistic regression

$$\text{DEAL}_{i,j,t+1,t+4} \;=\; \beta_1\,\text{AT}_{i,j,t} + \beta_2\log(\text{DIST})_{i,j} + \alpha\,\text{DC}_{j,t} + \gamma\,\text{DEST}_{j,t} + \epsilon_{i,j,t}\,. \qquad (8)$$

Industry fixed effects for the acquiring firm at the origin and the target firm at the destination are included separately in the specification along with year fixed effects to account for the clustering of acquisitions. Zip code fixed effects are not included since the pseudo acquiring firms are unlikely to be in the same zip code as the actual acquiring firms.

DC represents several deal characteristics that include the acquiring firm's size, leverage, Tobin's q, and free cash flow, as well as indicator functions for whether the acquisition involved a cash offer, a private target firm, or a target firm in the high-tech industry. The last deal characteristic is an indicator function that equals one if the acquisition diversified the acquiring firm's operations.

For acquiring and target firms separated by more than 500 miles, the positive β_1 coefficients in Panel B of Table 6 indicate that greater air traffic increases the likelihood of an acquisition. Industry fixed effects for the acquiring and target firms do not lead to differences in the β_1 coefficients, which are 0.025 (t-statistic of 2.14) and 0.024 (t-statistic of 1.99), respectively. In contrast, the negative β_2 coefficients for DIST identify a local investment bias that may arise from the geographic clustering of firms in the same industry. Chakrabarti and Mitchell (2013) find that acquiring firms exhibit a preference for nearby target firms.

3 Air Hub Openings

Air traffic can reflect investment opportunities. To address this endogenity, we examine variation in air traffic attributable to the 28 air hub openings in Giroud (2013). These air hub openings are not dependent on investment opportunities in any individual destination but alter air traffic to multiple destinations.

Four criteria identify the initiation and cancellation of air routes due to the opening of an air hub. First, the origin and destination are required to be at least 100 miles apart. Second, the initiation of an air route is required to transport at least 1,000 passengers in the three years following the air hub's opening. Third, for an air route cancellation to be attributed to an air hub's opening, the route must have transported at least 1,000 passengers in the previous three years.[3] Fourth, a geographic proximity filter requires the air hub to be situated sufficiently close to either the origin or destination. Specifically, either the distance between the origin and hub (first segment), the distance between the hub and destination (second segment), or both flight segments are required to be shorter than the distance between the origin and destination. This geographic filter ensures the air hub offers a suitable connection between the origin and destination. For example, air routes along the east coast are not affected by the opening of an air hub in Salt Lake City. Therefore, while multiple air hubs can open in the same year, the impact of an individual air hub opening is limited to a subset of destinations based on geography.

To clarify, our analysis does not examine portfolio investment in firms headquartered near recently opened air hubs. Instead, portfolio investment in firms headquartered near destinations with connecting flights through a recently opened air hub is examined. For example, following the opening of an air hub in Salt Lake City, we examine whether Orlando (Florida) investors increase their portfolio holdings in Portland (Oregon) firms following the initiation of an air route from Orlando to Portland that connects in Salt Lake City. The portfolio holdings of Salt Lake City firms by Orlando investors is not examined. While investment opportunities in Salt Lake City may partially explain the opening of an air hub in Salt Lake City, investment opportunities in any *single peripheral* destination such as Portland cannot explain this decision. Indeed, salient investment opportunities in Portland would justify direct flights to Portland rather than connecting flights through Salt Lake City.

The variable $\text{HUB}_{i,j,t}$ captures the initiation and cancellation of air routes following an air hub's opening. $\text{HUB}_{i,j,t}$ equals zero in the three years before the opening of an air hub and the year in which the hub is opened. In the three years following an air hub's opening, $\text{HUB}_{i,j,t}$

[3] We examine all airlines that have connecting flights via the air hub instead of limiting our analysis to the airline responsible for opening the hub.

equals 1 if an air route between zip code i and zip code j is initiated in the year following its opening, subject to the four above criteria. Conversely, in the three years following an air hub's opening, $\text{HUB}_{i,j,t}$ equals -1 between these respective zip codes subject to the same four criteria if an air route is cancelled in the year following its opening. Therefore, as with air traffic, $\text{HUB}_{i,j,t}$ is defined between zip-code pairs.

We examine the impact of variation in air traffic induced by air hub openings on the number of investors with equity positions in firms at the destination using the following specification

$$\log(\text{Investors})_{i,j,t+1} = \beta_1 \, \text{HUB}_{i,j,t} + \alpha \, \text{FC}_{j,t} + \gamma \, \text{DEST}_{j,t} + \epsilon_{i,j,t} \,. \tag{9}$$

This specification includes origin-destination pairwise fixed effects that subsume the distance between these locations. Instead, this time series specification is similar to an event study centered at the opening of an air hub. Thus, year fixed effects are not included and standard errors are not clustered by year since HUB is zero for origins and destinations unaffected by the air hub's opening.

The results in Table 7 reinforce our earlier findings since the β_1 coefficient from equation (9) equals 0.006 (t-statistic of 4.65) in the full specification. Thus, firms attract more institutional investors following an increase in air traffic. However, the HUB analysis in equation (9) understates the economic importance of air traffic if investors increase their dollar-denominated portfolio allocations in firms at a destination due to air traffic. This increase occurs if new firms at the destination receive investment or existing firms receive larger portfolio allocations. The following specification examines the impact of variation in air traffic attributable to air hub openings on dollar-denominated portfolio holdings

$$\log(\text{Holdings})_{i,j,t+1} = \beta_1 \, \text{HUB}_{i,j,t} + \alpha \, \text{FC}_{j,t} + \gamma \, \text{DEST}_{j,t} + \epsilon_{i,j,t} \,. \tag{10}$$

For consistency with our previous results, the third decile filter continues to be applied to portfolio holdings.

Table 7 reports a positive β_1 coefficient of 0.010 (t-statistic of 1.88) from equation (10) in the full specification. This positive coefficient indicates that route initiations attributable to air hub openings increase the dollar-denominated amount of portfolio investment in firms at the respective destinations. Conversely, route cancellations have the opposite implication for portfolio investment. Thus, air hub openings confirm our earlier results in Table 2.

We also examine the impact of air travel on local investment bias to confirm the results in Table 4. In contrast to AT, HUB is an indicator variable that does not represent the level of air traffic. As a consequence, we can regress portfolio weight deviations PWD directly on HUB in the following panel regression

$$\text{PWD}_{i,j,t+1} \quad = \quad \beta_1\, \text{HUB}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha\, \text{FC}_{j,t} + \gamma\, \text{DEST}_{j,t} + \epsilon_{i,j,t}\,, \tag{11}$$

with origin-destination pairwise fixed effects. Table 7 reports a positive β_1 coefficient equaling 0.021 (t-statistic of 4.82) in equation (11). This positive coefficient confirms that air route initiations attributable to the opening of air hubs reduce local investment bias.

Interestingly, Table 7 reports a negative β_1 coefficient of -0.004 (t-statistic of -2.18) from the following panel regression

$$\text{Return}_{i,j,t+1,t+12} \quad = \quad \beta_1\, \text{HUB}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha\, \text{FC}_{j,t} + \gamma\, \text{DEST}_{j,t} + \epsilon_{i,j,t}\,. \tag{12}$$

Thus, air routes initiated by air hub openings lower the returns earned by investors at the origin. By focusing on firms affected by air hub openings, which tend to be smaller firms headquartered in smaller destinations, this inverse relation differs from the result in Table 5 that found air traffic exerted an insignificant impact on investor returns. The negative β_1 coefficient in equation (12) is consistent with improved risk-sharing. This subject is addressed more thoroughly in Section 4.

Finally, we compute the frequency and percentage growth in acquisitions conditional on $\text{HUB}_{i,j,t}$ equal to +1 and -1. The frequency and growth of acquisitions are calculated at the city level rather than the zip code level to ensure an adequate number of acquisitions are available. Acquisition growth is defined based on the number of acquisitions in the post-hub period relative to the pre-hub period according to

$$\frac{2 \times (\text{Number of Acquistions Post-Hub} - \text{Number of Acquisitions Pre-Hub})}{\text{Number of Acquisitions Pre-Hub} + \text{Number of Acquisitions Post-Hub}}\,. \tag{13}$$

The pre-hub period consists of three years before the air hub opening, while the post-hub period consists of three years after its opening.

The results in Table 8 are consistent with air traffic facilitating acquisitions. The increase in average acquisition activity following air route cancellations provides a benchmark for acquisition activity. The initiation of air routes leads to greater acquisition activity as the average number of acquisitions in the post-hub period increases relative to the pre-hub period. In particular, the increase in acquisition activity is 82.6% following air route initiations compared to 63.3% following air route cancellations. The 19.3% difference in acquisition activity is significant, with a t-statistic of 2.67. Thus, variation in air traffic attributable to air hub openings confirms that air travel facilitates corporate acquisitions.

4 Firm Implications of Air Travel

We utilize air passenger volume denoted APV in equation (3) to investigate whether the investor base of firms and their cost of equity respond to air travel. APV does not condition on the origin of air routes since improved risk sharing can be achieved using investors anywhere in the United States.

4.1 Investor Base

Our next empirical test determines whether air travel enables firms to broaden their investor base by attracting portfolio investment from distant investors using the following panel regression

$$\begin{aligned} \log(\text{Investors})_{k,t+1} &= \beta_1 \, \text{APV}_{j,t} + \beta_2 \, (\text{APV}_{j,t} \times \text{SIZE}_{k,t}) \\ &\quad + \alpha \, \text{FC}_{j,t} + \gamma \, \text{DEST}_{j,t} + \epsilon_{k,t} \,, \end{aligned} \tag{14}$$

where k denotes an index for firms headquartered at destination j. Fixed effects for each destination are included in the above specification. Fixed effects for each quarter are also included, with standard errors clustered by quarter. A positive β_1 coefficient indicates that greater air passenger volume at a destination enables nearby firms to attract a larger number of institutional investors. The β_2 coefficient pertains to an interaction variable defined by APV and firm size that allows the impact of air passenger volume on the investor base of firms to be greater for small firms.

According to Table 9, the β_1 coefficient is 0.030 (t-statistic of 5.34). Thus, greater air passenger volume at a destination is associated with nearby firms having a broader investor base comprised of more institutional investors. Furthermore, the negative β_2 coefficient of -0.006 (t-statistic of -6.65) indicates that the ability of air travel to broaden the investor base of firms is greater for small firms. These results are similar for destinations with small and large populations. Thus, small firms benefit from air travel more than large firms regardless of whether they are headquartered in a destination with a small or large population.

4.2 Cost of Equity

According to Merton (1987), a more disperse investor base can lower a firm's cost of equity because of improved risk sharing. Motivated by this prediction, firm-level returns in the three years following an air hub opening are examined in the next panel regression

$$\begin{aligned}\text{Cost of Equity}_{k,t+1,t+12} &= \beta_1\,\text{APV}_{j,t} + \beta_2\,(\text{APV}_{j,t} \times \text{SIZE}_{k,t}) \\ &\quad + \alpha\,\text{FC}_{j,t} + \gamma\,\text{DEST}_{j,t} + \epsilon_{k,t}\,. \end{aligned} \tag{15}$$

Fixed effects for each destination are also included in the above specification based on firm-level returns. Fixed effects for each quarter are included, with standard errors clustered by quarter. A negative β_1 coefficient indicates that higher air passenger volume at a destination is associated with a lower cost of equity for nearby firms.

Table 9 reports a negative β_1 coefficient from equation (15) equaling -0.060 (t-statistic of -5.04). Thus, greater air passenger volume at a destination lowers the cost of equity for nearby firms. In conjunction with the positive β_1 coefficient in equation (14), our empirical evidence is consistent with air travel improving risk sharing.

The risk sharing benefits of air travel are greater for small firms as the β_2 coefficient in equation (15) is positive, 0.009 (t-statistic of 5.10). Intuitively, the visibility of large firms to investors depends less on air travel than the visibility of small firms. Consequently, provided air travel increases the familiarity of investors with small firms at the destination, investment allocations may be diverted from large firms toward small firms. This interpretation applies to firms headquartered at both small and large destinations, implying our results are not driven by large cities where institutional investors have a regional office.

To interpret the economic significance of the β_1 and β_2 coefficients, the log market capitalization of firms is required. In unreported results, the 25^{th} percentile and median of these quantities are 4.1 and 5.6, respectively, across our entire sample period. Thus, for small firms at the 25^{th} percentile, a 100% increase in APV lowers their cost of equity by -2.22% per annum (-6% + 0.9% $\times$ 4.2). For firms at the median, this reduction equals -0.96% per annum (-6% + 0.9% $\times$ 5.6).

To summarize, by diversifying the investor base of firms, greater air travel to a destination lowers the cost of equity for small firms. Our next analysis uses exogenous variation in air passenger volume attributable to the opening of air hubs to confirm these firm-level implications of air travel.

4.3 Air Hub Openings

As with the investor implications of air travel, the opening of air hubs provides an instrument for examining the firm-level implications of air travel. We construct an indicator variable $\text{NET}_{j,t}$ based on variation in air traffic attributable to the opening of an air hub. This indicator variable equals zero in the three years before the opening of an air hub and the year in which the hub opens. $\text{NET}_{j,t}$ equals 1 in the three years following an air hub's opening if more air routes involving zip code j are initiated than cancelled in the year following its opening. Conversely, $\text{NET}_{j,t}$ equals -1 in the three years following the air hub's opening if more air routes involving zip code j are cancelled than initiated in the year following its opening. On average, route initiations attributable to an air hub opening outnumber route cancellations three-to-one.[4]

Unlike $\text{APV}_{j,t}$, which is a continuous variable, $\text{NET}_{j,t}$ is a discrete variable that either equals +1 or -1. To differentiate between small versus large firms, we construct an indicator function $\text{LARGE}_{k,t}$ that equals one if the market capitalization of firm k headquartered at zip code j is above the 70^{th} percentile of all stocks. We then repeat the estimation of equation (14) and equation (15) with discrete variables $\text{NET}_{j,t}$ and $\text{LARGE}_{k,t}$ replacing their continuous counterparts $\text{APV}_{j,t}$ and $\text{SIZE}_{k,t}$, respectively. Quarter fixed effects are not

[4]To focus our results on regularly scheduled air routes, we remove destinations whose airline passenger volumes are in the bottom decile.

included in equation (15) since NET captures time series variation.

The air hub opening results in Table 10 based on NET are consistent with those involving APV in Table 9 as the NET coefficients are positive and negative, respectively, when the number of investors and cost of equity is the dependent variable. Specifically, these coefficients equal 0.042 (t-statistic of 2.18) and -0.016 (t-statistic of -2.05), respectively. The economic significance of the NET coefficient is comparable to our earlier results. Our results in Panel A of Table 2 indicate that a doubling of air traffic leads to a 3.8% increase in the number of investors. This increase is comparable to the 4.2% increase implied by a route initiation following the opening of an air hub after controlling for a multitude of firm and destination characteristics. Intuitively, the initiation of an air route to a destination because of an air hub opening likely coincides with a dramatic increase in air passenger volume at the destination.

The 1.6% per annum decrease in the cost of equity implied by the NET coefficient in Table 10 is also comparable to the return impact of doubling APV in Table 9. For firms whose market capitalization is at or below the median, the β coefficients in Table 9 imply a reduction in the cost of equity between 1% and 2% per annum. Thus, the doubling of air passenger volume and the initiation of an air route due to the opening of an air hub have similar implications for the cost of capital.

Overall, an increase in the number of air passengers at a destination as a result of an air hub opening allows nearby firms to attract more institutional investors. This broadening of the investor base lowers their cost of equity. Consequently, the implications of air travel for firms are confirmed by the opening of air hubs.

Several firm and destination characteristics have consistent coefficients across Table 9 and Table 10. Large firms attract more institutional investors. Large firms also have lower expected returns as SIZE and LARGE both have negative coefficients. Besides the size premium, the positive coefficients for BM in specifications where the dependent variable is the cost of equity are consistent with the value premium.

In contrast to Table 9, the coefficients for the interaction variable are insignificant in Table 10. The insignificant coefficient for the NET $\times$ LARGE interaction variable (t-statistic of 1.15) in Table 10 may be explained by this analysis having fewer than 25% of the observations in Table 9. Furthermore, this interaction variable is only non-zero for large firms whose headquarter location is affected by an air hub opening. In unreported results, this occurs in less than 20% of the observations in Table 10 since large firms are more likely be headquartered in larger destinations.

5 Conclusion

Our study finds that air travel has important asset pricing and corporate finance implications. Institutional investors are more likely to invest and allocate more investment to firms headquartered at destinations that have better air connectivity with their location. In particular, air travel mitigates local investment bias and improves portfolio diversification without influencing portfolio returns. Thus, air traffic appears to facilitate investment by increasing the familiarity of investors with distant firms. Similarly, air traffic facilitates corporate acquisitions of distant target firms. These findings are confirmed by variation in air traffic attributable to the opening of air hubs.

Furthermore, a larger number of air passengers at a destination broadens the investor base of small nearby firms and lowers their cost of equity (Merton, 1987). These results are also confirmed by variation in air passengers attributable to the opening of air hubs. Overall, air travel improves the diversification of investor portfolios while lowering the cost of equity for firms.

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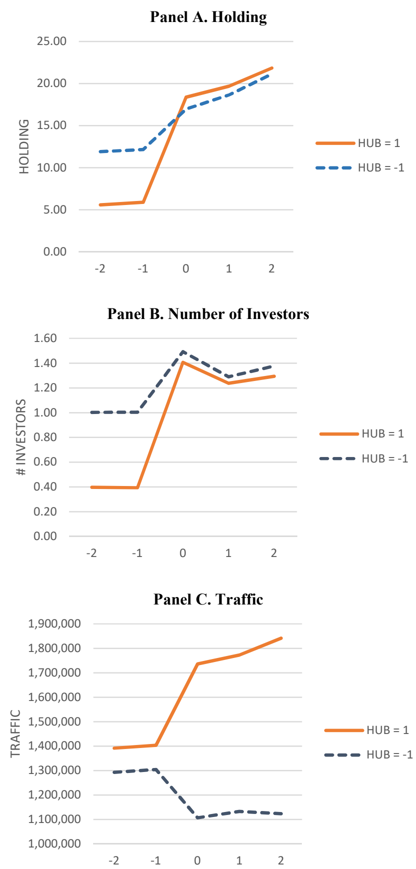

Figure 1: The panels in this figure illustrate the impact of air hub openings on portfolio holdings (Panel A), number of investors (Panel B), and air traffic (Panel C). The HUB indicator variable equals +1 if an air route is initiated between the origin and destination following an air hub opening. Conversely, this indicator variable equals -1 if an air route is cancelled following an air hub opening. Portfolio holdings, number of investors, and air traffic pertain to destinations served by connecting flights through an air hub and not the air hub's location.

Table 1: Summary Statistics

This table reports summary statistics for the zip codes in our analysis as well as air traffic (AT), defined in equation (1), and distance (DIST). AT equals the log number of air passengers flying between an origin (zip code i), where investors are located, and a destination (zip code j), where firms are headquartered. All airports within 30 miles of each zip code are evaluated. Average AT in each year is conditional on air traffic between a pair of zip codes being positive. The averages for air traffic share (ATS) defined in equation (2) and air passenger volume (APV) defined in equation (3) are also recorded. ATS represents the fraction of air passengers flying from an origin to a destination, while APV represents the log number of air passengers at a destination.

Year	Zip Code Pairs	Investor Zip Codes	Firm Zip Codes	Average DIST	Average AT	Average ATS	Average APV
1991	74,577	457	1,853	1,090	12.593	0.73%	14.352
1992	83,197	472	1,881	1,093	12.469	0.70%	14.346
1993	91,735	492	1,956	1,081	12.405	0.67%	14.352
1994	98,439	510	2,155	1,090	12.443	0.65%	14.382
1995	108,648	535	2,260	1,088	12.517	0.63%	14.301
1996	116,000	572	2,293	1,081	12.537	0.62%	14.283
1997	125,834	605	2,309	1,083	12.558	0.59%	14.363
1998	143,782	640	2,315	1,087	12.629	0.57%	14.500
1999	145,455	665	2,250	1,112	12.614	0.56%	14.581
2000	159,360	724	2,218	1,123	12.682	0.57%	14.638
2001	154,975	689	2,128	1,132	12.726	0.56%	14.541
2002	158,834	722	2,128	1,137	12.618	0.56%	14.443
2003	168,978	726	2,061	1,125	12.575	0.53%	14.369
2004	181,499	768	1,994	1,125	12.587	0.52%	14.419
2005	179,739	792	1,908	1,114	12.647	0.56%	14.467
2006	183,127	819	1,888	1,104	12.716	0.56%	14.469
2007	187,081	855	1,853	1,106	12.719	0.58%	14.518
2008	180,731	875	1,804	1,119	12.699	0.61%	14.521
2009	170,016	846	1,745	1,116	12.638	0.62%	14.466
All	142,737	672	2,053	1,109	12.617	0.59%	14.437

Table 2: Impact of Air Traffic on Portfolio Investment

Panel A reports the results from the panel regression in equation (4) that examines the impact of air traffic (AT) defined in equation (1) and distance (DIST) on the number of investors with equity positions in firms at the destination, $\log(\text{Investors})_{i,j,t+1} = \beta_1\,\text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha\,\text{FC}_{j,t} + \gamma\,\text{DEST}_{j,t} + \epsilon_{i,j,t}$. AT is defined as the log number of air passengers travelling between an origin (zip code i), where investors are located, and a destination (zip code j), where firms are headquartered. The first specification includes origin-destination pairwise fixed effects without year fixed effects to capture the impact of time-series variation in air traffic on portfolio investment. These pairwise fixed effects subsume distance, with the panel regression estimated separately for distances between investors and firms that are below or above 500 miles. Two subsequent specifications include fixed effects for each origin and destination separately along with year fixed effects to capture cross-sectional variation in portfolio investment. For brevity, results are reported for investors and firms that are more than 500 miles apart in these specifications. Panel B reports the results from the panel regression in equation (5), $\log(\text{Holdings})_{i,j,t+1} = \beta_1\,\text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha\,\text{FC}_{j,t} + \gamma\,\text{DEST}_{j,t} + \epsilon_{i,j,t}$ that replaces the number of investors with dollar-denominated portfolio holdings but involves identical fixed effects and control variables. FC contains average firm characteristics at the destination for book-to-market (BM), size (SIZE), and past return (PRET) characteristics as well as capital expenditures (CAPEX), equity issuance, debt issuance, idiosyncratic volatility (IVOL), leverage, and return on assets (ROA). DEST controls for two characteristics of the destination; population and per capita income (Income). The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

Panel A: Number of investors

	All		DIST ≤ 500		DIST > 500		DIST > 500		DIST > 500	
AT	0.029***	0.007***	0.012***	0.006***	0.034***	0.007***	0.017***	0.007***	0.033***	0.035***
	(6.21)	(6.25)	(4.78)	(4.33)	(6.18)	(4.47)	(56.30)	(27.64)	(33.71)	(36.42)
DIST								0.010***		0.047***
								(9.50)		(20.58)
BM		0.003		0.003		0.003		0.003***		-0.003***
		(1.51)		(1.65)		(1.44)		(3.36)		(-2.97)
SIZE		0.067***		0.072***		0.065***		0.079***		0.025***
		(25.42)		(29.54)		(23.87)		(76.19)		(34.42)
PRET		-0.022***		-0.025***		-0.021***		-0.022***		-0.004**
		(-4.08)		(-4.83)		(-3.84)		(-7.85)		(-2.62)
CAPEX		0.000		-0.014		0.000		-0.001**		-0.001***
		(0.87)		(-0.23)		(0.19)		(-2.10)		(-6.49)
Equity Issuance		-0.012		-0.032***		-0.006		0.030**		0.019***
		(-1.26)		(-3.30)		(-0.60)		(2.54)		(3.21)
Debt Issuance		0.004*		0.002		0.004		-0.001		0.003
		(1.77)		(1.18)		(1.54)		(-0.40)		(1.30)
IVOL		1.166**		1.694***		1.019**		2.198***		-0.016
		(2.79)		(3.85)		(2.51)		(3.13)		(-0.19)
Leverage		-0.003		-0.013*		-0.000		0.017***		0.003
		(-0.52)		(-1.80)		(-0.02)		(5.66)		(1.26)
ROA		-0.006		-0.017*		-0.004		-0.019**		0.008**
		(-1.28)		(-2.01)		(-0.97)		(-2.49)		(2.13)
Population		0.054***		0.064**		0.046**		0.012***		-0.019**
		(3.14)		(2.66)		(2.82)		(29.97)		(-2.80)
Income		0.136***		0.099***		0.150***		0.063***		0.035***
		(5.55)		(5.16)		(5.48)		(13.00)		(8.13)
Fixed Effects	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Year	Origin-Year	Destination-Year	Destination-Year
Observations	7,943,991	7,904,324	2,076,754	2,063,783	5,867,237	5,840,541	5,867,237	5,840,541	5,867,237	5,840,541
Adj. R^2	0.688	0.705	0.695	0.712	0.685	0.703	0.399	0.480	0.050	0.054

Panel B: Dollar-denominated portfolio holdings

	All		DIST ≤ 500		DIST > 500		DIST > 500		DIST > 500	
AT	0.142***	0.024***	0.049***	0.005	0.167***	0.029***	0.080***	0.022***	0.049***	0.060***
	(4.87)	(3.02)	(3.24)	(0.63)	(4.81)	(3.34)	(42.08)	(26.58)	(12.44)	(14.69)
DIST								0.052***		0.242***
								(12.11)		(29.16)
BM		-0.139***		-0.107***		-0.150***		-0.075***		-0.087***
		(-7.65)		(-4.36)		(-8.95)		(-7.72)		(-6.29)
SIZE		0.494***		0.542***		0.480***		0.465***		0.227***
		(49.75)		(79.19)		(41.41)		(75.57)		(38.37)
PRET		0.077***		0.065***		0.080***		0.099***		0.131***
		(5.12)		(4.01)		(5.28)		(6.51)		(11.90)
CAPEX		-0.007***		0.696**		-0.007***		-0.008***		-0.006***
		(-6.03)		(2.55)		(-5.57)		(-4.07)		(-3.20)
Equity Issuance		0.188***		0.133***		0.201***		0.268***		0.150***
		(5.97)		(2.94)		(5.59)		(5.87)		(3.25)
Debt Issuance		0.034***		0.016*		0.041***		0.047***		0.020**
		(3.80)		(1.79)		(3.21)		(3.39)		(2.57)
IVOL		-8.359***		-7.507*		-8.685**		0.761		-11.282***
		(-3.14)		(-2.01)		(-2.40)		(0.29)		(-3.12)
Leverage		-0.026		-0.059**		-0.019		0.061***		0.035
		(-1.12)		(-2.22)		(-0.77)		(3.10)		(1.59)
ROA		0.281***		0.274***		0.281***		0.194***		0.283***
		(5.19)		(4.11)		(5.08)		(3.47)		(7.89)
Population		0.238***		0.120		0.249***		0.062***		0.176***
		(3.75)		(1.56)		(3.55)		(16.68)		(3.97)
Income		0.302***		0.222**		0.333***		0.252***		-0.114
		(3.37)		(2.70)		(3.43)		(36.00)		(-1.60)
Fixed Effects	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Year	Origin-Year	Destination-Year	Destination-Year
Observations	5,751,108	5,724,169	1,494,132	1,485,216	4,256,976	4,238,953	4,256,976	4,238,953	4,256,976	4,238,953
Adj. R^2	0.625	0.685	0.643	0.703	0.619	0.678	0.194	0.398	0.100	0.121

Table 3: Impact of Air Traffic on Portfolio Investment in Large versus Small Destinations

Panel A reports the results from the panel regression in equation (4) that examines the impact of air traffic (AT) defined in equation (1) on the number of investors with equity positions in firms at the destination. AT is defined as the log number of air passengers travelling between an origin (zip code i), where investors are located, and a destination (zip code j), where firms are headquartered. The specification includes origin-destination pairwise fixed effects without year fixed effects to capture the impact of time-series variation in air traffic on portfolio investment. These pairwise fixed effects subsume distance, with the panel regression estimated separately for distances between investors and firms that are below or above 500 miles. Panel B reports the results from the panel regression in equation (5) that replaces the number of investors with dollar-denominated portfolio holdings but involves identical fixed effects and control variables. Both specifications are estimated separately for small and large destinations, with these subsets defined based on the median population. The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

Panel A: Number of investors

	All		Dist $\leq$ 500		Dist $>$ 500	
	Large	Small	Large	Small	Large	Small
AT	0.007***	0.006***	0.006***	0.005***	0.007***	0.006***
	(6.63)	(4.61)	(3.52)	(4.25)	(5.27)	(3.20)
BM	0.001	0.007***	-0.001	0.007***	0.001	0.006**
	(0.46)	(2.89)	(-0.44)	(4.22)	(0.74)	(2.16)
SIZE	0.063***	0.073***	0.065***	0.083***	0.062***	0.069***
	(24.22)	(27.35)	(26.51)	(31.10)	(23.40)	(24.49)
PRET	-0.021***	-0.022***	-0.024***	-0.027***	-0.021***	-0.021***
	(-3.85)	(-4.47)	(-4.47)	(-5.50)	(-3.64)	(-4.07)
CAPEX	0.001	0.021	0.091	-0.111	0.000	0.056
	(1.13)	(0.45)	(1.28)	(-1.66)	(0.81)	(1.28)
Equity Issuance	-0.018	-0.000	-0.031*	-0.030**	-0.015	0.011
	(-1.44)	(-0.02)	(-1.79)	(-2.38)	(-1.15)	(1.10)
Debt Issuance	0.005	0.002	0.004	0.002	0.006	0.003
	(1.48)	(1.16)	(0.91)	(0.91)	(1.41)	(0.92)
IVOL	1.007**	1.488***	1.509***	2.015**	0.871**	1.330***
	(2.58)	(3.26)	(3.80)	(2.81)	(2.19)	(3.32)
Leverage	-0.011*	0.010	-0.024***	0.005	-0.008	0.012*
	(-1.83)	(1.59)	(-3.29)	(0.53)	(-1.24)	(1.90)
ROA	-0.002	-0.018	-0.002	-0.033*	-0.002	-0.013
	(-0.66)	(-1.39)	(-0.37)	(-1.75)	(-0.56)	(-1.09)
Population	0.072***	0.074***	0.165***	0.087***	0.061**	0.061***
	(2.89)	(4.94)	(2.97)	(3.98)	(2.70)	(4.31)
Income	0.150***	0.107***	0.118***	0.064***	0.160***	0.128***
	(5.89)	(4.45)	(6.22)	(3.32)	(5.65)	(4.67)
Fixed effects	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination
Observations	4,665,010	3,239,314	1,049,812	1013971	3,15,198	2,225,343
Adj. R^2	0.718	0.694	0.730	0.696	0.714	0.693

Panel B: Dollar-denominated portfolio holdings

	All		Dist $\leq$ 500		Dist $>$ 500	
	Large	Small	Large	Small	Large	Small
AT	0.031***	0.018**	0.002	0.010	0.036***	0.022***
	(2.96)	(2.55)	(0.19)	(1.38)	(3.04)	(3.03)
BM	-0.168***	-0.096***	-0.161***	-0.044	-0.168***	-0.122***
	(-10.70)	(-3.37)	(-13.11)	(-1.07)	(-9.40)	(-6.06)
SIZE	0.474***	0.535***	0.500***	0.605***	0.467***	0.507***
	(45.56)	(47.63)	(68.75)	(65.36)	(39.07)	(38.19)
PRET	0.081***	0.070***	0.073***	0.046**	0.083***	0.076***
	(4.55)	(4.74)	(3.59)	(2.55)	(4.75)	(5.14)
CAPEX	-0.006***	0.449**	0.873**	0.549*	-0.005***	0.391**
	(-3.88)	(2.70)	(2.16)	(1.93)	(-3.13)	(2.40)
Equity Issuance	0.162***	0.230***	0.221***	0.069	0.152***	0.288***
	(3.89)	(6.00)	(3.92)	(1.19)	(3.17)	(7.48)
Debt Issuance	0.041**	0.024**	0.025	0.013	0.043*	0.036**
	(2.18)	(2.80)	(1.06)	(1.67)	(2.09)	(2.82)
IVOL	-6.242***	-17.181**	-4.758**	-25.917***	-7.175**	-13.327**
	(-3.02)	(-2.77)	(-2.30)	(-4.27)	(-2.20)	(-2.15)
Leverage	-0.021	-0.039	-0.010	-0.103***	-0.026	-0.013
	(-0.67)	(-1.31)	(-0.28)	(-3.64)	(-0.80)	(-0.38)
ROA	0.294***	0.214***	0.306***	0.151***	0.291***	0.231***
	(4.10)	(5.13)	(2.90)	(2.98)	(4.15)	(4.21)
Population	0.302***	0.258***	0.179	0.133	0.288***	0.304***
	(3.11)	(5.12)	(1.56)	(1.45)	(2.94)	(4.86)
Income	0.337***	0.245***	0.240***	0.211**	0.374***	0.253***
	(3.51)	(2.97)	(3.07)	(2.54)	(3.48)	(3.00)
Fixed effects	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination
Observations	3,442,043	2,282,126	776,561	708,655	2,665,482	1,573,471
Adj. R^2	0.693	0.678	0.714	0.694	0.687	0.671

Table 4: Impact of Air Traffic on Local Investor Bias

This table reports the results from the panel regression in equation (6) that examines the impact of air traffic share (ATS) defined in equation (2) and distance (DIST) on the market-capitalization adjusted portfolio weights of firms, $\text{PWD}_{i,j,t+1} = \beta_1 \, \text{ATS}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \, \text{FC}_{j,t} + \gamma \, \text{DEST}_{j,t} + \epsilon_{i,j,t}$. ATS represents the fraction of air passengers flying from the origin (zip code i), where investors are located, to the destination (zip code j), where firms are headquartered. Both PWD and ATS are multiplied by 100. A positive (negative) value for PWD signifies that the representative investor at the origin is overweight (underweight) firms at the destination. The specification includes origin-destination pairwise fixed effects without year fixed effects to capture the impact of time-series variation in air traffic on portfolio investment. These pairwise fixed effects subsume distance, with the panel regression estimated separately for distances between investors and firms that are below or above 500 miles. Two subsequent specifications include fixed effects for each origin and destination separately along with year fixed effects to capture cross-sectional variation in portfolio investment. For brevity, results are reported for investors and firms that are more than 500 miles apart in these specifications. FC contains average firm characteristics at the destination for book-to-market (BM), size (SIZE), and past return (PRET) characteristics as well as capital expenditures (CAPEX), equity issuance, debt issuance, idiosyncratic volatility (IVOL), leverage, and return on assets (ROA). DEST controls for two characteristics of the destination; population and per capita income (Income). The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

	All		DIST $\leq$ 500		DIST > 500		DIST > 500		DIST > 500	
ATS	0.224***	0.223***	0.135***	0.135***	0.312***	0.311***	0.250***	0.265***	0.440***	0.443***
	(13.93)	(13.77)	(11.40)	(11.22)	(14.64)	(14.46)	(12.24)	(13.06)	(41.65)	(43.59)
DIST								0.118***		0.138***
								(14.40)		(27.85)
BM		-0.006***		-0.007***		-0.006***		-0.020***		-0.008***
		(-4.56)		(-3.34)		(-4.60)		(-4.92)		(-3.56)
SIZE		0.010***		0.014***		0.009***		-0.018***		0.013***
		(10.43)		(8.88)		(9.59)		(-21.40)		(8.28)
PRET		0.045***		0.043***		0.046***		0.070***		0.054***
		(10.22)		(7.27)		(10.81)		(8.51)		(7.65)
CAPEX		-0.002***		-0.034		-0.001**		-0.001		-0.001
		(-4.05)		(-0.43)		(-2.56)		(-0.79)		(-0.96)
Equity Issuance		0.041***		0.059*		0.036**		0.018		0.011
		(4.11)		(1.92)		(2.61)		(0.85)		(0.69)
Debt Issuance		0.006***		0.005**		0.006***		0.011*		0.005
		(2.92)		(2.27)		(2.98)		(2.06)		(1.17)
IVOL		-1.528***		-1.658***		-1.486**		-5.223***		-2.497***
		(-3.45)		(-4.64)		(-2.74)		(-4.14)		(-4.16)
Leverage		-0.022***		-0.029**		-0.020**		-0.012		-0.023**
		(-2.91)		(-2.69)		(-2.58)		(-1.62)		(-2.21)
ROA		0.035**		0.063**		0.031**		0.080**		0.041**
		(2.69)		(2.34)		(2.49)		(2.53)		(2.20)
Population		-0.030		0.070**		-0.039*		-0.056***		-0.065**
		(-1.52)		(2.34)		(-2.08)		(-15.08)		(-2.81)
Income		-0.035*		-0.043**		-0.036*		-0.337***		-0.103**
		(-1.83)		(-2.15)		(-1.95)		(-23.81)		(-2.65)
Fixed Effects	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Year	Origin-Year	Destination-Year	Destination-Year
Observations	7,944,269	7,904,599	2,076,799	2,063,828	5,867,470	5,840,771	5,867,470	5,840,771	5,867,470	5,840,771
Adj. R^2	0.705	0.706	0.636	0.637	0.728	0.728	0.324	0.329	0.240	0.242

Table 5: Impact of Air Traffic on Investor Returns

This table reports the results from the panel regression in equation (7) that examines the impact of air traffic (AT) defined in equation (1) and distance (DIST) on the returns of investor portfolios, $\text{Return}_{i,j,t+1,t+12} = \beta_1\,\text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha\,\text{FC}_{j,t} + \gamma\,\text{DEST}_{j,t} + \epsilon_{i,j,t}$. AT is defined as the log number of air passengers travelling between an origin (zip code i), where investors are located, and a destination (zip code j), where firms are headquartered. The first specification includes origin-destination pairwise fixed effects without year fixed effects to capture the impact of time-series variation in air traffic on the returns of investor portfolios. These pairwise fixed effects subsume distance, with the panel regression estimated separately for distances between investors and firms that are below or above 500 miles. Two subsequent specifications include fixed effects for each origin and destination separately along with year fixed effects to capture cross-sectional variation in investor returns. For brevity, results are reported for investors and firms that are more than 500 miles apart in these specifications. FC contains average firm characteristics at the destination for book-to-market (BM), size (SIZE), and past return (PRET) characteristics as well as capital expenditures (CAPEX), equity issuance, debt issuance, idiosyncratic volatility (IVOL), leverage, and return on assets (ROA). DEST controls for two characteristics of the destination; population and per capita income (Income). The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

	All		DIST ≤ 500		DIST > 500		DIST > 500		DIST > 500	
AT	-0.002	0.002	-0.003	0.001	-0.002	0.003	0.000	-0.000	0.000	-0.000
	(-0.52)	(0.69)	(-1.06)	(0.34)	(-0.39)	(0.70)	(0.14)	(-0.18)	(0.64)	(-0.80)
DIST								0.015		-0.001
								(1.18)		(-0.81)
BM		0.062***		0.046***		0.069***		0.038***		0.058***
		(6.45)		(9.27)		(5.50)		(3.26)		(4.37)
SIZE		-0.065***		-0.074***		-0.062***		-0.002		-0.043***
		(-10.29)		(-9.22)		(-10.27)		(-0.66)		(-8.82)
PRET		-0.068**		-0.078**		-0.064*		-0.009		-0.025
		(-2.19)		(-2.44)		(-2.09)		(-0.23)		(-0.69)
CAPEX		0.013***		-0.472**		0.013***		0.014***		0.014***
		(6.80)		(-2.42)		(6.00)		(4.90)		(5.65)
Equity Issuance		-0.370***		-0.389***		-0.365***		-0.378***		-0.392***
		(-7.88)		(-9.91)		(-6.82)		(-4.88)		(-6.18)
Debt Issuance		-0.020**		-0.015		-0.022**		-0.022*		-0.026**
		(-2.33)		(-1.38)		(-2.15)		(-1.78)		(-2.33)
IVOL		6.962***		7.842***		6.661***		6.968**		5.627*
		(3.20)		(2.99)		(3.06)		(2.15)		(2.01)
Leverage		0.062		0.082*		0.056		-0.035		0.028
		(1.48)		(1.97)		(1.29)		(-0.75)		(0.63)
ROA		0.061		0.002		0.070		0.125*		0.093
		(1.03)		(0.02)		(1.28)		(1.78)		(1.72)
Population		0.053		-0.108		0.087**		0.004		0.041
		(1.61)		(-1.24)		(2.33)		(1.06)		(0.96)
Income		0.075*		0.140***		0.051		0.028		-0.143**
		(1.84)		(4.42)		(1.00)		(1.21)		(-2.24)
Fixed Effects	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Year	Origin-Year	Destination-Year	Destination-Year
Observations	7,943,973	7,904,324	2,076,752	2,063,783	5,867,221	5,840,541	5,867,221	5,840,541	5,867,221	5,840,541
Adj. R^2	0.118	0.144	0.116	0.145	0.119	0.144	0.002	0.007	0.056	0.073

Table 6: Impact of Air Traffic on Corporate Acquisitions

Panel A of this table reports on acquisitions involving both public and private firms. The frequency of acquisitions is conditioned on distance (DIST) as well as air traffic (AT) from an origin (zip code i) to a destination (zip code j). The results in Panel B are based on pseudo acquisition probabilities. To construct the potential sample of acquiring firms, we identify acquiring firms and target firms each year. An indicator variable denoted DEAL distinguishes the actual acquiring firm from the other potential acquiring firms. The impact of air traffic on the likelihood of acquisitions is estimated using the logistic regression in equation (8), $\text{DEAL}_{i,j,t+1,t+4} = \beta_1 \text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \text{DC}_{j,t} + \gamma \text{DEST}_{j,t} + \epsilon_{i,j,t}$. This logistic regression is estimated within two different portfolios defined by the distance between the headquarters of the acquiring and target firm; less than 500 miles or more than 500 miles. Industry fixed effects for the acquiring firm at the origin and the target firm at the destination are included separately in the specification along with year fixed effects to account for the clustering of acquisitions. DC controls for several characteristics of the acquiring firm; size, leverage, Tobin's q, and free cash flow, as well as several deal characteristics such as indicator functions for whether the acquisition involved a cash offer, private target firm, target firm in the high-tech industry, and diversified the acquiring firm's operations. DEST controls for population and per capita income at the destination. The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

Panel A: Frequency of acquisitions

	Distance between acquirer and target			
AT Quartiles	[100, 500)	[500, 1000)	$\geq$ 1000	Total
Low	2,222	1,941	2,373	12,703
2	1,240	1,446	3,466	12,606
3	3,475	3,269	4,968	12,679
High	3,633	3,875	5,096	12,620
Total	10,570	10,531	15,903	50,608

Panel B: Probability of successful acquisitions

	All	DIST ≤ 500	DIST > 500	All	DIST ≤ 500	DIST > 500
AT	0.007	-0.037***	0.025**	0.011*	-0.028***	0.024**
	(1.15)	(-3.25)	(2.14)	(1.79)	(-2.61)	(1.99)
DIST	-0.159***	-0.129***	-0.148**	-0.158***	-0.118***	-0.155**
	(-9.14)	(-3.29)	(-2.29)	(-10.45)	(-3.57)	(-2.55)
SIZE (A)	0.007	-0.052*	0.037***	0.017**	-0.041*	0.051***
	(1.03)	(-1.93)	(3.09)	(2.31)	(-1.76)	(3.52)
Tobin's Q (A)	0.004	0.003	0.003	-0.016**	-0.017	-0.017*
	(0.60)	(0.22)	(0.32)	(-2.30)	(-1.26)	(-1.73)
Leverage (A)	0.161	0.622*	0.056	0.195*	0.763***	0.013
	(1.47)	(1.75)	(0.29)	(1.90)	(2.67)	(0.07)
Free Cash Flow (A)	0.088	0.028	0.198	-0.022	-0.199	0.148
	(0.99)	(0.10)	(1.25)	(-0.26)	(-0.85)	(0.79)
Cash	0.087***	0.214***	0.025	0.054	0.173**	-0.007
	(3.08)	(3.05)	(0.60)	(1.59)	(2.21)	(-0.16)
Private (T)	-0.032	0.084	-0.092*	-0.055*	0.062	-0.133***
	(-1.07)	(1.21)	(-1.65)	(-1.78)	(0.94)	(-2.75)
High Tech (T)	-0.413**	-0.618***	-0.269	-0.202	-0.058	-0.241
	(-2.42)	(-3.91)	(-1.14)	(-1.26)	(-0.28)	(-1.21)
Diversify (A)	-0.532***	-0.554***	-0.545***	-0.787***	-0.866***	-0.782***
	(-5.84)	(-3.74)	(-6.24)	(-6.71)	(-6.11)	(-6.62)
Population	-0.004	-0.010	-0.004	-0.012	-0.041	0.001
	(-0.36)	(-0.27)	(-0.19)	(-1.07)	(-1.11)	(0.04)
Income	-0.265***	-0.651***	-0.127	-0.281***	-0.484***	-0.157
	(-5.40)	(-3.06)	(-1.04)	(-5.47)	(-2.85)	(-1.36)
Industry Fixed Effects	Acquirer-Year	Acquirer-Year	Acquirer-Year	Target-Year	Target-Year	Target-Year
Observations	10,581	3,474	7,067	10,575	3,451	7,048
Pseudo R^2	0.084	0.099	0.086	0.083	0.100	0.084

Table 7: Air Hub Openings

This table reports the results from the panel regressions in equations (9) to (11), $\mathrm{Y}_{i,j,t+1} = \beta_1 \,\mathrm{HUB}_{i,j,t} + \alpha \,\mathrm{FC}_{j,t} + \gamma \,\mathrm{DEST}_{j,t} + \epsilon_{i,j,t}$, as well as equation (12), $\mathrm{Return}_{i,j,t+1,t+12} = \beta_1 \,\mathrm{HUB}_{i,j,t} + \alpha \,\mathrm{FC}_{j,t} + \gamma \,\mathrm{DEST}_{j,t} + \epsilon_{i,j,t}$. $\mathrm{Y}_{i,j,t+1}$ represents the log number of institutional investors, log dollar-denominated portfolio holdings, and portfolio weight deviations, respectively, in equations (9) to (11). $\mathrm{HUB}_{i,j,t}$ captures the initiation and cancellation of air routes attributable to the opening of an air hub. $\mathrm{HUB}_{i,j,t}$ equals zero in the three years before the opening of an air hub as well as during the year in which the hub is opened. In the three years following an air hub's opening, $\mathrm{HUB}_{i,j,t}$ equals 1 if an air route is initiated between zip code i, where investors are located, and zip code j, where firms are headquartered in the year following its opening. Conversely, in the three years following an air hub's opening, $\mathrm{HUB}_{i,j,t}$ equals -1 if an air route is cancelled between these respective zip codes in the year following its opening. Fixed effects for every origin-destination pair subsume the distance between these locations, and enables the panel regressions to capture the respective time series relations between $\mathrm{HUB}_{i,j,t}$ and the respective dependent variable. FC contains average firm characteristics at the destination for book-to-market (BM), size (SIZE), and past return (PRET) characteristics as well as capital expenditures (CAPEX), equity issuance, debt issuance, idiosyncratic volatility (IVOL), leverage, and return on assets (ROA). DEST controls for population and per capita income at the destination. The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

	Number of Investors		Portfolio Holdings		Portfolio Deviations		Investor Return	
HUB	0.013***	0.006***	0.046***	0.010*	0.022***	0.021***	-0.009***	-0.004**
	(9.63)	(4.65)	(8.42)	(1.88)	(5.05)	(4.82)	(-5.30)	(-2.12)
BM		-0.019***		-0.142***		-0.024**		0.116***
		(-5.78)		(-9.24)		(-2.56)		(14.24)
SIZE		0.064***		0.443***		0.025***		-0.088***
		(44.85)		(69.55)		(5.65)		(-39.91)
PRET		-0.034***		-0.116***		0.091***		-0.040***
		(-10.31)		(-8.20)		(6.57)		(-5.05)
CAPEX		0.000		-0.588***		0.087		-1.228***
		(0.01)		(-2.85)		(0.69)		(-13.46)
Equity Issuance		0.057***		-0.083		0.105		-0.375***
		(2.67)		(-0.96)		(1.20)		(-7.10)
Debt Issuance		0.006		0.118***		0.040		-0.068**
		(0.70)		(3.29)		(1.38)		(-2.48)
IVOL		4.578***		16.532***		-0.580		1.054
		(4.15)		(3.74)		(-0.24)		(0.45)
Leverage		0.005		-0.164***		-0.034		-0.060***
		(0.52)		(-4.59)		(-1.21)		(-4.34)
ROA		-0.079***		0.038		0.092		-0.079
		(-3.72)		(0.45)		(1.40)		(-1.20)
Population		0.008***		-0.008		-0.000		0.012***
		(4.69)		(-1.21)		(-0.02)		(6.24)
Income		-0.043***		-0.067**		0.022		-0.041***
		(-6.30)		(-2.44)		(0.68)		(-4.09)
Fixed effects	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination	Origin-Destination
Observations	210,320	208,637	210,301	208,618	210,320	208,637	210,320	208,637
Adj. R^2	0.820	0.825	0.684	0.708	0.796	0.796	0.239	0.271

Table 8: Air Hub Openings and Corporate Acquisitions

This table conditions acquisitions on the $HUB_{i,j,t}$ variable that represent air route initiations and cancellations attributable to air hub openings. $HUB_{i,j,t}$ equals zero in the three years before the opening of an air hub as well as during the year in which the hub is opened. In the three years following its opening, $HUB_{i,j,t}$ equals 1 if an air route is initiated between zip code i, where investors are located, and zip code j, where firms are headquartered in the year following an air hub's opening. Conversely, in the three years following an air hub's opening, $HUB_{i,j,t}$ equals -1 if an air route is cancelled between these respective zip codes in the year following an air hub's opening. The frequency and growth of acquisitions are calculated at the city level to ensure an adequate number of observations. Acquisition growth is defined based on the number of acquisitions in the post-hub period relative to this number in the pre-hub period in equation (13). The pre-hub period consists of three years before the air hub opening, while the post-hub period consists of three years after its opening. The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

	Observations	M&A Frequency	M&A Growth
HUB = +1			
Pre-Hub opening	1,002	1.219	
Post-Hub opening	1,002	2.483	
Difference		1.264	82.6%
HUB = -1			
Pre-Hub opening	620	1.461	
Post-Hub opening	620	2.235	
Difference		0.774	63.3%
Difference-in-Difference		0.490	19.3%
t-statistic		(2.41)	(2.67)

Table 9: Impact of Air Passenger Volume on Firms

This table reports the results from the panel regression in equation (14), $\log(\text{Investors})_{k,t+1} = \beta_1 \text{APV}_{j,t} + \beta_2 (\text{APV}_{j,t} \times \text{SIZE}_{k,t}) + \alpha \text{FC}_{j,t} + \gamma \text{DEST}_{j,t} + \epsilon_{k,t}$ that examines the investor base of firms. Results are also reported for the panel regression in equation (15), $\text{Cost of Equity}_{k,t+1,t+12} = \beta_1 \text{APV}_{j,t} + \beta_2 (\text{APV}_{j,t} \times \text{SIZE}_{k,t}) + \alpha \text{FC}_{j,t} + \gamma \text{DEST}_{j,t} + \epsilon_{k,t}$ that examines the corresponding cost of equity per annum. APV is defined as the log number of air passengers at the destination. Fixed effects for each destination are included in both panel regressions, with standard errors clustered by quarter. Both specifications are estimated separately for large and small destinations, with the median population differentiating between these subsets. FC contains average firm characteristics at the destination for size (SIZE), book-to-market (BM), and past return (PRET) characteristics as well as capital expenditures (CAPEX), equity issuance, debt issuance, idiosyncratic volatility (IVOL), leverage, and return on assets (ROA). DEST controls for population and per capita income at the destination. The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

	Number of Investors	Cost of Equity	Number of Investors		Cost of Equity	
			Large	Small	Large	Small
APV	0.030***	-0.060***	0.018*	0.017**	-0.032*	-0.051***
	(5.34)	(-5.04)	(1.97)	(2.51)	(-1.94)	(-3.65)
APV × SIZE	-0.006***	0.009***	-0.005***	-0.003***	0.009***	0.006***
	(-6.65)	(5.10)	(-5.48)	(-3.17)	(4.29)	(2.97)
SIZE	0.687***	-0.208***	0.668***	0.666***	-0.197***	-0.178***
	(45.49)	(-7.45)	(47.32)	(37.35)	(-6.17)	(-5.44)
BM	0.021**	0.021**	0.009	0.050***	0.013*	0.039***
	(2.27)	(2.51)	(1.40)	(4.29)	(1.73)	(4.24)
PRET	-0.240***	-0.044**	-0.235***	-0.245***	-0.058**	-0.033*
	(-14.24)	(-2.12)	(-12.40)	(-14.31)	(-2.39)	(-1.78)
CAPEX	0.011***	0.016***	0.010***	0.009	0.018***	-0.809***
	(8.24)	(7.08)	(6.63)	(0.10)	(8.08)	(-4.73)
Equity Issuance	-0.262***	-0.436***	-0.254***	-0.234***	-0.486***	-0.332***
	(-7.59)	(-7.27)	(-6.06)	(-5.75)	(-8.29)	(-3.51)
Debt Issuance	-0.012	-0.033**	0.015	-0.021**	-0.073**	-0.012
	(-1.49)	(-2.33)	(1.23)	(-2.62)	(-2.20)	(-1.07)
IVOL	1.696	1.576***	4.947***	1.157	0.831	1.735***
	(1.51)	(4.92)	(5.09)	(1.38)	(0.78)	(5.03)
Leverage	0.130***	0.035	0.037**	0.228***	0.078*	-0.015
	(11.03)	(1.18)	(2.40)	(11.63)	(1.99)	(-0.61)
ROA	-0.012	0.075***	-0.015**	-0.106**	0.071***	0.137
	(-1.09)	(3.09)	(-2.04)	(-2.35)	(3.70)	(1.25)
Population	0.102***	0.074**	0.133***	0.115***	-0.004	-0.006
	(6.31)	(2.34)	(4.00)	(3.93)	(-0.08)	(-0.11)
Income	-0.001	0.008	0.015	0.294***	-0.213***	0.113
	(-0.05)	(0.25)	(0.35)	(4.66)	(-2.96)	(0.88)
Quarter Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Destination Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	160,782	160,782	80,897	79,885	80,897	79,885
Adj. R^2	0.946	0.090	0.949	0.945	0.086	0.107

Table 10: Firm Implications of Air Hub Openings

This table reports the results from replacing $\text{APV}_{j,t}$ from the panel regression specifications in equation (14) and equation (15) with the variable $\text{NET}_{j,t}$ that equals zero in the three years before the opening of an air hub as well as during the year in which the air hub is opened. In the three years following an air hub's opening, $\text{NET}_{j,t}$ equals 1 if more air routes involving zip code j are initiated than cancelled in the year following its opening. Conversely, in the three years following an air hub's opening, $\text{NET}_{j,t}$ equals -1 if more air routes involving zip code j are cancelled than initiated in the year following its opening. Firm size (log of market capitalization) is replaced with $\text{LARGE}_{k,t}$, an indicator function that equals one for firms whose market capitalization is above the 70^{th} percentile. In this specification, FC contains average firm characteristics at the destination for book-to-market (BM), and past return (PRET) characteristics as well as capital expenditures (CAPEX), equity issuance, debt issuance, idiosyncratic volatility (IVOL), leverage, and return on assets (ROA). DEST controls for population and per capita income at the destination. The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

	Number of Investors	Cost of Equity
NET	0.042**	-0.016**
	(2.18)	(-2.05)
NET × LARGE	0.002	0.012
	(0.12)	(1.15)
LARGE	1.186***	-0.133***
	(34.85)	(-8.39)
BM	-0.093***	0.050***
	(-4.73)	(3.62)
PRET	-0.023	-0.046*
	(-0.84)	(-1.85)
CAPEX	1.077***	-0.999***
	(3.33)	(-5.57)
Equity Issuance	-0.049	-0.522***
	(-0.59)	(-6.02)
Debt Issuance	0.121	-0.015
	(1.57)	(-0.31)
IVOL	-11.450**	2.603
	(-2.41)	(1.57)
Leverage	-0.090**	0.088*
	(-2.12)	(1.71)
ROA	0.053*	0.040***
	(1.78)	(4.97)
Population	0.412***	-0.036
	(6.84)	(-0.60)
Income	0.714***	0.080**
	(9.91)	(2.21)
Destination Fixed Effects	Yes	Yes
Observations	38,333	38,333
Adj. R^2	0.862	0.119