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

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Abstract

Coval and Moskowitz (1999) report that proximity influences investment. We extend the measurement of proximity beyond distance and report that air travel reduces local investment bias. This result is confirmed using the initiation of connecting flights through recently opened air hubs since investment at destinations served by these connecting flights increases after, not before, their initiation. Air travel also broadens the investor base of firms and lowers their cost of equity. Overall, air travel improves the diversification of investor portfolios and lowers the cost of equity for firms.

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"Mobility of population is death to localism"

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

The literature on local investment bias examines the proximity of investors to the firms in which they invest. This literature measures proximity as the distance between an investor's location and the location of a firm's headquarters. However, aviation has made the world smaller by dramatically reducing the time required to travel long distances. Once airborne, flying is more than ten times faster than driving. 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 throughout the United States. We also examine air travel's influence on the cost of equity to determine whether a more geographically diversified investor base is associated with a lower cost of equity (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 due to variation in air traffic is difficult to attribute to investment opportunities in Austin since these opportunities 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. The larger portfolio allocations to distant firms as a result of air traffic also reduces local investment bias. As our results hold for small destinations with limited investment opportunities, our results are not driven by air traffic between the primary location of institutional investors and their regional investment offices in large destinations.

To address the endogenous relation between 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 recently opened air hubs since destinations with exceptional investment opportunities are served by direct flights. To clarify, portfolio investment near the air hub is not examined since the origin and destination of a connecting flight are distinct from the hub's location. Intuitively, our results are confirmed using variation in air traffic between two peripheral nodes in a network (origin and destination) whose connectivity is re-optimized in response to the addition of a central node (air hub).

For example, the opening of an air hub in Salt Lake City (Utah) leads to the initiation of connecting flights through this hub. We hypothesize that portfolio investment in Portland (Oregon) firms by Orlando (Florida) investors increases following the initiation of a connecting flight from Orlando to Portland through Salt Lake City. The decision to locate an air hub in Salt Lake City is not driven by investment opportunities in Portland.[1] Furthermore, portfolio investment in Salt Lake City is not examined by our analysis.

According to Figure 1, the number of investors and their dollar-denominated portfolio holdings both increase after the initiation of connecting flights through a recently opened air hub. Observe that portfolio investment increases after the opening of an air hub and not before. Thus, we conclude that portfolio investment responds to air traffic. Conversely, the reverse implication, that air traffic responds to investment opportunities, is not supported.

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 risk-adjusted return of investor portfolios, which suggests that air traffic increases the familiarity of investors with distant firms without conferring any informational advantage. In addition, after repeating our empirical tests separately

[1] Although aggregate investment opportunities across multiple destinations may justify opening an air hub, each individual destination served by a connecting flight through the air hub has insufficient investment opportunities to justify its opening.

in each calendar year, we find consistent results throughout our sample period. This consistency suggests that lower monitoring costs due to advances in information technology cannot explain the reduction in local bias. Further support for the familiarity channel is obtained by limiting our analysis to air travel on low cost airlines. Air traffic on low cost airlines, which are less likely to be flown by institutional investors and senior management traveling for business, continues to exert a positive impact on portfolio investment.

Our findings parallel Pool, Stoffman, and Yonker (2012)'s conclusion that familiarity motivates fund managers to overweight firms headquartered in their home state, although these familiar investments do not generate higher returns. Huberman (2001) also concludes that familiarity influences investment decisions. In our context, air travel can stimulate indirect word-of-mouth communication and social interactions (Hong, Kubik, and Stein, 2004) since familiarity does not require investors to fly to a destination for the explicit purpose of investing in a firm.

We also examine the impact of air travel on corporate acquisitions. Greater air traffic increases the likelihood that firms at the destination are acquired by firms at the origin. However, as with risk-adjusted portfolio returns, air travel does not improve the returns of acquiring firms. Therefore, air travel appears to increase the familiarity of acquiring firms with distant target firms without providing an informational advantage.

Air routes initiated by the opening of an air hub confirm that air traffic facilitates portfolio investment in distant firms, and consequently mitigates local investment bias. Route initiations attributable to air hub openings also facilitate corporate acquisitions. Moreover, variation in air traffic attributable to the opening of an air hub has an inverse relation with investor returns. Therefore, the initiation of a connecting flight through a recently opened air hub increases portfolio investment in firms headquartered at the destination but decreases the returns of investors at the origin. This evidence is consistent with air traffic's ability to lower expected returns through improved risk sharing (Merton, 1987).

To examine air travel's impact on the cost of equity, we define air passenger volume as the number of airline passengers entering and departing a destination. This metric 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%. Air hub openings confirm both these implications of air travel. Overall, 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 their investor base lowers their cost of equity, which partially explains the insignificant impact of air travel on 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 commercial airline flights and 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 origin zip codes denoted i while firm headquarters are located at destination zip codes 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. 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 in quarter t denoted $\mathrm{AT}_{i,j,t}$ 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 (origin to destination) since the number of air passengers on the return flight is nearly identical for most air routes.[2] We include air passengers on return flights in equation (1) since interactions between investors and firms can occur at the origin and 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. For example, if the airport at the origin is larger, then air traffic share is lower at the origin than the destination.

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, with the average AT and the average ATS computed between zip code pairs with positive air traffic. 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 frequently cancelled.

[2] Data on the number of flights between each origin and destination is not available. However, with standardized aircraft flying most routes, dividing the number of air passengers by the aircraft's capacity would approximate the number of flights.

2 Air Travel and 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

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

This specification includes both origin city-year and destination city-year fixed effects. Standard errors are double clustered by origin-destination city pairs and 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 represents firm characteristics that 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.

Table 2 reports a positive β_1 coefficient for AT of 0.003 (t-statistic of 6.04) in the full specification with all control variables. Thus, an increase in air traffic is associated with more institutional investors at the origin having equity positions in firms at the destination. Furthermore, the positive coefficient for SIZE indicates that investors are more willing to invest in large firms. Falkenstein (1996) reports that institutional investor portfolios exhibit a preference for "large" visible stocks.

The results from equation (4) ignore the possibility that investors increase the dollar-denominated amount of their portfolio investment in distant firms as a result of air travel. Our next panel regression addresses this possibility by examining the dollar-denominated portfolio holdings of investors

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

This specification includes both origin city-year and destination city-year fixed effects. Standard errors are double clustered by origin-destination city pairs and by year.

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 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.

The positive β_1 coefficient of 0.006 (t-statistic of 2.69) in Table 2 in the full specification of equation (5) implies that higher air traffic leads to greater dollar-denominated portfolio investment in firms at the destination by investors at the origin.

In summary, the results in Table 2 indicate that air travel facilitates portfolio investment in distant firms. Furthermore, the positive coefficient for equity issuance indicates that investors increase their portfolio holdings in firms issuing securities.

2.1 Portfolio Investment in Small Destinations

To ensure our results are not driven by air traffic to large destinations, we divide destinations into large and small according to whether their population is above or below the median population. We then re-estimate equation (4) and equation (5) within each subset.

The results in Table 3 indicate that the impact of air traffic on the number of investors is similar for small and large destinations, with both coefficients being 0.003 and significant at the 1% level. Furthermore, air traffic increases the dollar-denominated portfolio holdings of investors in firms headquartered at small destinations. Overall, the positive relation between portfolio investment and air traffic is not attributable to large destinations. Consequently, our results are unlikely to be explained 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 in large destinations such as San Francisco where many of Fidelity's investments also have their headquarters located. The results in Table 3 for small destinations indicate that the impact of air travel on portfolio investment is not driven by regional offices in large destinations.

2.2 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.

To measure local bias, 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 in the following panel regression

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

This specification includes both origin city-year and destination city-year fixed effects. Standard errors are double clustered by origin-destination city pairs and by year.

As more portfolio investment in distant firms implies less portfolio investment in local firms, a positive β_1 coefficient for ATS indicates that a higher air traffic share mitigates local investment bias. According to Table 4, the β_1 coefficient equals 0.234 (t-statistic of 8.77) in the full specification. This positive coefficient indicates that, by facilitating portfolio investment in distant firms, air travel reduces local investment bias.

3 Familiarity versus Monitoring

The portfolio investment facilitated by air travel may be driven by increased familiarity with distant firms or by the increased ability of investors to monitor distant firms (Bernstein, Giroud, and Townsend, 2015). We differentiate between these two channels by conducting three empirical tests that examine calendar-year coefficients, low cost air travel, and investor returns.

Table 5 reports annual estimates for the previous three specifications in equation (4) through equation (6). These results indicate that the β_1 coefficients are stable across our sample period for the number of investors and local bias. While the annual β_1 coefficients are less stable for portfolio holdings, they are positive from 1998 onwards. Overall, lower monitoring costs as a result of improved technology cannot explain the importance of air travel to portfolio investment since our results are stable or strengthen over time.

We also compute AT and ATS for airline passengers traveling on low cost airlines.[3] Under the assumption that institutional investors are less likely to fly low cost airlines, we then estimate the three specifications in equation (4) through equation (6) for low cost airlines.

The results in Table 6 confirm our earlier results as the β_1 coefficients for AT remain positive for low cost travel, and are of a similar magnitude as those in Table 2 for the compete set of airlines. Equation (6) yields a large β_1 coefficient for low cost air travel. Thus, low cost air traffic is effective at reducing local investment bias. In conjunction with the results in Table 5, the importance of air travel to portfolio investment appears to arise from increased investor familiarity with distant firms.

The third empirical test examines the implications of air traffic for investment performance using the following panel regression

$$\text{Return}_{i,j,t+1,t+4} = \beta_1 \, \text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \, \text{FC}_{j,t} + \epsilon_{i,j,t} \, . \tag{7}$$

[3]The list of low cost airlines includes: AirTran Airways, Allegiant Air, Frontier Airlines, JetBlue, Southwest Airlines, Spirit Airlines, Sun Country Airlines, and Virgin America as well as several airlines that have discontinued their operations: ATA Airlines, Hooters Air, Independence Air, MetroJet, Midway Airlines, National Airlines, Pacific Southwest Airlines, Pearl Air, People Express, Safe Air, Skybus Airlines, SkyValue, Southeast Airlines, Streamline Air, Tower Air, United Shuttle, ValuJet Airlines, Vanguard Airlines, Western Pacific Airlines, and USA3000 Airlines.

The dependent variable in this specification is the risk-adjusted portfolio return of investors over the subsequent year (quarter $t+1$ to quarter $t+4$). The risk-adjustment is conducted with characteristics using the procedure in Daniel, Grinblatt, Titman, and Wermers (1997). However, similar results are obtained if the risk-adjustment is conducted using a multi-factor model. The specification in equation (7) includes both origin city-year and destination city-year fixed effects. Standard errors are double clustered by origin-destination city pairs and by year.

If air travel improves monitoring, investors are predicted to acquire private information and earn higher risk-adjusted returns as a result of air traffic. Thus, a positive β_1 coefficient in equation (7) indicates that investors do earn higher risk-adjusted returns as a result of air travel, which supports the information acquisition and monitoring channels. Conversely, an insignificant β_1 coefficient is consistent with the familiarity channel.

The insignificant β_1 coefficients in Table 7 are consistent with air traffic increasing the familiarity of institutional investors with distant firms without conferring an informational advantage. Intuitively, our results indicate that air traffic's ability to mitigate local investment bias does not undermine the informational advantage of local investors (Coval and Moskowitz, 1999).

4 Air Travel and 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 Company's (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.

We then 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 (twenty) 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 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. Standard errors are clustered each year. 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.

The positive β_1 coefficients in Table 8 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 firms exhibit a preference for acquiring nearby firms.

Table 8 reports insignificant abnormal returns for acquiring firms in the year following their acquisition. Abnormal returns are computed using value-weighted size and book-to-market portfolio returns. After replacing the dependent variable in equation (8) with these abnormal returns, the insignificant β_1 coefficients for AT in this return regression indicates that acquiring firms do not obtain higher returns from air travel. The inability to reject the null parallels our earlier result for portfolio investment. Therefore, the ability of air travel to increase investment is most likely due to greater familiarity with distant firms.

5 Predicted Air Traffic and Air Hub Openings

Our next analysis involves a two-stage instrumental variables analysis that predicts air traffic. This analysis assumes that flying occurs at an average speed of 500 mph while driving averages 50 mph. The total travel time required to travel from an investor's location to a firm's headquarters consists of three components; driving time from an investor's location to the origin airport, flight time from the origin airport to the destination airport, and driving time from the destination airport to the location of a firm's headquarters. The ratio FLY equals the flight time divided by the total travel time. A low value of FLY indicates that air travel is less important to the total travel time between an investor and a firm.

In the first stage of our instrumental variables procedure, we regress air traffic on FLY, an indicator variable denoted FAR equal to one if the distance between an origin and destination exceeds 250 miles, and their interaction

$$\text{AT}_{i,j,t} = \beta_1 \,\text{FLY}_{i,j,t} + \beta_2 \,\text{FAR}_{i,j} + \beta_3 \,\text{FLY}_{i,j,t} \times \text{FAR}_{i,j} + \epsilon_{i,j,t} \,. \tag{9}$$

Year fixed effects are included in this specification.

Panel A of Table 9 reports a positive β_1 coefficient for FLY of 5.034 (t-statistic of 7.73) that suggests commute times to and from airports are important determinants of air traffic when driving the entire distance is viable. Intuitively, the longer travellers have to spend commuting to and from airports (low FLY), the less likely they are to fly to a destination within 250 miles. The β_3 coefficient for the FLY $\times$ FAR interaction is negative, equaling -7.666 (t-statistic of -11.00), which is larger in absolute value than the β_1 coefficient for FLY. The relative magnitudes of these coefficients suggest that the relation between air traffic and FLY is negative when traveling long distances, although air traffic is higher over long distances according to the positive β_2 coefficient of 3.480 (t-statistic of 13.52) for FAR. As FLY increases with distance, the negative interaction reflects the reduced importance of driving times to and from airports when traveling long distances.

In the second stage of our instrumental variables procedure, equation (4) and equation (5) are re-estimated with predicted air traffic from equation (9) in lieu of AT. The results in Panel B of Table 9 indicate that predicted air traffic exerts a positive impact on portfolio investment as the β_1 coefficients are positive in both specifications. These coefficients are 0.082 (t-statistic of 3.39) and 0.157 (t-statistic of 3.30) Therefore, convenient airport access enables air travel to affect investor portfolios.

As higher air traffic to a destination may be in response to greater investment opportunities at the destination, we examine variation in air traffic attributable to four air hub openings (Giroud, 2013) during our sample period.[4] These 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. Fourth, a geographic proximity filter requires the air hub to be situated

[4]These four air hub openings are: (1) Columbus (CMH) in 1991, (2) Atlanta (ATL) in 1992, (3) Los Angeles (LAX) in 1997, and (4) Kansas City (MCI) in 2000. The four airlines opening these respective air hubs are: America West Airlines, Trans World Airlines, United Airlines, and Midwest Airlines. 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.

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, $\text{HUB}_{i,j,t}$ 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.

According to Figure 1, the number of investors and their dollar-denominated portfolio holdings both increase after the initiation of connecting flights through a recently opened air hub. Moreover, portfolio investment increases after the opening of an air hub and not before. Thus, portfolio investment responds to air traffic. Conversely, air traffic does not respond to portfolio investment (investment opportunities). Figure 1 also provides empirical support for the familiarity channel as route initiations attributable to an air hub opening exert a large positive impact on portfolio investment, while the impact of route cancellations attributable to an air hub opening is more muted. The weaker response from cancellations is consistent with investors already being familiar with firms at the destination. Intuitively, the cancellation of air routes does not lead investors to liquidate their positions in familiar firms due to higher information acquisition or monitoring costs.

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

$$\log(\text{Investors})_{i,j,t+1} = \beta_1 \, \text{HUB}_{i,j,t} + \alpha \, \text{FC}_{j,t} + \epsilon_{i,j,t} \, . \qquad (10)$$

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 10 reinforce our earlier findings since the β_1 coefficient from equation (10) 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 (10) 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

$$\log(\text{Holdings})_{i,j,t+1} = \beta_1 \, \text{HUB}_{i,j,t} + \alpha \, \text{FC}_{j,t} + \epsilon_{i,j,t} \, . \qquad (11)$$

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

Table 10 reports a positive β_1 coefficient of 0.010 (t-statistic of 1.88) from equation (11) 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.

We also examine the impact of air travel on local investment bias. As HUB is an indicator variable that does not represent the level of air traffic, we regress portfolio weight deviations (PWD) directly on HUB in the following panel regression

$$\text{PWD}_{i,j,t+1} \;=\; \beta_1\,\text{HUB}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha\,\text{FC}_{j,t} + \epsilon_{i,j,t}\,, \tag{12}$$

with origin-destination pairwise fixed effects. Table 10 reports a positive β_1 coefficient equaling 0.021 (t-statistic of 4.82) in equation (12). This positive coefficient confirms that air route initiations attributable to the opening of air hubs reduce local investment bias.

Interestingly, Table 10 reports a negative β_1 coefficient of -0.004 (t-statistic of -2.12) from the following panel regression

$$\text{Return}_{i,j,t+1,t+4} \;=\; \beta_1\,\text{HUB}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha\,\text{FC}_{j,t} + \epsilon_{i,j,t}\,. \tag{13}$$

Thus, air routes initiated by air hub openings lower the risk-adjusted returns earned by investors at the origin. By focusing on firms affected by air hub openings, which tend to be smaller firms headquartered in small destinations, this inverse relation is consistent with improved risk-sharing.

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

$$\frac{2 \times (\text{Number of Acquistions Post-Hub} - \text{Number of Acquistions Pre-Hub})}{\text{Number of Acquistions Pre-Hub} + \text{Number of Acquistions Post-Hub}}\,. \tag{14}$$

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 11 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.

6 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.

6.1 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

$$\begin{aligned} \log\left(\text{Investors}\right)_{k,t+1} &= \beta_1 \, \text{APV}_{j,t} + \beta_2 \, \left(\text{APV}_{j,t} \times \text{SIZE}_{k,t}\right) \\ &\quad + \alpha \, \text{FC}_{j,t} + \epsilon_{k,t} \, , \end{aligned} \tag{15}$$

where k denotes an index for firms headquartered at destination j. Fixed effects for each destination city are included in the above specification, 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 to be greater for small firms.

According to Table 12, the β_1 coefficient for APV is 0.071 (t-statistic of 6.15). 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 -0.007 (t-statistic of -10.37) 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 small or large city.

6.2 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 year following an air hub opening are examined in the next panel regression

$$\begin{aligned} \text{Cost of Equity}_{k,t+1,t+4} &= \beta_1 \, \text{APV}_{j,t} + \beta_2 \, (\text{APV}_{j,t} \times \text{SIZE}_{k,t}) \\ &\quad + \alpha \, \text{FC}_{j,t} + \epsilon_{k,t} \, . \end{aligned} \tag{16}$$

Fixed effects for each destination city are included in the above specification that has the risk-adjusted returns of individual firms as its dependent variable, 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 12 reports a negative β_1 coefficient from equation (16) equaling -0.027 (t-statistic of -4.36). 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 (15), 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 (16) is positive, 0.003 (t-statistic of 3.57). Intuitively, the familiarity of investors with large firms depends less on air travel than their familiarity with 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.

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 average log market capitalization equals 5.73, while an increase in APV from its median value to its 75th percentile equals 0.79. Therefore, the β_1 and β_2 coefficients in Table 12 imply that this increase in APV lowers the average sized firm's expected return by $[-0.027 + 0.003 \times 5.73] \times 0.79 =$ -0.78% per annum. Therefore, the economic importance of air travel is significant.

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

6.3 Air Hub Openings

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.[5]

As $\text{NET}_{j,t}$ is a discrete variable that either equals +1 or -1, 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 (15) and equation (16) 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.

The air hub opening results in Table 13 based on NET are consistent with those in Table 12 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 0.063 (t-statistic of 3.28) and -0.016 (t-statistic of -2.15), respectively.[6] Intuitively,

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

[6]The interaction terms are only non-zero for large firms whose headquarter location is affected by an air

the initiation of an air route to a destination because of an air hub opening increases air passenger volume at the destination.

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.

7 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.

hub opening, which seldom occurs since large firms are more likely to be headquartered in large destinations that are not affected by air hub openings.

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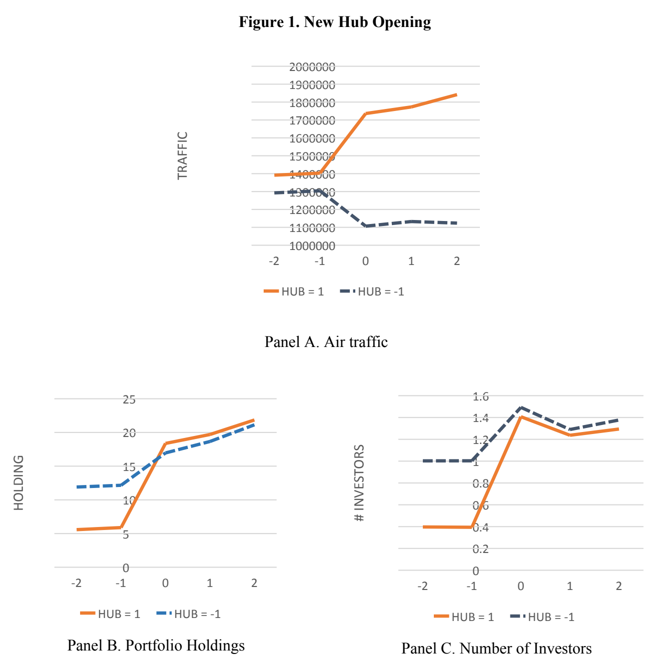

Figure 1: The panels in this figure illustrate the impact of air hub openings on air traffic (Panel A), portfolio holdings in millions of dollars (Panel B), and number of investors (Panel C). The HUB indicator variable equals +1 if an air route is initiated between the origin and destination following an air hub opening. Conversely, this indicator variable equals -1 if an air route is cancelled following an air hub opening. Air traffic, portfolio holdings, and number of investors 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

This table 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, $\log(\text{Investors})_{i,j,t+1} = \beta_1 \,\text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \,\text{FC}_{j,t} + \epsilon_{i,j,t}$ and the results from the panel regression in equation (5), $\log(\text{Holdings})_{i,j,t+1} = \beta_1 \,\text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \,\text{FC}_{j,t} + \epsilon_{i,j,t}$ that replaces the number of investors with dollar-denominated portfolio holdings. 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. DIST denotes the distance between investors and firms. 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). The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

	Number of Investors		Portfolio Holdings	
AT	0.005***	0.003***	0.014***	0.006**
	(8.08)	(6.04)	(5.48)	(2.69)
DIST		-0.005**		-0.023***
		(-2.37)		(-3.96)
BM		0.001		-0.066***
		(1.10)		(-5.10)
SIZE		0.060***		0.388***
		(35.51)		(51.34)
PRET		-0.016***		0.091***
		(-9.49)		(7.89)
CAPEX		-0.002***		-0.006***
		(-4.82)		(-4.31)
Equity Issuance		0.030***		0.193***
		(3.13)		(5.26)
Debt Issuance		-0.004***		0.020**
		(-2.95)		(2.72)
IVOL		1.368***		-4.941***
		(3.31)		(-5.57)
Leverage		0.034***		0.116***
		(8.12)		(4.88)
ROA		-0.009*		0.233***
		(-1.83)		(5.30)
Fixed effects	Origin × Year		Origin × Year	
	Destination × Year		Destination × Year	
Observations	7,943,644	7,903,978	5,750,544	5,723,598
Adj. R^2	0.229	0.256	0.238	0.319

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

This table 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 and the results from the panel regression in equation (5) that replaces the number of investors with dollar-denominated portfolio holdings. 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. 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.

	Number of Investors		Portfolio Holdings	
	Large Destination	Small Destination	Large Destination	Small Destination
AT	0.003***	0.003***	0.002	0.009***
	(3.19)	(5.50)	(0.51)	(3.26)
DIST	-0.007**	-0.004**	-0.026***	-0.022***
	(-2.12)	(-2.23)	(-3.53)	(-2.90)
BM	0.000	0.003**	-0.071***	-0.055***
	(0.26)	(2.58)	(-4.72)	(-3.81)
SIZE	0.061***	0.059***	0.392***	0.382***
	(29.47)	(28.92)	(41.14)	(49.48)
PRET	-0.017***	-0.014***	0.095***	0.085***
	(-7.76)	(-10.90)	(7.40)	(7.52)
CAPEX	-0.002***	0.043	-0.006***	0.609**
	(-4.24)	(1.16)	(-3.23)	(2.74)
Equity Issuance	0.036***	0.028**	0.189***	0.211***
	(2.89)	(2.86)	(3.65)	(4.44)
Debt Issuance	-0.004*	-0.004	0.018	0.019*
	(-1.88)	(-1.69)	(1.42)	(1.83)
IVOL	1.306***	1.559***	-4.231***	-7.664**
	(3.10)	(3.44)	(-3.87)	(-2.33)
Leverage	0.031***	0.041***	0.112***	0.133***
	(5.28)	(6.54)	(3.82)	(3.64)
ROA	-0.014**	0.003	0.221***	0.227***
	(-2.17)	(0.21)	(3.97)	(3.99)
Fixed effects	Origin × Year		Origin × Year	
	Destination × Year		Destination × Year	
Observations	4,664,885	3,238,988	3,441,842	2,281,620
Adj. R^2	0.265	0.242	0.324	0.308

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, $\text{PWD}_{i,j,t+1} = \beta_1 \, \text{ATS}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \, \text{FC}_{j,t} + \epsilon_{i,j,t}$. 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. 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). The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

ATS	0.229***	0.234***
	(8.76)	(8.77)
DIST		0.064***
		(6.08)
BM		-0.011***
		(-3.55)
SIZE		-0.007***
		(-3.08)
PRET		0.060***
		(8.32)
CAPEX		-0.001
		(-0.95)
Equity Issuance		0.016
		(0.82)
Debt Issuance		0.008**
		(2.19)
IVOL		-4.549***
		(-4.40)
Leverage		-0.012
		(-0.76)
ROA		0.057**
		(2.35)
Fixed effects	Origin × Year	
	Destination × Year	
Observations	7,943,922	7,904,253
Adj. R^2	0.268	0.269

Table 5: Annual Analyses

Table 5 reports coefficients for every year of our sample period. Specifically, Panel A reports the results from equation (4) that examines the impact of air traffic (AT) and distance (DIST) on the number of investors with equity positions in firms at the destination, $\log(\text{Investors})_{i,j,t+1} = \beta_1 \text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \text{FC}_{j,t} + \epsilon_{i,j,t}$. Panel B reports the results from equation (5), $\log(\text{Holdings})_{i,j,t+1} = \beta_1 \text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \text{FC}_{j,t} + \epsilon_{i,j,t}$ that replaces the number of investors with dollar-denominated portfolio holdings. Panel C reports the results from equation (6) that examines the impact of air traffic share (ATS) and distance (DIST) on the market-capitalization adjusted portfolio weights of firms, $\text{PWD}_{i,j,t+1} = \beta_1 \text{ATS}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \text{FC}_{j,t} + \epsilon_{i,j,t}$. 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. A positive (negative) value for PWD signifies that the representative investor at the origin is overweight (underweight) firms at the destination. Both PWD and ATS are multiplied by 100. The control variables in these specifications include 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). The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

Panel A: Number of investors

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
AT	0.004***	0.001	0.002**	0.002**	0.003***	0.004***	0.004***	0.004***	0.003***	0.003***
	(3.78)	(1.36)	(2.23)	(2.02)	(3.15)	(4.56)	(5.05)	(5.81)	(3.25)	(3.34)
Observations	224,036	251,122	260,876	285,363	316,483	322,534	357,213	397,083	413,350	443,801
Adj. R^2	0.244	0.242	0.256	0.255	0.254	0.249	0.248	0.244	0.261	0.251

	2001	2002	2003	2004	2005	2006	2007	2008	2009
AT	0.004***	0.003***	0.004***	0.003***	0.003***	0.004***	0.003***	0.003***	0.003***
	(4.33)	(4.06)	(4.94)	(3.64)	(4.43)	(4.81)	(4.07)	(3.64)	(3.66)
Observations	446,549	467,673	504,778	543,131	533,301	540,919	554,803	531,479	509,484
Adj. R^2	0.259	0.243	0.252	0.254	0.266	0.268	0.257	0.255	0.258

Panel B: Dollar-denominated portfolio holdings

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
AT	-0.007	-0.007	-0.011**	-0.007	-0.003	0.005	0.003	0.011***	0.013***	0.009**
	(-1.31)	(-1.58)	(-2.56)	(-1.50)	(-0.61)	(1.14)	(0.78)	(2.76)	(3.18)	(2.27)
Observations	159,574	179,509	189,557	205,004	231,138	239,041	269,640	291,270	299,225	320,370
Adj. R^2	0.311	0.306	0.287	0.285	0.292	0.284	0.293	0.297	0.333	0.336

	2001	2002	2003	2004	2005	2006	2007	2008	2009
AT	0.002	0.010***	0.006*	0.008**	0.010***	0.011***	0.009***	0.012***	0.008**
	(0.55)	(2.79)	(1.77)	(2.52)	(3.09)	(3.24)	(2.81)	(3.42)	(2.20)
Observations	323,139	332,578	361,674	395,382	395,800	402,142	410,266	369,819	348,470
Adj. R^2	0.328	0.327	0.329	0.324	0.323	0.316	0.315	0.318	0.330

Panel C: Local bias

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
ATS	0.182***	0.225***	0.256***	0.289***	0.279***	0.240***	0.293***	0.258***	0.262***	0.236***
	(2.73)	(3.36)	(4.25)	(4.07)	(3.61)	(3.43)	(4.15)	(4.38)	(4.53)	(4.83)
Observations	159,574	179,509	189,589	205,010	231,138	239,044	269,641	291,271	299,225	320,373
Adj. R^2	0.2365	0.2989	0.2921	0.3189	0.2816	0.2627	0.2616	0.2167	0.2373	0.2648

	2001	2002	2003	2004	2005	2006	2007	2008	2009
ATS	0.230***	0.214***	0.235***	0.255***	0.273***	0.230***	0.308***	0.404***	0.382***
	(5.97)	(3.83)	(4.12)	(4.64)	(5.58)	(4.90)	(6.35)	(9.28)	(8.58)
Observations	323,139	332,590	361,674	395,451	395,805	402,143	410,266	369,857	348,470
Adj. R^2	0.2912	0.2884	0.3073	0.3597	0.3093	0.3347	0.3475	0.3975	0.4027

Table 6: Low Cost Air Travel

This table reports from equation (4) that examines the impact of air traffic (AT) on the number of investors with equity positions in firms at the destination, $\log(\text{Investors})_{i,j,t+1} = \beta_1 \text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \text{FC}_{j,t} + \epsilon_{i,j,t}$, the results from equation (5), $\log(\text{Holdings})_{i,j,t+1} = \beta_1 \text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \text{FC}_{j,t} + \epsilon_{i,j,t}$ that replaces the number of investors with dollar-denominated portfolio holdings, and the results from equation (6) that examines the impact of air traffic share (ATS) on the market-capitalization adjusted portfolio weights of firms, $\text{PWD}_{i,j,t+1} = \beta_1 \text{ATS}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \text{FC}_{j,t} + \epsilon_{i,j,t}$. Both PWD and ATS are multiplied by 100. AT and ATS are defined using passengers flying on low cost airlines. The control variables in these specifications include 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). Standard errors are clustered by year in every specification. The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

	Number of Investors		Portfolio Holdings		Local Bias	
AT (low cost)	0.001***	0.001***	0.002***	0.002***		
	(3.95)	(3.11)	(3.44)	(3.06)		
ATS (low cost)					6.486***	6.552***
					(6.47)	(6.42)
DIST		-0.008***		-0.027***		0.016**
		(-3.62)		(-5.24)		(2.65)
BM		0.001		-0.066***		-0.010***
		(1.10)		(-5.10)		(-3.61)
SIZE		0.060***		0.388***		-0.002
		(35.51)		(51.37)		(-1.21)
PRET		-0.016***		0.091***		0.055***
		(-9.50)		(7.89)		(8.12)
CAPEX		-0.002***		-0.006***		-0.001
		(-4.83)		(-4.33)		(-1.41)
Equity Issuance		0.030***		0.193***		0.026
		(3.14)		(5.26)		(1.36)
Debt Issuance		-0.004***		0.020**		0.007*
		(-2.96)		(2.72)		(1.91)
IVOL		1.370***		-4.938***		-3.592***
		(3.31)		(-5.57)		(-3.83)
Leverage		0.034***		0.116***		-0.002
		(8.12)		(4.88)		(-0.14)
ROA		-0.009*		0.233***		0.061**
		(-1.83)		(5.32)		(2.81)
Fixed effects	Origin × Year		Origin × Year		Origin × Year	
	Destination × Year		Destination × Year		Destination × Year	
Observations	7,943,379	7,903,713	5,750,344	5,723,398	7,320,171	7,285,163
Adj. R^2	0.229	0.256	0.238	0.319	0.229	0.228

Table 7: 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, $\text{Return}_{i,j,t+1,t+12} = \beta_1 \, \text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha \, \text{FC}_{j,t} + \epsilon_{i,j,t}$. 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. 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). The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

AT	0.000	0.000
	(1.09)	(0.83)
DIST		-0.000
		(-0.26)
BM		0.041***
		(3.50)
SIZE		-0.006*
		(-2.07)
PRET		-0.138***
		(-4.62)
CAPEX		0.014***
		(7.84)
Equity Issuance		-0.381***
		(-7.98)
Debt Issuance		-0.016*
		(-1.80)
IVOL		8.265***
		(2.95)
Leverage		-0.008
		(-0.21)
ROA		0.082
		(1.29)
Fixed effects	Origin × Year	
	Destination × Year	
Observations	7,943,626	7,903,978
Adj. R^2	0.238	0.248

Table 8: Impact of Air Traffic on Corporate Acquisitions

This table reports the results based on pseudo acquisition probabilities. To construct the sample of potential 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), $\text{DEAL}_{i,j,t+1,t+4} = \beta_1 \,\text{AT}_{i,j,t} + \beta_2 \log(\text{DIST})_{i,j} + \alpha\, \text{DC}_{j,t} + \gamma\, \text{DEST}_{j,t} + \epsilon_{i,j,t}$. Industry fixed effects for the acquiring firm and the target firm are included separately in the specification along with year fixed effects to account for the clustering of acquisitions. Equation (8) is then re-estimated with abnormal returns as the dependent variable. Abnormal returns are computed using value-weighted size and book-to-market portfolio returns. 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.

	Acquisition probabilities		Acquirer returns	
AT	0.025**	0.024**	-50.839	-48.691
	(2.14)	(1.99)	(-1.34)	(-1.24)
DIST	-0.148**	-0.155**	-0.387	-0.698
	(-2.29)	(-2.55)	(-0.28)	(-0.48)
Size (A)	0.037***	0.051***	-0.518	-0.024
	(3.09)	(3.52)	(-1.31)	(-0.07)
Tobin's Q (A)	0.003	-0.017*	-1.076	-0.772
	(0.32)	(-1.73)	(-1.64)	(-1.16)
Leverage (A)	0.056	0.013	10.829	6.425
	(0.29)	(0.07)	(1.60)	(1.01)
Free Cash Flow (A)	0.198	0.148	45.418**	41.713**
	(1.25)	(0.79)	(2.77)	(2.59)
Diversify (A)	-0.545***	-0.782***	0.793	0.703
	(-6.24)	(-6.62)	(0.65)	(0.50)
Private (T)	-0.092*	-0.133***	-0.980	-1.072
	(-1.65)	(-2.75)	(-0.80)	(-0.91)
High Tech (T)	-0.269	-0.241	2.590	2.307
	(-1.14)	(-1.21)	(0.91)	(0.69)
Cash Deal	0.025	-0.007	1.527	0.967
	(0.60)	(-0.16)	(0.90)	(0.65)
Population	-0.004	0.001	-0.034	0.104
	(-0.19)	(0.04)	(-0.07)	(0.17)
Income	-0.127	-0.157	1.610	3.291
	(-1.04)	(-1.36)	(0.53)	(1.17)
Fixed effects	Acquirer industry	Target industry	Acquirer industry	Target industry
	Year	Year	Year	Year
Observations	7,067	7,048	6,395	6,395
Pseudo R^2	0.086	0.084	0.053	0.032

Table 9: Predicted Air Traffic

This table reports the results from a two-stage instrumental variables procedure that predicts air traffic. The FLY ratio assumes that flying occurs at an average speed of 500 mph while driving averages 50 mph. Travel time consists of three components; driving time from an investor's location to the nearest airport, flight time from this airport at the origin to the nearest airport at the destination, and driving time from this airport to the location of a firm's headquarters. FLY equals the flight time divided by the total travel time, while FAR denotes an indicator variable that equals one if the distance between two locations exceeds 250 miles. Panel A reports predicted air traffic from equation (9). Panel B reports the results from re-estimating equation (4) and equation (5) using predicted air traffic in lieu of AT. The asterisks ***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively.

Panel A: Determinants of Air Traffic

FLY	5.034***
	(7.73)
FAR	3.480***
	(13.52)
FLY × FAR	-7.666***
	(-11.00)
Fixed effects	Year
Observations	7,940,535
Adj. R^2	0.032

Panel B: Predicted Air Traffic and Portfolio Investment

	Number of Investors		Portfolio Holdings	
Predicted AT	0.011***	0.082***	0.024***	0.157***
	(3.29)	(3.39)	(3.73)	(3.30)
DIST		0.035***		0.058**
		(5.43)		(2.32)
BM		0.001		-0.070***
		(1.40)		(-6.30)
SIZE		0.061***		0.386***
		(63.00)		(68.31)
PRET		-0.016***		0.090***
		(-9.15)		(7.55)
CAPEX		-0.002***		-0.007***
		(-5.11)		(-4.58)
Equity Issuance		0.031***		0.202***
		(3.33)		(5.53)
Debt Issuance		-0.005***		0.025***
		(-4.82)		(3.12)
IVOL		1.388***		-5.431***
		(3.13)		(-5.32)
Leverage		0.035***		0.106***
		(13.34)		(6.25)
ROA		-0.010*		0.216***
		(-2.10)		(6.08)
Fixed effects	Origin × Year Destination × Year		Origin × Year Destination × Year	
Observations	7,059,315	7,059,315	5,113,377	5,113,377
Adj. R^2	0.228	0.256	0.235	0.317

Table 10: Air Hub Openings

This table reports the results from the panel regressions in equations (10) to (12), $\mathrm{Y}_{i,j,t+1} = \beta_1 \, \mathrm{HUB}_{i,j,t} + \alpha \, \mathrm{FC}_{j,t} + \epsilon_{i,j,t}$, as well as equation (13), $\mathrm{Return}_{i,j,t+1,t+12} = \beta_1 \, \mathrm{HUB}_{i,j,t} + \alpha \, \mathrm{FC}_{j,t} + \epsilon_{i,j,t}$. $\mathrm{Y}_{i,j,t+1}$ represents the log number of institutional investors, log dollar-denominated portfolio holdings, and portfolio weight deviations, respectively, in equations (10) to (12). $\mathrm{HUB}_{i,j,t}$ 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). 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 11: Air Hub Openings and Corporate Acquisitions

This table conditions acquisitions on the $\text{HUB}_{i,j,t}$ variable that represent air route initiations and cancellations attributable to air hub openings. $\text{HUB}_{i,j,t}$ 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, $\text{HUB}_{i,j,t}$ 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, $\text{HUB}_{i,j,t}$ 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 (14). 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 12: Impact of Air Passenger Volume on Firms

This table reports the results from the panel regression in equation (15), $\log(\text{Investors})_{k,t+1} = \beta_1 \text{APV}_{j,t} + \beta_2 (\text{APV}_{j,t} \times \text{SIZE}_{k,t}) + \alpha \text{FC}_{j,t} + \epsilon_{k,t}$ that examines the investor base of firms. Results are also reported for the panel regression in equation (16), $\text{Cost of Equity}_{k,t+1,t+12} = \beta_1 \text{APV}_{j,t} + \beta_2 (\text{APV}_{j,t} \times \text{SIZE}_{k,t}) + \alpha \text{FC}_{j,t} + \epsilon_{k,t}$ 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-quarter 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). 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 Destinations	Small Destinations	Large Destinations	Small Destinations
APV	0.071***	-0.027***	0.055***	0.070***	-0.020*	-0.025***
	(6.15)	(-4.36)	(3.21)	(7.09)	(-1.93)	(-2.97)
APV × SIZE	-0.007***	0.003***	-0.005***	-0.008***	0.004***	0.001
	(-10.37)	(3.57)	(-7.16)	(-8.49)	(3.33)	(0.79)
SIZE	0.738***	-0.060***	0.701***	0.752***	-0.074***	-0.033**
	(58.18)	(-4.88)	(63.64)	(47.95)	(-4.27)	(-2.19)
BM	0.035**	0.019**	0.016	0.082***	0.014*	0.033***
	(2.13)	(2.43)	(1.32)	(4.92)	(1.82)	(4.20)
PRET	-0.260***	-0.030	-0.263***	-0.250***	-0.049*	-0.011
	(-5.78)	(-1.32)	(-5.78)	(-5.88)	(-1.77)	(-0.52)
CAPEX	0.017***	0.015***	0.017***	-0.121	0.018***	-0.869***
	(7.84)	(6.75)	(7.42)	(-0.97)	(7.92)	(-5.64)
Equity Issuance	-0.413***	-0.418***	-0.428***	-0.353***	-0.484***	-0.340***
	(-7.30)	(-6.86)	(-6.90)	(-5.86)	(-8.07)	(-3.55)
Debt Issuance	0.012	-0.023**	0.040***	0.004	-0.068**	-0.005
	(1.25)	(-2.13)	(2.79)	(0.39)	(-2.39)	(-0.45)
IVOL	1.847	1.781***	4.621***	1.267	1.716	1.777***
	(1.43)	(4.77)	(3.64)	(1.36)	(1.37)	(5.17)
Leverage	0.076***	-0.008	-0.009	0.161***	0.017	-0.031
	(4.90)	(-0.30)	(-0.54)	(9.15)	(0.45)	(-1.33)
ROA	-0.102	0.184***	-0.060	-0.229***	0.216***	0.127
	(-1.53)	(3.00)	(-0.83)	(-3.83)	(3.63)	(1.08)
Fixed effects	Destination	Destination	Destination	Destination	Destination	Destination
Observations	159,529	159,529	79,750	79,778	79,750	79,778
Adj. R^2	0.912	0.039	0.915	0.909	0.037	0.047

Table 13: Firm Implications of Air Hub Openings

This table reports the results from replacing $APV_{j,t}$ from the panel regression specifications in equation (15) and equation (16) with the variable $NET_{j,t}$ 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, $NET_{j,t}$ 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, $NET_{j,t}$ 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 $LARGE_{k,t}$, 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). Additional independent variables control 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	0.063***	-0.016**
	(3.28)	(-2.15)
NET × LARGE	0.009	0.025**
	(0.66)	(2.49)
LARGE	2.013***	-0.054***
	(85.06)	(-6.20)
BM	-0.092***	0.027***
	(-5.38)	(3.22)
PRET	-0.032	-0.009
	(-0.95)	(-0.40)
CAPEX	1.411***	-0.921***
	(4.42)	(-4.55)
Equity Issuance	-0.424***	-0.507***
	(-3.80)	(-6.11)
Debt Issuance	0.035	-0.023
	(0.75)	(-0.46)
IVOL	-25.274**	1.453
	(-2.46)	(1.17)
Leverage	-0.010	0.012
	(-0.24)	(0.28)
ROA	0.101**	0.047***
	(2.12)	(3.99)
Fixed effects	Destination	Destination
Observations	38,300	38,300
Adj. R^2	0.700	0.062