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Essays on Migration Flows and Finance

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by

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ABSTRACT

In the first essay, I examine stock market implications of state-to-state migration flows that are known to provide the basis for social and business networks. I observe sizeable and robust excess return comovement between migration-flow receiving and sending states at both the individual stock and the state portfolio levels. Although I find that migration flows are associated with firms' business activities, this comovement is not fully explained by economic fundamentals and decreases substantially when firms relocate to other states. In line with the view that migration networks form the basis for a common investor base for receiving and sending states stocks, I find that a) receiving states account for a significant portion of sending states stocks' trading volume, and b) migration comovement is strongly correlated with the percent of local population born in migration states and more prevalent in states where retail investors display "old home" bias in addition to local bias. Moreover, consistent with the view that migration comovement may be rooted in sentiment shared by a common investor base, I find that it coexists with mispricing, measured by stock return reversals.

In the second essay, I test whether takeover targets are more likely to be connected to bidders via domestic migration network by relating acquisitions with the availability of social and business networks formed via interstate migration flows. I find that targets are more likely to be from the migration sending states when migration networks are sturdier. Additionally, I find that targets are more likely to be from migration sending states with stronger migration network a) when acquirer and targets are in different industries, b) when migration network involves non-

neighboring states, and c) when targets are small. The results are consistent with the notion that information advantage is at least a partial explanation of firms' propensity to choose targets from migration sending states, especially when information asymmetry about target is more pronounced. Moreover, I find that takeover premium is smaller and acquirer announcement returns are higher when migration sending states targets are small with low institutional ownership, which substantiate the view that migration networks present enhanced accessibility of soft information to acquirers and that the effect of such information advantage is valuable when there is substantial degree of information asymmetry regarding targets.

ESSAY 1: MIGRATION FLOWS AND STOCK RETURN COMOVEMENT

1. Introduction

According to an American Mobility report from the Pew Research Center, 63% of adults have moved to a new community at least once in their lives, and approximately 42% of adults have lived in two or more states. A bulk of studies in the social science and economics literature have extensively examined the determinants and socio-economic impact of international and domestic migration flows, but the consequences of such population shifts for equity markets have not been extensively analyzed yet. Thus, this study is seeking an answer to the question: can state-to-state population movements have implications on stock investors and price behavior?

The link between capital markets and demographics has been the subject of several past studies (e.g., Bakshi and Chen (1994), Poterba (2001), Geanakoplos et al. (2004), Arnott and Chaves (2012), and DellaVigna and Pollet (2007, 2013)).[1] Migration flows have received relatively little attention in the finance literature, in spite of the fact that population movements over longer periods provide the foundation for social, business and information sharing networks linking different geographic areas (e.g., see Pryor (1981), Rauch (2001), and Millimet and Osang

[1] Bakshi and Chen (1994) show how demographic changes affect capital markets using the life-cycle investment hypothesis about investors' wealth allocation and risk aversion. Poterba (2001) and Geanakoplos et al. (2004) present evidence about the association between demographic structure and stock market by making use of the age composition of population. Arnott and Chaves (2012) prove the time-series relationship between demographic fluctuations and capital market returns. DellaVigna and Pollet (2007) focus on age-sensitive industries such as toys, life insurance, and nursing homes, and they prove how fluctuations in cohort size can be used to forecast demand in those sectors. According to their study, demand forecasts can predict industry profitability and stock returns. Then, Dellavigna and Pollet (2013) provide the evidence of how demand shifts, which are predictable using demographic information, affect industries' equity issuance decisions. Industries anticipating positive demand shifts in near future would issue more equity while those expecting to have positive demand shifts in distant future would issue less equity because of undervaluation.

(2007) among many others) that arguably can shape market participants' behavior. I focus on domestic migration flows within the U.S. and hypothesize that strong interstate migration flows will be associated with excess stock return comovement between firms headquartered in migration "receiving states" and firms headquartered in migration "sending states."

Based on the traditional assumptions of investor rationality and frictionless markets, two different stocks' returns should not comove unless their fundamentals (e.g., earnings) are highly correlated. A plausible mechanism promoting correlated economic conditions across different states is interstate migration that often involves neighboring, and sometimes geographically distant, states. This view is supported by Cohen et al. (2017) who show that foreign-born resident networks promote trade and the strengthening of business ties between U.S. locations and foreign countries.[2] Thus, since interstate migration flows lead to a strengthening of business and economic ties between sending and receiving states, the fundamentals of firms located in these states will become more correlated and their stock returns will tend to comove.[3]

In spite of the theoretical importance of correlated fundamentals for any stock return comovement, many empirical studies (e.g., see Barberis et al. (2005), Kumar and Lee (2006), Pirinsky and Wang (2006), Green and Hwang (2009), Kumar et al. (2016), among others) document return comovement within distinct categories of stocks that cannot be explained by

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[2] Using customs and port authority data, Cohen et al. (2017) prove a significant role of immigrants as economic conduits for firms. In their work, it is shown that firms are significantly more likely to trade with countries where large number of population near their headquarters are originally from.

[3] There are some studies in the economics literature that do not necessarily support this view of interstate migration. Instead, they espouse the view that migration flows may cause disparities in economic fundamentals. Sasser (2010) states that labor market conditions, incomes per capita, and housing affordability are three economic factors of interstate migration. Among those, Greenwood (1975) uses the example of wages to explain how migration can cause further disparities in interregional wage differentials. His explanation is based on the notion that migration is selective in character (for example, level of education), which could result in additional labor demand in regions with high migration inflow (receiving regions) while decreasing labor demand in areas with low migration inflow (sending regions). Consequently, such selective nature of migration would result in higher wages in receiving regions, and vice versa in sending regions.

correlated fundamentals. Instead, these studies embrace the alternative view that comovement arises from market segmentation rooted in market frictions and/or investor irrationality reflected in investor sentiment, tendency to categorize stocks into groups based on their characteristics, and commonality of trading behavior.[4] Accordingly, I posit that stock return comovement between stocks headquartered in receiving and sending states linked through substantial migration flows can also be driven by correlated trading of a common investor base. The common investor base as a contributor to excess comovement in a geographic context was first documented by Pirinsky and Wang (2006) who found that stocks of firms located in the same Metropolitan Statistical Area (MSA) display excess comovement, which they attribute to local bias, the tendency of investors to disproportionately invest in nearby firms (e.g., see Coval and Moskowitz (1999, 2001), Huberman (2001), Ivković and Weisbenner (2005), and Baik et al. (2010) among many others). However, besides local bias, investors can also display "old home" bias, as is the case with mutual fund managers who have a tendency to overweight their portfolios with stocks from their home states (Pool et al. (2012)).[5] I posit that a combination of local and old home state biases exhibited by a common investor base comprised in interstate migration networks can lead to stock return comovement involving firms located in sending and receiving states.

This paper uses the American Community Survey (ACS) to identify the portion of each (receiving) state's population that is born in other (sending) states. For each receiving state, I then rank sending states by the proportion of the receiving state's population that was born in the

[4] For instance, Green and Hwang (2009) present evidence of comovement between stocks that are similarly priced, after accounting for size or changes in liquidity.

[5] Pool et al. (2012) also show that such old home state bias is stronger for managers who are inexperienced, have limited resources, or spent longer time in their home states. Both local and old home bias can be rooted in information advantages and/or familiarity and loyalty. Investors may prefer their local or old home state stocks if they can easily gather value-relevant information about those stocks or if they feel more comfortable with familiar investment because of limited cognitive ability when faced with a vast choice of stocks in the market.

sending state. I define a state's migration network as comprising of its top ranked sending states. For example, Florida's migration network consists of New York, Pennsylvania and Ohio that account for 18.97%, 7.49%, and 6.95% of Florida's nonnative population respectively. Using the framework of Pirinsky and Wang (2006), I measure migration comovement for each firm headquartered in state *y* as the time-series sensitivity of its stock return to the returns of the portfolio of stocks headquartered in *y*'s top sending states. I also measure this migration comovement at the state level, i.e. using the returns of the portfolio consisting of all firms in the state. Results show that returns at both the individual stock as well at the state portfolio level comove significantly with returns of migration network states' portfolios. I also show that migration comovement persists after excluding bordering states from the migration network portfolio. Assuming that correlated fundamentals are less likely to be a factor in distant migration networks, this result is consistent with the notion that migration comovement could be at least partially driven by correlated trading within a common investor base. I perform various robustness checks, such as using different estimation methods, an alternative migration flow measure, and a market index that excludes migration network stocks, and I invariably obtain evidence of a strong migration beta.

Next, I use Fama and MacBeth (1973) regressions to analyze the determinants of migration betas. On one hand, I find migration beta is significantly and positively related with the percentage of firms located in the migration state(s) that are in the firm's major industry. This result is consistent with the correlated fundamentals explanation of migration comovement. On the other hand, I find that migration beta is also significantly and positively correlated with the percentage of the firm's home state population that was born in the migration sending state(s). This result implies that correlated trading by a common investor base consisting of a receiving state's residents originating from sending states may be responsible for migration comovement.

In order to better identify the importance of correlated fundamentals and common investor base for the migration comovement effects shown in the main tests, I also perform some additional analyses. I find that firms' takeover targets are more likely to be located in migration sending states and that migration sending states are more likely to be economically relevant. These results suggest that the economic ties of states linked via migration networks are strong and therefore imply that correlated fundamentals contribute to the migration comovement effects.

On the other hand, the foundation for the common investor base explanation for the findings lies in the existence of retail investors' excessive preference for sending states' stocks (i.e. old home bias). For this explanation, I conduct several identification tests. First, in line with this reasoning, I provide evidence that old home bias is significant and that average migration betas increase monotonically with the prevalence of retail investors who hold both local and old home stocks. Second, I confirm that nonnative retail investors residing in receiving states account for a significant portion of trading volumes of stocks in sending states. Specifically, I show that exogenous shocks to trading in receiving states (proxied by holidays for state employees) reduce volume of stocks in sending states. Third, to identify that correlated trading by a common investor base is laced with irrationality, I show that mispricing, measured by long-term return reversals, is stronger among stocks with sizeable migration betas. Thus, the combined evidence of old home bias and excess mispricing in the presence of migration comovement supports the notion that irrationality by a common investor base can be a driver of migration comovement. This view is further supported by the fact that the excess mispricing effect almost doubles when the migration flows involve a non-bordering state, i.e. when correlated fundamentals are less likely to be important.

Finally, to provide a more thorough control for firm characteristics potentially correlated with migration comovement, I extend the analysis by identifying a group of firms that moved their headquarters to another state during the sample period. After headquarter relocation, exposure to the old top sending state's portfolio decreases while exposure to the new sending state's portfolio increases. Hence, this finding, at least partially, alleviates concerns about endogeneity in the relationship between migration network and comovement.

This paper's main contribution to the literature is to introduce domestic migration to financial research and thereby fill the space between the findings in the comovement and demographic studies' literatures. More specifically, this study highlights the economic importance of population composition by uncovering that interstate population shifts have substantial implications on equity market prices thereby revealing a latent form of domestic market segmentation. It is notable that, by design this study avoids most of the endogeneity problems associated with past research on comovement, which typically has relied on using mutual fund flows to establish connections between stocks.[6] A crucial implication of my findings is that the benefits of diversification across stocks located within migration networks may be overstated and that investors seeking to diversify their holdings should be aware of the extent of exposure to migration portfolios. My findings can also provide guidance to investors and firms that seek to manage risk emanating from excess migration comovement.

This paper is organized as follows. Section 2 discusses related literature and prior findings. Section 3 describes the data and sample selection procedure. Section 4 documents the main

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[6] Anton and Polk (2014) note that "the fact that fund ownership is endogenous is a key concern. Perhaps fund owners merely invest in stocks that have common fundamentals and thus naturally comove. Indeed, many, if not all, papers arguing that fund ownership causes comovement are vulnerable to this criticism."

findings in the tests on the migration comovement of stock returns and its determinants. The last section concludes.

2. Migration Flows and Stock Return Comovement

There is a long list of finance studies utilizing demographic information. For example, Bakshi and Chen (1994) present how demographic fluctuations affect capital markets based on the life-cycle investment hypothesis about how investors' wealth allocation and risk aversion change at different stages in life-cycle. Their results show that demand for housing decreases and investors' risk aversion increases with average age. Similarly, focusing on people's distinct financial needs at different stages of their life, Geanakoplos et al. (2004) demonstrate that the age composition of population is closely related to the boom and bust cycle of the stock market. In addition, DellaVigna and Pollet (2007, 2013) relate demographic changes with age-sensitive industries (e.g., toys, beer, life insurance, and nursing homes). They report that changes in demand for those industries are predictable using information on changes in cohort sizes, and such demand forecasts predict profitability and future stock returns. Moreover, the demand forecasts affect industries' equity issuance decisions as well, such that industries anticipating positive demand shifts in near future would issue more equity while those expecting to have positive demand shifts in distant future would issue less equity because of undervaluation.

The focus in this study is on the stock market consequences of population movement, which is a type of demographic information previously overlooked in the finance literature. Hence, I examine whether domestic (interstate) migration patterns can bring about connections (i.e. excess comovement) between stocks through a common investor base with ties to migration receiving and sending states or through correlated fundamentals. Numerous papers document stock return comovement from different dimensions. For instance, Bernile et al. (2017) find return and liquidity comovement in firms headquartered in economically connected states where economic connection is identified by annual 10-K filings. Similarly, Grullon et al. (2014) document stock return comovement in firms that are related through sharing the same lead underwriters at the IPOs. In addition, some papers relate return comovement to geography. Pirinsky and Wang (2006) report significant return comovement of firms that are headquartered in the same area. With the sample of S&P 500 companies, Barker and Loughran (2007) also add evidence to the literature by showing that the correlation of stock returns increases as the distance between them decreases. So, it is well documented that there is return comovement among firms that are physically adjacent.

While many different types of comovement are confirmed, the literature's view on stock return comovements is that they are hardly explained solely by correlated fundamentals. Instead, many studies' evidence tilts towards the explanations based on market friction and investor behaviors such as categorizing stocks into groups (styles) and preferring certain types of investments over others (habitats). Another well-known example is local bias. A growing literature has shown that investors tend to exhibit excessive preference for firms that are located close to them, both internationally (French and Poterba (1991) and Kang and Stulz (1997)) and domestically (Coval and Moskowitz (1999), Grinblatt and Keloharju (2001), and Seasholes and Zhu (2010)). This phenomenon applies to investors of all stripes regardless of their level of sophistication. For instance, Coval and Moskowitz (1999) show that U.S. investment managers have a strong preference for stock of firms that are geographically close to them, while Zhu (2002), among many others, finds that individual investors are also prone to invest in nearby companies. What drives local bias is still a subject of debate in the literature. Most arguments are grouped into two categories, based on information advantage and familiarity. First, the scholars who claim that information advantage drives investors' preference for local equity suggest that access to valuable information is enabled by geographic proximity. Coval and Moskowitz (2001) support this view by showing that fund managers earn significant abnormal returns on their local stock investments. In addition, Ivković and Weisbenner (2005) present similar findings for retail investors suggesting that they reap the benefit of having access to local knowledge. On the other hand, there are studies which support the view that local bias is due to familiarity and often provide counterevidence against the notion that local bias emerges from information advantages. For instance, Seasholes and Zhu (2010) refute the information advantage argument by showing that retail investors' local holdings yield no abnormal performance.

Is excessive geography-based preference for certain stocks limited to the case where investors' location is proximate to firm headquarter location? Evidence suggests that other types of local or home bias can also exist. Bernile et al. (2015) show that institutional investors exhibit preference for nonlocal firms with presence in their states (inferred from 10-K filings' mentioning of particular states), consistent with the view that value-relevant information about a firm should be geographically dispersed if the firm's economic interests span many states. Pool et al. (2012) find that fund managers have home state bias such that managers invest more in stocks with headquarters located in the states where they grew up. In this paper, I also argue that investors might have either more information about or simply an attachment to the states where they lived before, thus exhibiting "old home" bias.

3. Data and Descriptive Statistics

3.1 Data Sources

I obtain the basis for the main measure of migration flow from the "State of Residence by

Place of Birth Flows" data provided by the United States Census Bureau (http://www.census.gov). The U.S. Census Bureau is part of the U.S. Federal Statistical System, and produces data about various aspects of the population and the economy in the U.S. The data are based on information from the American Community Survey (ACS), which asks respondents about their place (state) of birth. I obtain information on migration flows between state of birth and state of current residence. For each (receiving) state *y*, the dataset provides the number of its residents that were born in each of the other (sending) states, which I then divide by the total population in *y* to obtain my measure of percentage of residents that migrated to *y* from each other state. Since the data are available every 10 years until 2010, I use interpolation to obtain approximate values for each year.[7] The data cover the period 1980 to 2015. In a robustness test shown in Essay 1 Appendix A, Table A.3, I also utilize the "State-to-State Migration Flows" data, also extracted from the United States Census Bureau. This information is also from the ACS but pertains to the question regarding a respondent's state of residence a year ago. This dataset is available for the period 2005-2015.

For each stock in the sample, I obtain stock-specific data from the Compustat and Center for Research on Security Prices (CRSP) databases. I define a firm's location as the state where its headquarters is located. Unlike Pirinsky and Wang (2006) who used the Metropolitan Statistical Area (MSA) as their geographical level of analysis, I use the state because place of birth data are only available at the state level and to avoid complications associated with multi-state MSAs.[8] To examine whether retail investors' holdings exhibit any old home bias, I rely on household level

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[7] For the more recent period ACS data on place of birth are available for 2013, 2014, and 2015.

[8] For instance, the New York MSA includes the counties from New York, New Jersey, Connecticut, and Pennsylvania. Then, using MSA as standard of local area, when a New Jersey firm's local MSA is the New York MSA, its local return index would include some of firms from the four states and the local return index would overlap with migration return index because New Jersey's top 1 migration state is New York. Consequently, for cleaner tests, I use state as the standard of headquarter location.

data from a brokerage house for the sample period of 1991 to 1996.[9] In the cross-sectional tests, the variable capturing political action campaign (PAC) information is constructed using data from the Federal Election Commission (FEC) summary files on political contributions to House and Senate election campaigns.

In the tests related to corporate takeover decisions, I collect a sample of acquisitions from the Thompson Financial SDC Mergers and Acquisitions Database. I include both successful and unsuccessful acquisitions of US publicly listed targets with a deal value above US$ 1 million. The bidder is a listed US firm. To be included in the acquisition sample, the bidder must seek to purchase more than 50% of the target firm's equity. More detailed description of data sources and variable definitions is available in Essay 1 Appendix B.

3.2 Summary Statistics

Table 1.1 presents sample summary statistics. According to Panel A (firm characteristics) the mean log-transformed values of turnover, firm size, book-to-market, and firm age are 0.6421, 11.8219, 0.4893, and 2.2971, respectively. On average, firm's financial leverage is 0.2482, 3-year average of return on assets is -0.0376, previous year stock return is 17%, and dividend yield is 0.0201. Additionally, the mean values of 3-year average ratios of R&D expenditures to sales and advertising expenditures to sales are 0.0317 and 0.0089, respectively, and about 4.21% of firms contribute to PACs by migration state-based politicians.

Panel B is about state-level variables. The average number of firms in a state is 590 while that in a sending (migration) state is 744. On average, about 69% of states contain at least one industry cluster and about 32% of sending states are non-bordering states. In addition, on average,

[9] I thank Alok Kumar agreeing to share the brokerage house data.

5.72% of firms in a top sending state are in the same industry with a firm, 5.09% of a state's population is from its top sending state, and 9.27% of the market portfolio's value is represented by firms in the top sending state.

Panel C is about retail investors' biased holdings. The average retail investors' ratio of the fraction of his/her holdings in migration states to the fraction of the migration states total public equity value in the U.S. market is 0.3192. Lastly, Panels D and E show the descriptive statistics for the regional and retail investor characteristics for the 1991-1996 sample period.

3.3 Major Migration Networks by State

Figure 1 shows the most important state-to-state migration flows, i.e. 50 sending and receiving state pairs, over the whole sample period. In Panel A the top migration sending state for each receiving state is defined as the one where the highest percentage of nonnative residents were born. As shown, most of migration networks involve bordering states, and thus the effect of migration network on stock returns could be a regional effect. I will address this issue more thoroughly using a multivariate setting in a later section. In Panel B, I keep only the non-bordering state-to-state migration flows from Panel A. Markedly, this restriction excludes many of the connections. As presented, all of non-bordering migration outflows originate in the two big sending states, New York and California, except for Massachusetts being the top sending state for Maine. California is the top sending state for Alaska, Hawaii, Washington, Oregon, Idaho, Montana, Utah and Nevada. New York is the top sending state for Virginia, North Carolina, Florida, and California.

Figure 2 lists the top 3 migration sending states for each receiving state along with the proportion of the receiving state's nonnative population born in each of the top 3 sending states. I observe a considerably large variation in the size of migration inflows across states. For example, according to this figure, 47.98% of New Hampshire's nonnative population was born in a single state, Massachusetts. Conversely, Tennessee's top migration state, Mississippi, accounts for a relatively small portion of the state's nonnative population (8.5%).

4. Main Findings

4.1 Comovement of Stock Returns with Migration Sending States' Portfolio

In this section, I examine whether or not returns of stocks headquartered in receiving states tend to comove with returns of stocks from the corresponding sending states. I estimate migration comovement for each firm *I* headquartered in state *y* as the time-series sensitivity of its weekly stock return to the weekly excess return of the migration index, an index that combines *y*'s migration sending states equally-weighted portfolios by assigning a higher (lower) weight to sending states where more (fewer) *y* residents were born. I construct three alternative indices, depending on whether I consider *y*'s top 1, top 2, or top 3 sending states. Market return index is the value-weighted return of all stocks in the market. Then, I estimate a firm-level Fama-MacBeth regression of weekly returns using the model that controls for the local (state) index as well as the four Carhart (1997) factors. In other words, the regression model is run for each firm to obtain coefficient values for each firm, and those values are then averaged across all firms. The model is as follows:

$$R_w^{I,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{LOC}(R_w^{LOC} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

Here, $R_w^{I,y}$ is the weekly return of an individual firm *I* in state *y*, R_w^F is the one-week Treasury bill rate, and R_w^{MIG} is the return of an index consisting of *y*'s top 1 (or top 2, or top 3) migration sending state(s) equally-weighted portfolio(s). The weight of each sending state portfolio return in the index corresponds to the portion of y's nonnative population born in the sending state. R_w^{LOC} is the firm's local state (y) return index, generated by equally weighting the returns of all stocks from the firm's headquarter state after excluding the firm itself.[10] R_w^{MKT} is the weekly market return index. Additionally, as in Carhart (1997), I include SMB_w (small minus big), which is the weekly difference between the returns on small and big firms, HML_w (high minus low), which is the weekly difference between the returns on high book-to-market and low book-to-market firms, and UMD_w (up minus down), which is the momentum factor computed as the weekly difference of the returns on winner and loser firms, to the model.

In addition to the firm-level analysis described above, I estimate migration comovement at the state level as the time-series sensitivity of the equally weighted weekly return of the portfolio consisting of all stocks headquartered in state y ($R_w^{STATE,y}$) to the weekly excess return of the equally-weighted portfolio consisting of all stocks headquartered in y's migration sending states. Like the firm-level analysis, the regression model is estimated for each state, and the averages of the resulting coefficient values are computed. The Fama and MacBeth (1973) model is as follows:

$$R_w^{STATE,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w$$

$$+\beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

I report the averages of the estimated coefficients and corresponding t-statistics in Table 1.2. The firm-level test results in Panel A show a sizeable (greater than 0.5) and significant coefficient β_{LOC} confirming the evidence of local comovement from prior studies (Pirinsky and Wang (2006)). More importantly, I find that stock returns comove significantly with returns of the migration sending states' portfolio. When the migration index consists of the top 1 migration

[10] I also run tests using value-weighted versions of the local return index, migration state(s) return index, and market return index. The results are qualitatively similar, although slightly weaker.

sending state, the migration beta (β_{MIG}) is 0.3615 with a t-statistic of 22.66. The migration beta increases as more states are included in the migration sending states' index (0.4043 for top 2 and 0.4651 for top 3). The monotonic increase in the migration beta as the migration index is expanded is accompanied by a corresponding monotonic decrease in the local and market betas. In fact, the market beta is very small (0.0425) and significant only in the first model where the migration index is based on the top 1 sending state.

In the last column, I repeat the analysis by considering only migration sending states that do not share borders with the corresponding receiving state. Thus, I use a migration state index that excludes any top 3 sending states that share a border with a firm's headquarter state. I observe that the migration comovement coefficient remains sizeable and statistically significant. Compared to the case where the top 3 migration state index includes all (even bordering) states, there is a 23% decline in the migration beta from 0.4651 to 0.3582 and a corresponding increase (17%) in the local beta from 0.5347 to 0.6271. This finding highlights the substitutive nature of the local and migration comovement effects. Assuming that correlated fundamentals are less likely to be at play when stocks commove with distant states' portfolios, the aforementioned decline in the migration beta provides a rough estimate of the relative importance of the correlated fundamentals and the common investor base mechanisms. Thus, this finding supports the notion that a common investor base appears to be a more significant driver for the migration comovement effect.

In Panel B, I show results based on the state-level analysis. As was the case in Panel A, the migration beta monotonically increases with the number of migration states considered, while there is a corresponding monotonic decrease in the market beta. However, in contrast to the results in Panel A, both the migration and market betas are much larger and significant throughout. This is not surprising given the fact that, by design, the state-level model does not include a local market.

Notwithstanding, migration comovement dominates market comovement, with migration betas about 2.1 to 3.8 times larger than the corresponding market betas.[11]

Table 1.3 presents average migration comovement coefficients by Census region and state. More specifically, the asset pricing model used in Panel A of Table 1.2 is run for each firm to obtain its migration, local, and market betas, which are then averaged across all firms headquartered in a Census region and state. While steadily positive, migration betas vary widely across regions and states. Among the nine Census regions, the South Atlantic region presents the highest migration beta (0.5264), while the lowest migration beta is found in the East North Central region (0.2186). Correspondingly, the combination of local and market betas is lowest in the South Atlantic region (β_{LOC} = 0.3709 and β_{MKT} = 0.0242) but highest in the East North Central region (β_{LOC} = 0. 6346 and β_{MKT} = 0. 1344). Among individual states, the highest and lowest migration betas are shown in South Dakota (1.1986) and Illinois (0.0031), respectively. Also, in general, migration betas tend to be higher among states with small population and fewer local publicly listed firms, suggesting that migration is more likely to be influential and meaningful in states with small population and economy.

4.2 The Characteristics of Migration Comovement

In this section, I study the relationship between migration comovement and various firm characteristics and state variables. Before examining it in a multivariate setting, I perform a univariate analysis in Table 1.4. I report the mean values of numerous firm and state-level variables

[11] In Essay 1 Appendix A, Table A.1, I will address the fact that there are overlaps between the market index and local/migration return indexes. I re-estimate the model after excluding local and migration state stocks when the market index is constructed for each firm. The results remain qualitatively similar to the ones presented in Table 1.2. Again, the migration and local betas are always significantly positive. The market beta is still weak in both magnitude and statistical significance. In particular, when top 1 migration state is used in the analysis, the migration beta is 0.3703, the local beta is 0.5919, and the market beta is 0.0365.

for the quintile groups of firms that are formed after sorting on migration beta (β_{MIG}) measured by the model using the weekly returns as shown in Panel A of Table 1.2. I also report the difference in mean values between the lowest and highest quintiles. This analysis is useful in that it gives us some initial inferences about the determinants of migration comovement.

There are notable differences in the average values of most variables in the table between the lowest and the highest group, except for 3-year average ratio of advertising to sales and non-bordering state dummy. Although most of the signs in the differences in means are somewhat expected, there are a few (e.g., PAC, an indicator that the firm makes PAC donations to politicians from migration sending states, or industry cluster, an indicator that the migration receiving state includes a sizeable industry cluster) that are fairly surprising. Nevertheless, this univariate evidence is only preliminary and cannot provide a full and clear picture of the determinants of migration comovement, which therefore leads us to conduct multivariate analysis in the next table.

I examine the cross-sectional determinants of migration comovement by running Fama-MacBeth regressions of the migration comovement measures (the annually estimated beta from individual firms' regressions of weekly returns using the models from Table 1.2) on the firm and state variables. Results are reported in Panel A of Table 1.5. Although quite a few of the variables that appeared significant in the previous table become insignificant coefficients in this regression, there are still meaningful results in this table. The variables that are likely to capture the migration network's effects along its correlated fundamentals and common investor base dimensions appear to be quite important. Migration betas are positively correlated with both the percentage of the state population that was born in the migration sending states, as well as with the percentage of firms located in the migration state(s) that are in the firm's primary industry. Furthermore, in line with the view that strong ties between business and politicians spanning receiving and sending states are important elements of a migration network, I find that higher migration betas are associated with firms' PAC contributions to sending states' politicians.

The above results are consistent for all different definitions of the migration sending states index, i.e. top 1, top 2, top 3, and top 3 excluding states bordering on the receiving state. Interestingly, the coefficient of the percentage of population from the migration state(s) in the last model (that excludes bordering states from the index) almost doubles in magnitude relative to the corresponding coefficient in the top 3 regression. This evidence reflects the fact that the importance of common investor base as a driver of migration comovement is amplified when the correlated fundamentals are less likely to be relevant due to geographic distance. Overall, these results lend support for both explanations of migration comovement. The control variables, when significant, display the expected coefficients. Specifically, migration comovement is associated with smaller firm size, less turnover, poor performance (measured by ROA or past return), with headquarters location in migration receiving states that have fewer firms and with migration sending states that have many firms.

In Panel B of table 1.5, I repeat the Fama-MacBeth regression analysis of migration betas estimated at the state level. The dependent variable is the migration beta derived annually from regressions of weekly receiving state portfolio returns. The independent variables are the state-level characteristics corresponding to those included in the firm level regressions shown in Panel A.[12] Consistent with the firm level evidence, the results show that migration beta is associated with a larger percentage of population from sending state(s) and a larger percentage of same industry firms in sending states. The rest of the state level control variables behave in a similar

[12] The only variable that is differently defined here is PAC, which when used as a state-level variable, is computed as follows: {(number of state *y* firms with PAC donation to migration sending state(s) politicians)+(number of migration sending state firms with PAC donation to state *y* politicians)}/total number of firms in state *y* and migration sending state.

manner like their counterparts in the firm level regressions in Panel A, with the exception of the number of firms in the state, which here displays a positive coefficient.

In sum, the results presented in Table 1.5 suggest that correlated fundamentals and a common investor base are not mutually exclusive explanations of migration comovement. Instead, the evidence is consistent with the notion that migration networks linking receiving and sending states may host both business ties that lead to correlated fundamentals as well as social ties that lead to the formation of information sharing networks used by a common investor base.[13]

4.3 Identification Tests

4.3.1 Probability of target being from the migration sending states

One potential explanation for the migration comovement effects shown in this paper is that separate regions linked through migration networks exhibit correlated fundamentals. For this explanation to be valid, firms should have increased level of economic activities in the migration states. To verify whether this effect exists indeed, I specifically choose to examine corporate takeover decisions as mergers and acquisitions (M&As) are among the largest and most important corporate investments (Harford and Li (2007)). Migration flows as measures of social networks could be an important factor for M&A decisions because a large amount of soft-information production and transmission is involved in takeover transactions (Coff (1999)). Unlike hard information that is mostly easy to communicate, the communication of soft information requires acquirers' intensive and multidimensional interactions with targets and comprehensive

[13] In Essay 1 Appendix A, Table A.3, I re-examine the model using several alternative estimation methods. First, following Petersen (2009) I conduct the regression in the OLS setting with different standard errors clustered at the firm level. Second, I cluster standard errors at both firm and year levels following Thompson (2011). Third, I control for industry fixed effects based on the Fama and French 48 industry classifications. The results remain essentially the same with the ones presented in Table 1.5.

understanding of targets (Uysal et al. (2008)). Hence, the contribution of soft information for the success of acquisition and value creation can be enhanced by the business, social, and information networks formed by population movements (Cohen et al. (2017)).

Using a sample of acquisitions over the period of the migration data (1980-2015) from the Thompson Financial SDC Mergers and Acquisitions Database, I examine whether takeover target firms are more likely to be connected to bidders via migration network. The sample contains both successful and unsuccessful deals where both the target and bidder(s) are domestic public firms.[14] To be included in the sample, deal values should be above $1 million and the bidders must seek to purchase more than 50% of the target firms' equity. Table 1.6 report the results. I perform univariate analysis by comparing the percentage of target firms in migration sending states for tercile groups sorted by the percent of state population from the migration sending states. The percent of target firms in migration sending states monotonically increases in the percentage of population from the migration sending states. For example, with top 1 migration sending state, the percent for the bottom, middle, and top tercile is 0.0556, 0.0664, and 0.1033, respectively. Similar patterns are observed for targets from the top 2 or top 3 migration sending states.

In Table 2.2 of Essay 2, I also run Probit regressions where the dependent variable is an indicator that takes the value of 1 if the target firm is headquartered in the bidder's migration sending states. The regressions include several control variables associated with bidder, target, and deal characteristics, along with year and industry fixed effects, and standard errors are adjusted for firm clustering. The variable of interest is the percent of bidder's state population from the migration sending states, and its coefficient is positive and statistically significant. This result implies that migration networks may influence corporate expansions increasing the level of firms'

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[14] For deals involving multiple bidders, I consider only the first bidder.

economic activities in the migration states and thereby also supports the view that correlated fundamentals may be partly responsible for the migration comovement effects shown in this paper.

4.3.2 Economic relevance of migration sending states

If the migration comovement effect is at least partly driven by correlated fundamentals, then migration sending states should be economically relevant to their receiving states firms' operations. To identify such an effect, I examine whether economic relevance of migration sending states to firms headquartered in migration receiving states increases with the degree of migration flows. Inspired by Garcia and Norli (2012),[15] I identify migration sending states' economic relevance as relative state counts derived from migration receiving states firms' annual reports filed with SEC on Form 10-K. To be more specific, each migration sending state's economic relevance is measured as follows:

$$\text{Economic relevance} = \frac{\text{Number of times a firm's 10-K mentioning the migration sending state name}}{\text{Total number of times the firm's 10-K mentioning any state}}.$$

When multiple migration sending states are considered, weighted average measure is used where the weight is the percentage of nonnative population from each migration sending state.

Then, I run Fama-MacBeth regressions of the measure of migration sending state's economic relevance on the firm and state variables which are the same set of control variables used in Table 1.5. Results are reported in Table 1.7. The migration sending states' economic relevance is positively correlated with the percentage of the receiving state population that was born in the migration sending states. Hence, migration sending states are more likely to be economically relevant to firms headquartered in migration receiving states when the migration network is more

[15] Garcia and Norli (2012) use state name counts from firms' annual reports to measure their degree of geographic dispersion. With that measure, they find that there is negative relation between firms' geographic dispersion and returns.

sizeable.[16] Additionally, and not surprisingly, there is a positive relation between the percentage of firms located in the migration state(s) that are in the firm's primary industry and the migration states' economic relevance. Furthermore, in line with the view that strong ties between business and politicians are important elements of firms' operations, I find that greater migration states' economic relatedness is associated with firms' PAC contributions to sending states' politicians. The results are consistent for all different definitions of the migration sending states index, i.e. top 1, top 2, and top 3. Overall, these results support the idea that correlated fundamentals are, at least partial, driver of migration comovement effect I document in this paper.

4.3.3 Retail investors' biased holdings

The foundation of the common investor base explanation for the migration comovement effects shown in the previous tests is that investors display not only excessive preference for stocks in their home state (local bias), but also for stocks headquartered in migration sending states ("old home" bias). I examine whether this dual bias exists and whether it is associated with migration betas using the data from a major U.S. discount brokerage house. This dataset includes monthly holdings information for a large group of retail investors during the period of 1991 to 1996.

I introduce two tests. First, I examine the state-level migration beta for the sub-groups of states sorted by the percentage of retail investors who hold both stocks from their resident state and stocks from migration sending states. As documented in Panel A of Table 1.8, the average value of migration beta monotonically increases in the percentage of retail investors that hold both receiving and sending states' stocks. For example, when migration betas are measured against the

[16] To alleviate the potential concern that the migration comovement effects in this paper may be determined by the economical relevance information that I do not account for in the tests, I try including measures of economical relevance in Table 1.5 regressions. Even with economical relevance measures, the results are generally consistent.

top 1 migration sending states' portfolio, average beta for the bottom, middle and top tercile is 0.2937, 0.4198 and 0.5708, respectively. The size of migration betas are intuitively larger when more migration sending states are considered in the calculation of the percentage of retail investors holding both receiving and sending states' stocks. However, the monotonically increasing pattern is confirmed in the cases where migration betas are measured against the top 2 and top 3 migration sending states portfolios.

Second, in Panel B I report results from a Fama-MacBeth regression analysis wherein I investigate whether the degree of old home bias in retail investors' portfolios is associated with the existence of a strong migration network linking receiving and sending states. The key independent variable here is the percentage of receiving state population from migration sending state(s). As the dependent variables, I measure retail investors' old home bias by the fraction of migration sending states' stocks in an investor's portfolio and by the ratio of that fraction divided by the percentage of sending state total public equity value in the U.S. market. The regression includes some regional and household characteristics as control variables. The state-level regional characteristics are population density, and number of firms in state. Retail investor characteristics include the size of total holding assets, age, spouse's age, marital status, home ownership, gender, and whether an investor lives in a large city or not.

The coefficient of the percentage of population from migration sending state(s) is positive and significant across all columns, indicating that old home bias is strongly related to the existence of a sizeable portion of local population originating from migration sending states. Consistent with the finding in Panel A, the estimated coefficient becomes larger when more migration sending states are included in the analysis. The result in Table 1.8 also supports the view that correlated trading by a common investor base consisting of nonnatives from migration states may be partly responsible for the migration comovement effects shown in the earlier tables.

4.3.4 State-level holidays and turnover

If the migration comovement effect I document here is fairly driven by a common investor base that displays both local (current state) as well as old home bias, then migration receiving states should account for a significant portion of trading of the stocks headquartered in their sending states. To examine if this is indeed the case, I identify state-level holidays affecting all state public employees as exogenously determined shocks to market participation in receiving states and examine whether they correspond with reductions to sending states firms' trading volumes. Besides most of federal holidays (e.g., Martin Luther King, Jr. Day), which are officially observed in every state, there are several holidays that are unique to only one or a few states, such as Mardi Gras in Louisiana. I focus on state holidays that do not coincide with national holidays and occur on days the stock exchanges are open for trading. A detailed list of these state-level holidays by receiving state, along with the name and date of the holiday and the sending states involved can be found in Essay 1 Appendix C.

Inspired by Shive (2012),[17] I examine whether stock trading in migration sending states' stocks is affected by a holiday in the corresponding top migration receiving states. More specifically, I design a regression analysis on a restricted sample that includes only 30-day data prior to the receiving migration state holiday. The dependent variable is the sending state firm's stock turnover (shares traded divided by the number of outstanding shares) and the key explanatory variable is Holiday, which is an indicator that equals one if it is a holiday in the top receiving

[17] Shive (2012) uncovers the importance of local trading by documenting a strong negative effect of large power outages in trading volumes of stocks from firms in the affected locations.

state(s) and zero otherwise. In order to see whether the migration network plays an important role in the holiday effect on stock turnovers, I also include an interaction term, Holiday*Migration %, where Migration % is the number of residents in the receiving state with holiday who are originally from the sending state, divided by total population in the sending state.[18]

Results are presented in Table 1.9. Consistent with the existence of a widespread old home bias, the first three columns show that holiday has a negative and significant coefficient. This finding clearly reflects reductions in turnover of migration sending state stocks on receiving state holidays. If the migration comovement effect is caused by a common investor base, the holiday effect here is expected to be stronger when more residents in the state are coming from the sending state I consider. This is well proven in the following model where Migration % and its interaction with Holiday are included. The coefficient estimate of the interaction term (Holiday*Migration %) is negative and significant, which indicates that the negative effect of receiving state holiday on sending state stock trading gets more pronounced when the migration network linking receiving and sending states is sturdier. These results lend more support to the hypothesis that the migration comovement effect documented in this paper is at least partly driven by a common investor base between the states connected through migration network.

4.3.5 Comovement and mispricing

If migration comovement exists because of investors' biased behavior, it is expected that there would be more mispricing in stocks with stronger comovement. To examine whether there is such effect, I conduct a test motivated by McLean (2010), wherein I regress monthly excess stock returns on a high migration beta indicator, a mispricing proxy, and their interaction along with the

[18] To obtain a clean effect of state-level holiday, I exclude the cases in which both sending and receiving states observe the same holiday.

four Carhart (1997) factors and the natural logarithm of size and natural logarithm of book-to-market characteristics. The existence of mispricing in proxied by the long-term reversal effect (De Bondt and Thaler (1985)) that is captured by the coefficient of Long-term reversal, i.e., the stocks' lagged returns over the (-13, -48) month period.[19] The high migration beta indicator, High β_{MIG}, is a dummy variable that equals one if a stock's correlation with top 1 migration state stocks is in the top quintile, and zero otherwise. In the regression, High β_{MIG} is interacted with long-term reversal to examine whether migration comovement is associated with greater mispricing. Results are presented in Table 1.10. Column 1 reports regression result for the whole sample. The long-term reversal coefficient is negative and significant confirming the well-known long-term reversal effect. The interaction term (High β_{MIG}*Long-term reversal) coefficient is also negative and statistically significant, which implies that migration comovement is associated with an exacerbation of mispricing.

Then, in the next two columns, I repeat the test separately for two subsamples formed by classifying firms based on whether their home state's top 1 migration sending state is a bordering state or not. When a state's migration inflows are coming from bordering states, it is more probable that the comovement effect may be driven by correlated business and economic conditions in the receiving and sending states' region. On the other hand, if two states connected through migration flows are not bordering states, it is more likely that the correlated fundamentals explanation of migration comovement would wane in importance relative to that of correlated trading by a common investor base. The results show that the coefficient of the interaction term is negative and statistically significant in both columns. However, I find its absolute magnitude doubles in the last column, i.e. when I use the subsample of stocks whose migration sending state is not a bordering

[19] De Bondt and Thaler (1985) first document long-term reversal. Then, De Bondt and Thaler (1987) and Chopra et al. (1992) document long-term reversal in cross-sectional stock returns over 2- to 5- year horizon.

state. Moreover, the interaction coefficients' difference is statistically significant, thus the exacerbation of mispricing in the presence of migration comovement is particularly strong when the migration sending state is not a bordering state. Overall, the results in this table lend credence to the notion that sentiment shared by a common investor base is a more crucial contributor to the migration comovement effects documented in this study.

4.3.6 Headquarter relocations and migration comovement

I have shown that there is significant return comovement among firms that are linked through migration networks and that some firm and state characteristics determine the degree of this migration comovement. Based on these results, I argue that migration comovement is associated not only with correlated fundamentals but also with migration network based-correlated trading emanating from coexistence of local bias and old home bias. However, it is still possible that some unaccounted other factors may be responsible for my results, thus rejecting the existence of a causal relationship between migration network and comovement. In this section, I investigate whether evidence of a causal relationship exists within the sub-sample of firms that relocated their headquarters to different states.

Using the Compact Disclosure database and the headquarter location data provided by Bill McDonald,[20] I are able to identify firms that change headquarter locations to different states over the sample period. I exclude firms if they are reported to relocate more than once in order to obtain a clean effect of headquarter movement. By allowing each firm to have available information for both estimation and event 5-year windows around headquarter movement, the relocating firms' sample is restricted to the period 1985 to 2010. Furthermore, to avoid any correlations in migration

[20] Data are available on his site, http://www3.nd.edu/~mcdonald/

state index returns, I exclude the cases in which new and old top migration states are overlapped. For example, if a California firm were to move to Florida, both old and new top 1 migration state for the firm would be New York, which would produce the same series of returns for old and new migration sending portfolio return variables. In addition, I use only top 1 migration state in this analysis since two or three top migration states from each state will generate similar, but even more complex, overlaps.

After identifying the sub-group of headquarter relocating firms meeting the previously described conditions, for each firm I estimate the regression of weekly returns on Carhart's (1997) 4 factors, old and new top 1 migration sending state returns, a dummy for the post-relocation period, and interaction terms of the post-relocation dummy with the old and new top 1 migration sending state returns. Table 1.11 reports the estimated old ("Old top 1") and new ("New top 1") migration betas in the 5-year periods preceding ("Before") and following ("After") the year of relocation. The difference between the old and new migration betas is presented in the last column, and the difference between the migration betas before and after relocation is reported in the bottom row.

There is a sizeable decrease in the old migration beta after headquarter relocation (from 0.6813 to 0.4344), while there is an even bigger increase in the new migration beta following headquarter movement (from 0.2644 to 0.5803). The differences between the migration betas before and after relocation are statistically significant. In sum, this evidence supports the notion of a causal relation between migration network and migration comovement.

Another noteworthy result in the table is that there is a significant difference between old and new migration state coefficients only before headquarter relocation. This makes sense because investors residing in a relocating firm's old headquarter state (including those originally from old migration state) are likely to keep including in their portfolio the stock of an already familiar company that moved to another state. Consequently, the stock return will continue to comove with returns of old migration sending state firms.

4.4. Robustness Tests

As mentioned earlier, I conduct a series of robustness tests and include the results in Essay 1 Appendix A. Specifically, Table A.1 shows the results of estimation of migration betas using a market portfolio that excludes stocks included in the local market. Table A.2 shows results based on an alternative migration flow measure derived from the “State-to-State Migration Flows” data, also provided by the U.S. Census Bureau and available for each of the years from 2005 through 2015. The major difference between those data sets is that the state-to-state migration data is based on survey question asking respondents about their states of residence 1 year ago. So, this dataset involves recent migration flows that arguably may account for stronger links to migration sending states. The results are in line with those presented in the main tables and add more validity to the findings of a migration network driven comovement shown in this paper. Finally, in table A.3 I repeat the panel regressions tests of the determinants of migration comovement using different specifications suggested by Petersen (2009) and Thompson (2011). Once again, the results remain robust.

5. Conclusion

The finance literature provides ample evidence regarding return comovement within groups of stocks (e.g., Barberis et al. (2005)) classified along different, even geographic (Pirinsky and Wang (2006)) dimensions, as well as evidence pertaining to the relation between demographic changes and stock returns (e.g., Geanakoplos et al. (2004) and Arnott and Chaves (2012)). I expand these strands of the literature by relating stock return comovement with interstate migration flows, a heretofore underutilized type of demographic information in finance studies. I identify migration flows from sending to receiving states based on information about people's states of birth and states of current residence extracted from the U.S. Census Bureau website. I rank sending states by the percentage of nonnative population in each receiving state and use up to three top ranked sending states that, along with the receiving state, I define as comprising a migration network.

The main finding of this paper is that stocks by firms headquartered in receiving states exhibit strong return comovement with those in sending states. I examine the validity of the correlated fundamentals and common investor base explanations of this migration comovement and find support for both. Specifically, on one hand I show that migration comovement is positively associated with the percentage of a receiving state's population born in sending states. On the other hand, I also show that migration comovement is positively correlated to the number of same industry firms in sending states. Interestingly, the latter effect wanes while the former strengthens when the migration network considered does not include any states sharing a common border. This result is consistent with the notion that the migration comovement is meaningfully attributable to correlated trading within a common investor base.

I conduct several identification tests. In line with the correlated fundamentals explanation of migration comovement, I find that, with stronger migration flows, the migration receiving state firms' takeover targets are more likely to be located in the migration sending state and migration sending states have more significant economic relevance to migration receiving state firms. Also, to identify the importance of a common investor base, I investigate whether migration comovement is more likely to be associated with excessive preference for stocks from migration sending states ("old home bias"). Indeed, I find that old home bias is significantly correlated with the size of the investor base from migration sending states, and that average migration comovement monotonically increases with the percent of investors that are holding both local and migration sending state stocks. Furthermore, turnover of migration sending state stocks declines substantially when it is state-level holiday in migration receiving states. Additionally, long-term stock return reversal, a proxy for mispricing, is stronger among stocks with stronger migration comovement, especially when the migration sending state does not share a border with the receiving state. In sum, this evidence supports the notion that investor sentiment and biased investment decisions of a common investor base are important drivers of the migration comovement effect.

Finally, to confirm the causal relationship between migration network and comovement, I examine migration comovement using a group of firms that moved their headquarters' location to a different state. To be more specific, I test if there is any change in comovement with old migration state and/or that with new migration state between the 5-year periods prior to and following the year of relocation. Consistent with the existence of a causal relationship, I show that the comovement with old migration state drops while that with new migration state increases after relocation.

In summary, this study reveals that domestic migration flows have significant implications for the U.S. equity market. Specifically, the findings presented here provide evidence of a more widespread segmentation of the equity market along geographic lines formed by interstate migration flows. In addition, the findings here have implications for investors seeking to maximize the benefits they can derive from holding diversified portfolios. Hence, future research could also consider the potential influence of domestic population movement in other aspects of financial decision making.

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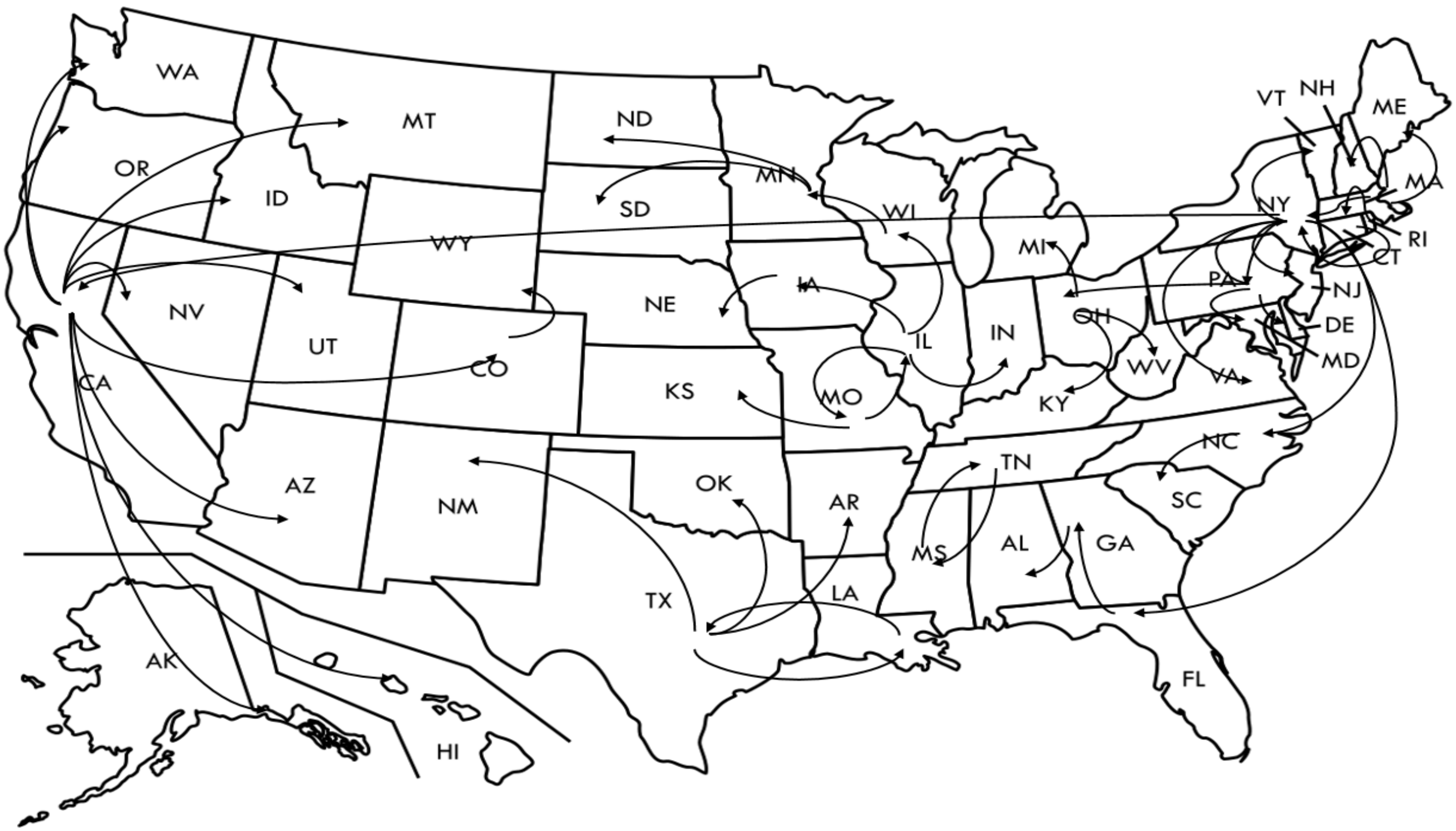
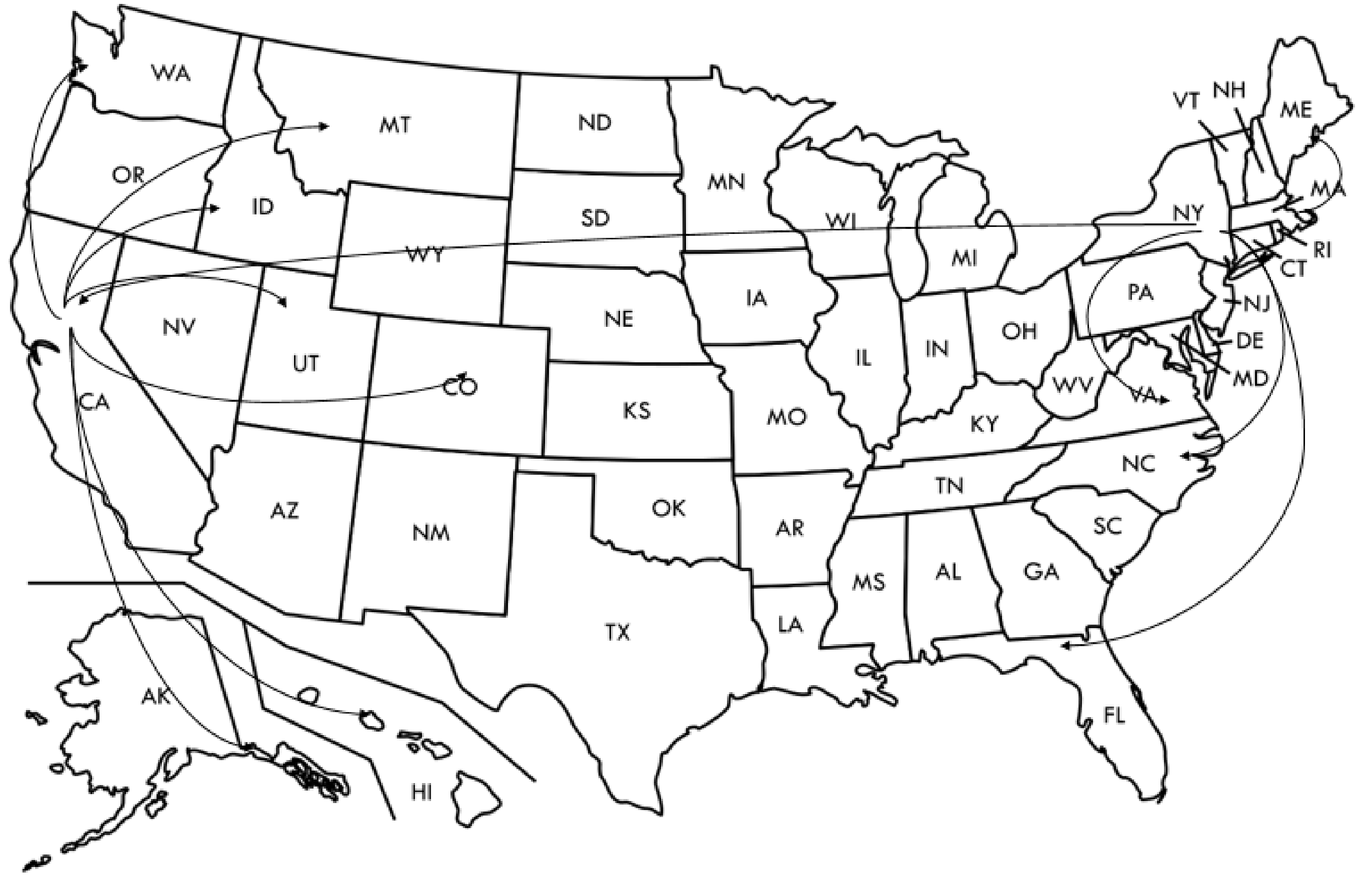


Figure 1
State-to-state migration

Panel A presents major state-to-state migration flows. For each (receiving) state I depict the origin of the migration flow, i.e. its top sending state, defined as the state where most of the nonnative population of the receiving state was born. For example, New York is the top sending state for Florida, while Florida is top sending state for Georgia. Panel B presents the subset of non-bordering state-to-state migration flows. Therefore, New York is still the top sending state for Florida, but Florida is not top sending state for Georgia since it is one of the bordering states to Georgia.

Panel A: Migration flows from top sending state to each (receiving) state



Panel B: Migration flows between receiving states and their non-bordering top sending states

Receiving State	Top 3 Sending States	Percentage of Receiving State's Nonnative Population
Alabama	GA	14.11%
	FL	9.49%
	MS	9.31%
Alaska	CA	12.62%
	WA	10.09%
	OR	5.66%
Arizona	CA	14.54%
	IL	8.66%
	NY	6.61%
Arkansas	TX	14.00%
	CA	9.08%
	MO	8.96%
California	NY	8.78%
	TX	7.79%
	IL	7.11%
Colorado	CA	10.36%
	TX	6.69%
	IL	6.55%
Connecticut	NY	32.02%
	MA	13.75%
	PA	6.38%
Delaware	PA	30.99%
	MD	14.79%
	NY	9.79%
Florida	NY	18.97%
	PA	7.49%
	OH	6.95%
Georgia	FL	10.59%
	AL	9.52%
	NY	7.66%
Hawaii	CA	23.64%
	NY	6.51%
	TX	4.76%
Idaho	CA	18.92%
	WA	11.14%
	UT	9.81%
Illinois	MO	9.12%
	MS	8.22%
	IN	8.11%
Indiana	IL	18.49%
	KY	15.91%
	OH	11.36%
Iowa	IL	16.60%
	NE	11.45%
	MN	9.64%
Kansas	MO	25.46%
	OK	9.38%
	TX	6.46%
Kentucky	OH	19.78%
	IN	11.23%
	TN	8.80%

Figure 2
Size of migration inflows from top 3 migration sending states

This figure shows the migration inflow percentage by migration receiving state from each of the top 3 migration sending states. The percentage represents the proportion of state's nonnative residents who were born in the migration sending state. Each percentage is the average of percentages during the sample period (1980 – 2015).

Figure 2 (Continued)

Louisiana	TX	18.47%
	MS	16.22%
	AR	5.83%
Maine	MA	26.14%
	NH	11.20%
	NY	10.98%
Maryland	PA	15.53%
	NY	12.24%
	VA	11.30%
Massachusetts	NY	21.88%
	CT	8.89%
	RI	7.68%
Michigan	OH	11.96%
	IL	9.40%
	IN	7.18%
Minnesota	WI	15.75%
	IA	11.59%
	ND	11.25%
Mississippi	TN	16.73%
	LA	14.99%
	AL	11.02%
Missouri	IL	14.66%
	KS	11.80%
	AR	7.21%
Montana	CA	11.62%
	ND	9.93%
	WA	7.57%
Nebraska	IA	19.48%
	KS	8.13%
	CA	6.73%
Nevada	CA	28.18%
	NY	6.25%
	IL	5.17%
New Hampshire	MA	47.98%
	NY	9.59%
	ME	6.37%
New Jersey	NY	41.50%
	PA	24.99%
	NC	2.92%
New Mexico	TX	21.02%
	CA	10.59%
	CO	6.47%
New York	PA	14.05%
	NJ	11.84%
	MA	6.07%
North Carolina	NY	11.43%
	VA	10.63%
	SC	9.56%
North Dakota	MN	34.36%
	SD	10.05%
	MT	6.21%
Ohio	PA	12.84%
	WV	12.32%
	KY	11.72%
Oklahoma	TX	19.92%
	CA	10.39%
	AR	9.61%

Figure 2 (Continued)

Oregon	CA	26.98%
	WA	12.30%
	ID	3.72%
Pennsylvania	NY	20.28%
	NJ	15.88%
	OH	7.17%
Rhode Island	MA	35.43%
	NY	15.23%
	CT	8.44%
South Carolina	NC	16.31%
	GA	11.77%
	NY	9.45%
South Dakota	MN	18.70%
	IA	14.49%
	ND	10.49%
Tennessee	MS	8.50%
	KY	7.65%
	AL	6.28%
Texas	LA	9.26%
	CA	8.92%
	OK	7.99%
Utah	CA	22.33%
	ID	11.57%
	CO	5.18%
Vermont	NY	21.38%
	MA	17.20%
	NH	13.63%
Virginia	NY	11.13%
	NC	9.94%
	PA	8.95%
Washington	CA	18.90%
	OR	10.01%
	ID	4.39%
West Virginia	OH	19.77%
	VA	15.28%
	MD	13.01%
Wisconsin	IL	25.92%
	MN	14.62%
	MI	8.63%
Wyoming	CO	10.39%
	NE	8.33%
	CA	7.22%

Table 1.1
Descriptive statistics

This table provides descriptive statistics for the sample. Refer to Essay 1 Appendix B for detailed variable descriptions.

	N	Mean	Std. Dev.	10th percentile	Median	90th percentile
Panel A: Firm characteristics						
Turnover	178,878	0.6421	0.5486	0.1337	0.4879	1.3379
Size	182,840	11.8219	2.1398	9.1205	11.7231	14.6329
B/M	146,316	0.4893	0.3660	0.1390	0.4453	0.9068
Leverage	160,429	0.2482	2.0905	0.0000	0.1833	0.5247
3-year ROA	128,028	-0.0376	0.3208	-0.2170	0.0326	0.1103
Firm age	186,221	2.2971	0.8862	1.0986	2.3026	3.4340
Previous year stock return	168,013	0.1701	0.7942	-0.4572	0.0766	0.7487
Dividend yield	183,626	0.0201	0.0504	0.0000	0.0000	0.0600
3-year R&D	186,221	0.0317	0.0907	0.0000	0.0000	0.1032
3-year advertising	186,221	0.0089	0.0378	0.0000	0.0000	0.0231
PAC	159,753	0.0421	0.2009	0.0000	0.0000	1.0000
Panel B: State variables						
Number of firms in the receiving state	186,221	590.1909	476.7875	98.0000	451.0000	1,416.0000
Number of firms in the migration sending state	186,221	744.3760	477.0655	102.0000	751.0000	1,260.0000
Industry cluster	186,221	0.6882	0.4631	0.0000	1.0000	1.0000
Same industry firms in the migration sending state	186,221	0.0572	0.0681	0.0054	0.0341	0.1429
% of population from the migration sending state	186,221	0.0509	0.0392	0.0209	0.0350	0.1147
% of market portfolio represented by the migration sending state	186,221	0.0927	0.0674	0.0075	0.0963	0.1829
Non-bordering state dummy	186,221	0.3228	0.4676	0.0000	0.0000	1.0000
Panel C: Biased holdings						
Fraction of retail investor’s portfolio in Top 1 migration sending state	164,793	0.0726	0.1732	0.0000	0.0000	0.3008
Fraction of retail investor’s portfolio in Top 2 migration sending states	164,793	0.0681	0.1284	0.0000	0.0000	0.2858
Fraction of retail investor’s portfolio in Top 3 migration sending states	164,793	0.0644	0.1084	0.0000	0.0000	0.2524
Retail investor’s biased holding of Top 1 migration sending state firms	164,793	0.3192	0.6765	0.0000	0.0000	1.5064
Retail investor’s biased holding of Top 2 migration sending states firms	164,793	0.3993	0.6732	0.0000	0.0000	1.6068
Retail investor’s biased holding of Top 3 migration sending states firms	164,793	0.4438	0.6639	0.0000	0.0000	1.4840
Panel D: Regional characteristics						
State population density	164,793	5.0009	0.8851	3.8454	5.2328	5.9607
# of firms in the receiving state	164,793	669.0919	530.7356	85.0000	488.0000	1435.0000

Table 1.1 (Continued)

Panel E: Retail investor characteristics

Large city	164,793	0.9398	0.2377	1.0000	1.0000	1.0000
Size of total holding	164,793	9.4758	1.5637	7.7080	9.5115	11.3038
Age	164,793	41.3207	22.7530	0.0000	46.0000	68.0000
Spouse’s age	164,793	28.7324	26.8464	0.0000	36.0000	64.0000
Married	128,187	0.7394	0.4390	0.0000	1.0000	1.0000
Own house	133,230	0.9716	0.1661	1.0000	1.0000	1.0000
Male	144,158	0.8812	0.3235	0.0000	1.0000	1.0000

Table 1.2
Migration comovement

This table reports the averages of the estimated coefficients (betas) and their *t*-statistics from weekly Fama-MacBeth regressions. Panel A reports betas from the analysis done at the firm level. For each stock in the sample, I estimate the firm's regression of weekly returns on the Carhart's (1997) 4 factors, local returns, and migration state(s) returns.

$$R_w^{I,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{LOC}(R_w^{LOC} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

In Panel B the analysis is done at the state level. For each state, I estimate the regression of weekly state returns on the Carhart's (1997) 4 factors and migration state(s) returns.

$$R_w^{STATE,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

where $R_w^{I,y}$ = the weekly return of an individual firm I in state y. $R_w^{STATE,y}$ = the equally-weighted weekly return of all stocks headquartered in state y. R_w^F = the one-week Treasury bill rate. R_w^{MIG} = the return of an index consisting of state y's top 1 (or top 2, or top 3) migration sending state(s) equally-weighted portfolio(s) where the weight of each sending state portfolio return in the index corresponds to the portion of y's nonnative population born in the sending state. R_w^{LOC} = the equally-weighted return of all stocks from the firm's corresponding state y, excluding the firm itself. R_w^{MKT} = the value-weighted return of all stocks in the market. SMB_w (small minus big) = the weekly difference between the returns on small and big firms. HML_w (high minus low) = the weekly difference between the returns on high book-to-market and low book-to-market firms. UMD_w (up minus down) = the momentum factor computed as the weekly difference of the returns on winner and loser firms. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

Panel A: Firm level

	Top 1	Top 2	Top 3	Excluding bordering states
β_{MIG}	0.3615***	0.4043***	0.4651***	0.3582***
	(22.66)	(16.62)	(26.60)	(28.98)
β_{LOC}	0.5938***	0.5658***	0.5347***	0.6271***
	(40.95)	(32.40)	(42.54)	(57.97)
β_{MKT}	0.0425**	0.0295	-0.0018	0.0065
	(3.04)	(1.85)	(-0.13)	(0.66)
β_{SMB}	0.0008***	0.0007***	0.0005***	0.0007***
	(6.34)	(5.15)	(4.50)	(8.44)
β_{HML}	0.0001	0.0002	0.0000	-0.0001
	(0.87)	(0.88)	(0.03)	(-1.86)
β_{UMD}	-0.0000	-0.0001	-0.0000	-0.0001
	(-0.21)	(-0.74)	(-0.10)	(-1.48)

Panel B: State level comovement

	Top 1	Top 2	Top 3	Excluding bordering states
β_{MIG}	0.6551***	0.7343***	0.7777***	0.6365***
	(22.89)	(27.31)	(30.83)	(15.06)
β_{MKT}	0.3192***	0.2449***	0.2047***	0.3376***
	(11.59)	(9.45)	(8.46)	(9.09)
β_{SMB}	0.0013***	0.0010***	0.0009***	0.0015***
	(7.17)	(5.88)	(5.07)	(7.92)
β_{HML}	0.0014***	0.0012***	0.0011***	0.0016***
	(7.39)	(6.65)	(5.92)	(5.90)
β_{UMD}	-0.0004***	-0.0003***	-0.0003**	-0.0006***
	(-4.99)	(-4.22)	(-3.84)	(-4.20)

Table 1.3

Comovement by census region and state

For each stock in the sample, I estimate the firm's regression of weekly returns on the Carhart's (1997) 4 factors, local returns, and migration state returns.

$$R_w^{I,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{LOC}(R_w^{LOC} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

where $R_w^{I,y}$ = the weekly return of an individual firm I in state y. R_w^F = the one-week Treasury bill rate. R_w^{MIG} = the migration state index which is the equally-weighted return of all stocks from the Top 1 migration state. R_w^{LOC} = the equally-weighted return of all stocks from the firm's corresponding state y, excluding the firm itself. R_w^{MKT} = the value-weighted return of all stocks in the market. SMB_w (small minus big) = the weekly difference between the returns on small and big firms. HML_w (high minus low) = the weekly difference between the returns on high book-to-market and low book-to-market firms. UMD_w (up minus down) = the momentum factor computed as the weekly difference of the returns on winner and loser firms. The averages of the estimated coefficients (betas) for the nine Census regions and 50 states are presented in the table.

	β_{MIG}	β_{LOC}	β_{MKT}
New England	0.4594	0.5153	0.0587
Connecticut	0.6875	0.2771	0.1069
Massachusetts	0.3263	0.6773	0.0255
Maine	0.4880	0.1931	0.2942
New Hampshire	0.8962	0.0969	0.0936
Rhode Island	0.6250	0.0995	0.2115
Vermont	0.5928	0.1026	0.0177
Middle Atlantic	0.3458	0.7072	0.0125
New Jersey	0.7658	0.3804	-0.1026
New York	0.1077	0.9653	0.0268
Pennsylvania	0.5644	0.3205	0.1041
East North Central	0.2186	0.6346	0.1344
Illinois	0.0031	0.8285	0.1424
Indiana	0.3155	0.4755	0.2211
Michigan	0.4952	0.3653	0.1482
Ohio	0.3917	0.5283	0.0659
Wisconsin	0.5749	0.3032	0.1375
West North Central	0.4153	0.3851	0.1567
Iowa	0.8233	0.0933	0.0928
Kansas	0.3926	0.2435	0.2545
Minnesota	0.1800	0.6688	0.1370
Missouri	0.6562	0.2106	0.0543
North Dakota	0.5138	0.0153	0.3788
Nebraska	0.1855	0.0777	0.6512
South Dakota	1.1986	0.0536	-0.1086
South Atlantic	0.5264	0.3709	0.0242
Delaware	0.2129	0.7181	0.0291
Florida	0.6078	0.4673	-0.0906
Georgia	0.5057	0.3524	0.0124
Maryland	0.4477	0.3130	-0.0095
North Carolina	0.5916	0.2700	0.0868
South Carolina	0.4704	0.1966	0.2425
Virginia	0.5729	0.2751	0.1795
West Virginia	0.5123	0.1594	0.2423
East South Central	0.3329	0.3243	0.2420
Alabama	0.3945	0.2621	0.2754
Kentucky	0.6136	0.1221	0.1283
Mississippi	0.3429	0.2733	0.2229
Tennessee	0.1674	0.4619	0.2875
West South Central	0.2289	0.7334	0.0213
Arkansas	0.4348	0.0397	0.1557
Louisiana	0.5410	0.2071	0.1716

Table 1.3 (Continued)

	β_{MIG}	β_{LOC}	β_{MKT}
Oklahoma	0.9320	0.1949	-0.1345
Texas	0.1105	0.8597	0.0274
Mountain	0.4085	0.5020	0.0913
Arizona	0.8439	0.1940	-0.0704
Colorado	0.0462	0.8102	0.2454
Idaho	0.8480	0.1127	-0.0655
Montana	0.4272	0.0226	0.3346
New Mexico	0.9237	0.0421	-0.1550
Nevada	0.4493	0.4132	-0.0014
Utah	0.7041	0.2547	-0.0215
Wyoming	1.0415	0.1151	-0.2315
Pacific	0.3390	0.7143	-0.0451
California	0.2862	0.7928	-0.0665
Oregon	0.7509	0.1125	0.0094
Washington	0.6379	0.2523	0.1385
Alaska	1.1745	0.0158	-0.2088
Hawaii	0.6985	0.1009	0.2114

Table 1.4
Univariate analysis

This table reports the averages of firm characteristic variables and state-level variables for the quintiles sorted by migration comovement measure, and the difference between the lowest and the highest groups. Migration comovement is measured by the estimated coefficient (beta) from the individual firm's regression of weekly returns on the Carhart's (1997) 4 factors, local returns, and migration returns.

$$R_w^{I,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{LOC}(R_w^{LOC} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

where $R_w^{I,y}$ = the weekly return of an individual firm I in state y. R_w^F = the one-week Treasury bill rate. R_w^{MIG} = the equally-weighted return of all stocks from the top 1 migration state. R_w^{LOC} = the equally-weighted return of all stocks from the firm's corresponding state y, excluding the firm itself. R_w^{MKT} = the value-weighted return of all stocks in the market. SMB_w (small minus big) = the weekly difference between the returns on small and big firms. HML_w (high minus low) = the weekly difference between the returns on high book-to-market and low book-to-market firms. UMD_w (up minus down) = the momentum factor computed as the weekly difference of the returns on winner and loser firms. Refer to Essay 1 Appendix B for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Migration comovement (β_{MIG} from the firms' regression of weekly returns)						
	Q1 (small β_{MIG})	Q2	Q3	Q4	Q5 (large β_{MIG})	Q5 – Q1	*T*-statistics
Turnover	0.7200	0.6121	0.5989	0.6050	0.6721	-0.0479***	-11.55
Size	11.7227	12.1921	12.1396	11.9247	11.1448	-0.5779***	-37.30
B/M	0.4633	0.4955	0.5019	0.5038	0.4878	0.0245***	8.04
Leverage	0.1827	0.1941	0.2065	0.1953	0.1941	0.0114***	8.38
3-year ROA	-0.0680	0.0077	-0.0001	-0.0051	-0.1014	-0.0334***	-10.56
Firm age	2.2370	2.3887	2.3752	2.3406	2.1437	-0.0933***	-14.69
Previous year stock return	0.1894	0.1751	0.1596	0.1701	0.1560	-0.0335***	-4.35
Dividend yield	0.0128	0.0253	0.0279	0.0225	0.0120	-0.0008**	-2.07
3-year R&D	0.0470	0.0199	0.0191	0.0235	0.0490	0.0020**	2.48
3-year advertising	0.0101	0.0077	0.0076	0.0085	0.0106	0.0004	1.56
PAC donations to sending states' politicians indicator	0.0338	0.0596	0.0558	0.0443	0.0190	-0.0148***	-11.80
Number of firms in the receiving state	676.2428	565.7218	555.1207	548.1182	605.7488	-70.4941***	-19.05
Number of firms in the migration sending state	845.2259	656.6417	625.5674	731.4422	863.0002	17.7743***	5.58
Industry cluster in migration receiving state	0.6815	0.6645	0.6723	0.7188	0.7041	0.0226***	6.69
Same industry firms in the migration sending state	0.0469	0.0562	0.0647	0.0631	0.0551	0.0082***	19.11
% of population from the migration sending state	0.0499	0.0483	0.0487	0.0515	0.0562	0.0063***	21.27
% of market portfolio represented by the migration state(s)	0.1075	0.0796	0.0758	0.0908	0.1101	0.0026***	5.68
Non-bordering state dummy	0.3926	0.2695	0.2683	0.2968	0.3869	-0.0057	-1.60

Table 1.5
Determinants of migration comovement

Coefficient estimates from Fama-MacBeth regressions of migration comovement beta (β_{MIG}) on firm, state, and migration sending state(s) characteristics are presented in the table. The dependent variable is the annually estimated coefficient (beta) from the individual firm's regression of weekly returns on the Carhart's (1997) 4 factors, local returns, and migration state(s) returns. Refer to Essay 1 Appendix B for detailed variable descriptions. T-statistics are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

Panel A: Dependent variable: β_{MIG} from the firms' regression of weekly returns				
	Top 1	Top 2	Top 3	Excluding bordering states
Turnover	-0.1400**	-0.0323	-0.1076*	-0.2267**
	(-2.23)	(-0.57)	(-1.90)	(-2.66)
Size	-0.0691***	-0.1204***	-0.1297***	-0.1235***
	(-3.10)	(-8.19)	(-8.97)	(-5.40)
B/M	0.3873	-0.0381	0.1224	0.0224
	(1.08)	(-0.44)	(0.99)	(0.11)
Leverage	-0.0810	0.0790	0.1255	-0.3201
	(-0.77)	(0.72)	(0.99)	(-1.39)
3-year ROA	-0.2278	-0.2045*	-0.1943*	-0.3522**
	(-1.56)	(-1.95)	(-1.78)	(-2.56)
Firm age	-0.0288	0.0026	0.0103	0.0374
	(-1.53)	(0.10)	(0.46)	(1.07)
Previous year stock return	0.0108	-0.0644**	-0.0724**	-0.0960**
	(0.20)	(-2.62)	(-2.46)	(-2.61)
Dividend yield	0.1173	0.1838	-0.5029	-0.1740
	(0.22)	(0.30)	(-1.55)	(-0.37)
3-year R&D expenditures	-0.7318	-0.5540	-0.7286*	-0.5303
	(-1.37)	(-1.41)	(-1.80)	(-1.40)
3-year advertising expenditures	1.0630	-0.2409	-0.3156	1.7845
	(1.42)	(-0.86)	(-1.07)	(1.28)
Number of firms in the migration receiving state	-0.0003***	-0.0003***	-0.0003***	-0.0003***
	(-5.76)	(-6.39)	(-5.40)	(-3.07)
Number of firms in the migration sending state(s)	0.0003**	0.0003***	0.0002*	-0.0001
	(2.20)	(3.09)	(1.75)	(-0.42)
% of population from the migration sending state(s)	1.8330***	2.9207***	3.9820***	6.8683***
	(2.88)	(4.88)	(4.45)	(6.59)
Industry cluster in the migration receiving state	-0.0751*	-0.0594	-0.1160**	-0.0789
	(-1.90)	(-1.66)	(-2.09)	(-1.61)
Same industry firms in the migration sending state(s)	2.0307***	1.5157***	0.8803***	1.7231**
	(5.85)	(4.85)	(2.88)	(2.11)
% of market represented by the migration sending state(s)	-0.3921	-0.2313	0.5294	2.2728
	(-0.52)	(-0.41)	(0.46)	(1.53)
PAC donations to sending states' politicians indicator	0.0904**	0.1094***	0.1001***	0.1417***
	(2.15)	(3.55)	(3.25)	(2.90)
Non-bordering state dummy	0.0263	-0.0052	0.0552	
	(0.60)	(-0.15)	(1.37)	
Distance				-0.0000
				(-0.08)
Constant	0.9784**	1.6790***	1.8204***	1.6088***
	(2.35)	(9.47)	(9.28)	(4.70)
N. of observations	103,067	103,067	103,067	68,477
R-squared	0.003	0.004	0.005	0.005

Table 1.5 (Continued)

Panel B: Dependent variable β_{MIG} from the regression of weekly state returns				
	Top 1	Top 2	Top 3	Excluding bordering states
Number of firms in the migration receiving state	0.0001***	0.0002***	0.0002***	0.0001
	(2.84)	(6.17)	(4.68)	(0.61)
Number of firms in the migration sending state(s)	0.0003***	0.0002**	0.0002**	-0.0001
	(2.91)	(2.37)	(2.59)	(-0.88)
Non-bordering state dummy	-0.0371	-0.0223	-0.0009	
	(-1.61)	(-0.88)	(-0.03)	
% of population from the migration sending state(s)	1.1272***	3.0506***	3.5129***	5.9996***
	(4.47)	(6.12)	(4.81)	(8.68)
Industry cluster in migration receiving state	-0.0121	-0.0417*	-0.0330	0.0243
	(-0.65)	(-1.70)	(-1.22)	(0.63)
% of market portfolio represented by the migration state(s)	0.4198	1.1355*	2.1015***	1.6361
	(0.71)	(1.83)	(3.23)	(1.59)
PAC	0.0735	0.2624	0.5980**	1.6415**
	(0.34)	(1.19)	(2.68)	(2.32)
Average % of migration state(s) firms in the same industry	2.9192***	2.2659***	2.1231**	2.4168
	(4.19)	(2.89)	(2.53)	(0.83)
Constant	0.1010	0.1028	0.0925	0.1346
	(1.68)	(1.30)	(1.12)	(0.93)
N. of observations	1,540	1,540	1,540	867
R-squared	0.092	0.084	0.086	0.076

Table 1.6
Probability of target being from the migration sending states

This table reports the percentage of target firms in migration sending states for the states sorted on the percent of state population from the migration sending states and the difference between the lowest and the highest groups. Refer to Essay 1 Appendix B for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	% of population from the migration sending states			
	1 (Low)	2	3 (High)	Difference (3 – 1)
Target from Top 1	0.0556	0.0664	0.1033	0.0477***
				(6.48)
Target from Top 2	0.1065	0.1174	0.1659	0.0594***
				(6.31)
Target from Top 3	0.1398	0.1769	0.1883	0.0484***
				(4.74)

Table 1.7
Economic relevance of migration sending states

Coefficient estimates from Fama-MacBeth regressions of migration states' economic relevance on firm, state, and migration state(s) characteristics are presented in the table. The dependent variable is the measure of migration state(s)' economic relevance to firm, which is based on state counts derived from firm's annual reports. Refer to Essay 1 Appendix B for detailed variable descriptions. *T*-statistics are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

Dependent variable: Migration sending states' economic relevance to firm			
	Top 1	Top 2	Top 3
Turnover	0.0011	0.0012**	-0.0002
	(1.32)	(2.76)	(-0.73)
Size	0.0004**	0.0005***	0.0007***
	(2.25)	(4.12)	(4.87)
B/M	0.0075***	0.0064***	0.0072***
	(5.32)	(4.22)	(5.03)
Leverage	0.0132***	0.0180***	0.0163***
	(4.03)	(7.43)	(8.34)
3-year ROA	-0.0176***	-0.0055***	-0.0075***
	(-6.13)	(-4.39)	(-3.25)
Firm age	-0.0011	0.0000	0.0002
	(-1.61)	(0.15)	(0.67)
Previous year stock return	-0.0002	0.0006	0.0008**
	(-0.28)	(1.34)	(2.37)
Dividend yield	-0.0119	0.0350**	0.0359***
	(-0.99)	(2.92)	(3.37)
3-year R&D expenditures	-0.1053***	-0.0643***	-0.0565***
	(-12.66)	(-8.88)	(-11.04)
3-year advertising expenditures	0.0428**	0.0029	0.0005
	(2.69)	(0.31)	(0.07)
Number of firms in the migration receiving state	0.0000***	0.0000***	0.0000**
	(3.06)	(8.50)	(2.24)
Number of firms in the migration sending state(s)	0.0000***	0.0000**	0.0000***
	(6.04)	(2.58)	(3.91)
% of population from the migration sending state(s)	0.3454***	0.2992***	0.1674***
	(11.42)	(11.16)	(8.83)
Industry cluster in the migration receiving state	0.0065***	0.0039**	0.0039***
	(4.32)	(2.28)	(4.00)
Same industry firms in the migration sending state(s)	0.1371***	0.0842***	0.0733***
	(8.85)	(8.32)	(9.65)
% of market portfolio represented by the migration sending state(s)	-0.0528	0.0086	0.0078
	(-1.63)	(0.21)	(0.27)
PAC donations to sending states' politicians indicator	0.0112***	0.0058***	0.0050***
	(6.51)	(6.46)	(5.51)
Non-bordering state dummy	-0.0046***	0.0007	0.0036***
	(-3.88)	(0.59)	(5.81)
Constant	-0.0053	-0.0045	-0.0025
	(-1.36)	(-1.32)	(-0.85)
N. of observations	44,940	44,940	44,940
R-squared	0.046	0.042	0.041

Table 1.8
Retail investors, migration betas, and old home bias

Panel A reports the average Top 1 (Top 2 and Top 3) average migration betas for states sorted on the percent of local retail investors who hold both local (receiving state) stocks and migration sending state stocks in their portfolios. State migration betas are the averages of the estimated coefficients (betas) from Fama-MacBeth regressions of weekly state returns on the Carhart's (1997) 4 factors and migration state(s) returns.

$$R_w^{STATE,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

where $R_w^{STATE,y}$ = the equally-weighted return of all stocks in state y. R_w^F = the one-week Treasury bill rate. R_w^{MIG} =the return of an index consisting of state y's top 1 (or top 2, or top 3) migration sending state(s) equally-weighted portfolio(s) where the weight of each sending state portfolio return in the index corresponds to the portion of y's nonnative population born in the sending state. R_w^{MKT} = the value-weighted return of all stocks in the market. SMB_w (small minus big) = the weekly difference between the returns on small and big firms. HML_w (high minus low) = the weekly difference between the returns on high book-to-market and low book-to-market firms. UMD_w (up minus down) = the momentum factor computed as the weekly difference of the returns on winner and loser firms. Panel B documents the Fama-MacBeth regression analysis of retail investors' biased holding of migration sending state firms (Old Home Bias). Biased holding of migration state firms is measured by the ratio of the fraction of an investor's portfolio that consists of shares of firms located in the migration sending state(s) to the fraction of the migration sending state(s)' total public equity value in the U.S. market. The key independent variable is percentage of population from the migration state(s). The controlling variables include regional and household characteristics. State population density = the log of 1 plus state population per square mile. # of firms in state = the log of 1 plus number of firms located in the state. Large city = 1 if investor's residence is in one of the largest 99 cities and 0 otherwise. Size of total holding assets = the log of one plus the size of investor's total holdings. Age = the log of 1 plus investor's age. Spouse's age = the log of 1 plus the age of investor's spouse. Married = 1 if an investor is married and 0 otherwise. Own house = 1 if an investor owns a house and 0 otherwise. Male = 1 if an investor is male and 0 otherwise. Refer to Essay 1 Appendix B for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

Panel A: Average state portfolio migration betas by groups of states formed after sorting on the likelihood that retail investors hold both local and migration state firms' stocks

	% of retail investors who hold stocks in both their resident state and in migration sending states			
	1 (Low)	2	3 (High)	Difference (3 – 1)
Top 1	0.2937	0.4198	0.5708	0.2771***
				(4.19)
Top 2	0.3763	0.4008	0.6228	0.2465***
				(3.14)
Top 3	0.4277	0.4803	0.6423	0.2146**
				(2.34)

Table 1.8 (continued)

Panel B: Old Home Bias						
Dependent variable	Fraction of investor's portfolio in migration state(s)			Investor's biased holding of migration state firms		
	Top 1	Top 2	Top 3	Top 1	Top 2	Top 3
% of population from the migration sending state(s)	0.7697***	0.8424***	1.1074***	2.8264***	3.5394***	4.2178***
	(33.96)	(42.34)	(45.86)	(39.72)	(33.45)	(26.75)
Large city	-0.0081***	-0.0038***	-0.0043***	-0.0328***	-0.0282***	-0.0326***
	(-10.74)	(-4.43)	(-6.60)	(-11.04)	(-6.14)	(-8.76)
State population density	-0.0014	-0.0017	-0.0037***	-0.0039	0.0050	-0.0239***
	(-0.98)	(-0.74)	(-3.84)	(-0.77)	(0.44)	(-4.59)
# of firms in state	0.0084***	0.0083***	0.0089***	0.0070	-0.0073	0.0021
	(7.29)	(9.01)	(38.76)	(1.60)	(-1.01)	(1.94)
Size of total holding assets	0.0027***	0.0012***	0.0011**	0.0374***	0.0344***	0.0337***
	(5.04)	(3.83)	(3.50)	(17.96)	(23.03)	(23.85)
Age	0.0022**	0.0007	0.0005	0.0085**	0.0033	0.0030
	(3.26)	(1.17)	(0.94)	(3.30)	(1.08)	(1.10)
Spouse's age	-0.0017***	-0.0007**	-0.0003**	-0.0039***	0.0002	0.0033***
	(-11.66)	(-3.07)	(-3.57)	(-7.76)	(0.17)	(5.25)
Married	-0.0092***	-0.0035***	-0.0035***	-0.0304***	-0.0135***	-0.0158***
	(-10.98)	(-5.50)	(-6.85)	(-8.99)	(-5.49)	(-8.57)
Own house	0.0088**	0.0053**	0.0019	0.0285*	0.0176	-0.0068
	(2.71)	(2.64)	(1.56)	(1.98)	(1.44)	(-0.85)
Male	-0.0062**	-0.0041***	-0.0025	-0.0281***	-0.0212***	-0.0155*
	(-3.50)	(-4.18)	(-1.61)	(-7.25)	(-5.31)	(-2.09)
Constant	-0.0272**	-0.0171**	-0.0159***	-0.1676***	-0.0328	0.1176***
	(-3.29)	(-3.40)	(-4.14)	(-4.52)	(-1.18)	(5.27)
N. of observations	120,237	120,237	120,237	120,237	120,237	120,237
R-squared	0.025	0.025	0.029	0.032	0.028	0.021

Table 1.9
Turnover and state-level holidays

This table examines the effect of state-level holidays on migration sending state stock trading. Inspired by Shive (2012), I construct a sample that includes only 30-day data prior to the receiving migration state holiday. The dependent variable is the sending state stock turnover. Holiday = a dummy variable that equals one if it is a holiday in the top receiving state(s) but not a holiday in the sending state. Mkt. turnover = total share volume divided by the total number of shares outstanding in the CRSP universe. Migration % = number of residents in the top receiving state with holiday who are originally from the sending state divided by total population in the sending state. Firm-level fixed effects are included. Standard errors are clustered at firm-holiday level. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

Dependent variable: Sending state stock turnover						
	Top 1	Top 2	Top 3	Top 1	Top 2	Top 3
Mkt. turnover	0.6896***	0.5698***	0.6689***	0.6859***	0.5690***	0.6679***
	(18.95)	(11.28)	(15.43)	(19.07)	(11.24)	(15.33)
Holiday	-0.0503***	-0.0692***	-0.0615***	-0.0031	-0.0324**	-0.0399***
	(-3.95)	(-3.88)	(-4.29)	(-0.20)	(-2.04)	(-3.49)
Migration %				0.4784	0.2685	0.0946
				(0.91)	(0.75)	(0.33)
Holiday*(Migration %)				-1.2493***	-1.1239***	-0.7250***
				(-4.66)	(-4.09)	(-2.82)
Observations	5,818,170	7,068,450	8,075,010	5,818,170	7,068,450	8,075,010
R-squared	0.146	0.086	0.114	0.146	0.086	0.114
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 1.10
Comovement and mispricing

The dependent variable is monthly excess returns of all stocks in the sample. The independent variables are four risk factors in the Carhart's (1997) 4 factor model, natural logarithm of firm size, natural logarithm of book-to-market ratio, the return over the 48-month period starting 13 months ago, a dummy variable indicating high correlation stock, and interaction term of high correlation dummy and long-term past returns. MKT = return of all stocks in the market. SMB (small minus big) = the difference between the returns on small and big firms. HML (high minus low) = the difference between the returns on high book-to-market and low book-to-market firms. UMD (up minus down) = the momentum factor computed as the difference of the returns on winner and loser firms. High β_{MIG} = a dummy variable which equals 1 if stock's correlation with migration state stocks is in the top quintile, and zero otherwise. Long-term reversal = the return over the 48-month period staring 13 months ago. Standard errors are robust to clustering at the state and month level. The estimated coefficients and their *t*-statistics are presented in the table. The difference between the estimated coefficients of the interaction term when top 1 migration state is bordering state and non-bordering state is reported in the last row. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Monthly Excess Returns		
	Whole	Top 1: bordering state	Top 1: non-bordering state
MKT	0.0093***	0.0092***	0.0097***
	(36.27)	(45.13)	(23.23)
SMB	0.0075***	0.0072***	0.0081***
	(13.56)	(16.28)	(8.227)
HML	0.0023***	0.0027***	0.0013
	(3.39)	(5.06)	(1.08)
UMD	-0.0018***	-0.0016***	-0.0021***
	(-5.44)	(-5.18)	(-6.64)
Log(Size)	-0.0010***	-0.0009**	-0.0011***
	(-2.60)	(-2.49)	(-2.91)
Log(BM)	0.0068***	0.0063***	0.0079***
	(4.03)	(3.78)	(4.05)
High β_{MIG}	0.0014	0.0012	0.0012
	(0.85)	(0.81)	(0.51)
Long-term reversal	-0.0006*	-0.0007**	-0.0004
	(-1.96)	(-2.34)	(-1.55)
High β_{MIG} *Long-term reversal	-0.0013***	-0.0010***	-0.0020***
	(-4.54)	(-3.18)	(-5.90)
Constant	0.0119**	0.0115**	0.0134**
	(2.27)	(2.15)	(2.49)
Observations	1,275,489	848,524	426,522
R-squared	0.101	0.100	0.103
Coefficient difference test			
High correlation*Long-term reversal		-0.0010**	
[*p*-value]		[0.031]	

Table 1.11

Headquarter relocation and migration comovement

From Compact Disclosure and the data provided by Bill McDonald, I identify firms that change their headquarter locations to different states. For each firm in the sample, I estimate the regression of its weekly stock returns on Carhart's (1997) 4 factors, old and new top 1 migration state returns, a dummy indicating whether it is after relocation, and interaction terms of relocation dummy and old/new top 1 migration state returns.

$$R_w^{I,y} - R_w^F = \alpha + \beta_{OMIG}(R_w^{OMIG} - R_w^F) + \beta_{NMIG}(R_w^{NMIG} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + \beta_{AFTER}AFTER_w + \beta_{AFTER_{OMIG}}AFTER_w * (R_w^{OMIG} - R_w^F) + \beta_{AFTER_{NMIG}}AFTER_w * (R_w^{NMIG} - R_w^F)e_w.$$

where $R_w^{I,y}$ = the weekly return of an individual firm I in state y. R_w^F = the one-week Treasury bill rate. R_w^{OMIG} = the equally-weighted return of all stocks from the top 1 migration state before headquarter relocation. R_w^{NMIG} = the equally-weighted return of all stocks from the top 1 migration state after headquarter relocation. R_w^{MKT} = the value-weighted return of all stocks in the market excluding all stocks from the firm's state y and the migration state(s). SMB_w (small minus big) = the weekly difference between the returns on small and big firms. HML_w (high minus low) = the weekly difference between the returns on high book-to-market and low book-to-market firms. UMD_w (up minus down) = the momentum factor computed as the weekly difference of the returns on winner and loser firms. $AFTER_w$= a dummy variable which equals to 1 if it is after headquarter relocation. The averages of the estimated coefficients (migration betas) and their p-values are presented in the table. The difference between the estimated old and new migration betas is reported in the last column. The difference between the estimated migration betas before and after relocation is reported in the last row. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Old top 1 (R_w^{OMIG})	New top 1 (R_w^{NMIG})	Old top 1 – New top 1
Before	0.6813***	0.2644**	0.4169**
	(0.000)	(0.014)	(0.017)
After	0.4344**	0.5803***	-0.1459
	(0.023)	(0.001)	(0.5767)
After - Before	-0.2469*	0.3159**	
	(0.083)	(0.028)	

ESSAY 2: MIGRATION FLOWS AND M&A DECISIONS

1. Introduction

Takeover transactions are among the largest and most important corporate investments. According to an article in the New York Times, mergers worth more than $2.5 trillion were announced during the first half of 2018 (The New York Times, July 3, 2018).[21] Nevertheless, the large number and volume of takeover transactions in the market have been perplexing when combined with the research showing that M&As do not necessarily create value for bidders and sometimes even reduce the wealth of acquirer's shareholders (see Morck, Schleifer, and Vishny (1990), Moeller et al. (2004), and Betton et al. (2008) among others). Given the popularity of takeover transactions, some of the important questions are about firms' choice of their takeover targets and the factors affecting takeover transactions. A plethora of studies explore various firm characteristics, including size, profitability, cultural differences, social ties, institutional holdings, and political connections, that could influence takeover decisions (e.g., Stevens (1973), Dietrich and Sorensen (1984), Palepu (1986), Mikkelson and Partch, (1989), Ambrose and Megginson (1992), Ivashina et al. (2009), Bayar and Chemmanur (2012), Ishii and Xuan (2014), Ahern et al. (2015), Cai et al. (2016), and Croci et al. (2017) among many others). However, very little is known about the importance of target and acquirer locations within the context of social and business networks that have been formed through domestic migration flows. This gap in the finance literature exists in spite of numerous social science and economics studies on the socio-

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[21] See http://www.nytimes.com/2018/07/03/business/dealbook/mergers-record-levels.html for the full article.

economic impact of international and domestic migration flows. Thus, this research explores if domestic migration flows matter for M&A activity based on the rationale that population movements provide the foundation for social, business, and information sharing networks which link different geographic areas (e.g., see Pryor (1981), Rauch (2001), and Millimet and Osang (2007) among many others)[22]and influence firms' takeover decisions. More specifically, this study examines whether takeover target firms are more likely to be connected to bidders via domestic (inter-state) migration network.

Migration flows could be an important factor for M&A decisions through two potential mechanisms, which are not necessarily mutually exclusive. First, there could be an association between migration flows and M&A decisions due to the effect of migration flows promoting the strengthening of economic and business ties between different geographic areas. In migration studies, it is generally perceived that migration is, to some extent, driven by regional inequalities or disparities (e.g., Ravenstein (1885), Sjaastad (1962), and Massey et al. (1993) among many others). Additionally, there are studies supporting the view that migration also has nontrivial impact on regional development and affects regional economic fundamentals such as wages and employment. For example, Easterlin (1961) points out the contribution of inter-regional migration on the convergence of per capita income levels since 1860 in the United States. Focusing on internal migration in China, Zhang (2015) presents evidence that internal migration affects regional inequality and that the effect differs across regions and time periods.[23] More recently,

[22] For example, Rauch (2001) shows how trade is affected by migration. Millimet and Osang (2007) also focus on the association between international trade and migration, and they assert that the border effect in trades is affected by migration flows.

[23] There are also some studies in the economics and migration literature that do not necessarily support this view of interstate migration and argue that migration flows may cause more regional disparities. For instance, Myrdal (1957) states that migration increases the gap in per capita income between the migration sending and receiving regions because the migration receiving areas are usually expanding and advanced areas.

Cohen et al. (2017), using customs and port authority data, find that firms are significantly more likely to trade with countries where a large number of residents near their headquarters are originally from. Thus, if interstate migration flows lead to a strengthening of business and economic ties between a group of states, I would expect to find heightened takeover activity involving firms from those states.

The second mechanism is based on the importance of information that cannot be easily coded, interpreted, and transmitted (i.e., soft information) in takeover transactions (Coff (1999))[24]. There is a long list of literature regarding the effect of information asymmetry between bidders in takeovers (e.g., Milgrom (1981), Milgrom and Weber (1982), Fishman (1988), Hirshleifer and Png (1989), and Povel and Singh (2006), among many others), and it has been well-documented that soft-information, which can be useful in evaluations of potential operational and information-based synergies, knowledge-based assets, and managerial skills, is crucial for the success of acquisition and takeover value creation (e.g., Kang and Kim (2008) and Uysal et al. (2008)). Unlike hard information which is mostly easy to transmit and communicate, soft information is difficult to codify (Petersen (2004)) and its effective communication in takeovers requires acquirers' intensive and multidimensional interpersonal interactions with targets (Uysal et al. (2008)).[25] Supporting the notion that soft information matters, numerous takeover studies have shown that geographic proximity between acquirer and target affects different aspects of M&A transactions and activity (e.g., Ragozzino and Reuer (2011), Ensign et al. (2014), and Bick et al. (2017)).

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[24] Soft information is often mentioned as essential element in evaluation of target's knowledge-based assets and any related potential synergies, and Coff (1999) states three reasons why knowledge-based assets are more difficult to assess compared to tangible assets. First, it is hard to observe the quality of asset because financial statements hardly provide any meaningful information about such intangible assets. Secondly, it is hard for acquirers to be certain about what will be transferred due to turnover and tacit feature of those assets. And then, third, it is difficult to assess the prospects for synergy.

[25] Uysal et al. (2008) describe how informational advantages in takeovers could arise from geographic proximity.

Instead of simply examining geographical distance, the focus of this paper is on the effect of migration flows, and its motivation is provided by the notion that population movements form the foundation for social and information networks linking different regions which can be either neighboring or remote areas. Even if acquirers are not geographically close to their targets, accessibility of relevant soft information could be enhanced by migration network. For instance, substantial numbers of New Yorkers have moved to Florida over the years. Many of these ex-NY and current FL residents keep ties with relatives, friends, and business associates in NY. Therefore, they enjoy a level of knowledge about NY that can potentially translate to an informational advantage for FL firms looking to expand their business in NY.

The transmission of soft information about firms involved in a takeover in the migration states could also be enhanced if firms in the same area are linked through common suppliers, customers, or financial intermediaries. Given the fact that inter-state migration flows typically result in greater economic integration, this effect is expected to be more pronounced when the firms involved in the takeover are from states linked by strong migration networks.

Using the American Community Survey (ACS) data, this paper focuses on state-to-state migration flows in the United States and identifies the portion of each (receiving) state’s population that moved from other states. For each receiving state, sending states are ranked by the proportion of the receiving state’s population that was originally born in the sending state. A receiving state’s migration network is composed of its top ranked sending states. Up to three top sending states are considered for each receiving state throughout the paper. The sample of acquisitions is extracted from the Thompson Financial SDC Mergers and Acquisitions Database.

This paper shows that in the presence of sturdy migration networks, a takeover target is more likely to be located in a top migration sending state. Next, the paper examines the relative importance of strengthened economic/business ties versus informational advantages for the effect of migration networks on acquisitions and finds evidence supporting the information advantage explanation. Consistent with the view that soft information associated with migration networks would be more valuable when there is greater uncertainty about the target due to information asymmetry (Coff (1999)), this paper finds targets are generally more likely to be located in non-neighboring migration sending states. Since information asymmetry typically increases with distance between acquirers and targets, this result suggests that the availability of soft information about distant, yet within the migration network, targets can help overcome information asymmetry. Furthermore, this paper also finds that targeting firms located within a migration network is even more likely when the acquirer and target are in different industries or when targets are considerably smaller.

In additional analyses, this paper finds that acquisitions of migration sending states targets are accompanied with smaller premium and higher announcement returns when targets are small and with low institutional ownership. This evidence is also in accordance with the idea that advantages derived from value relevant information shared within migration networks can potentially improve an acquirer's position in a takeover transaction. Moreover, the positive effect of migration network in terms of providing the basis for informational advantages is only evident when there is significant information asymmetry regarding target. Taken together, these results substantiate the view that information advantage plays an essential role in explaining the association between migration flows and takeovers.

To summarize, this paper suggests a significant role of inter-state migration networks in acquisitions. This paper's main contribution to the literature is to introduce domestic migration to financial research shedding light on the way how migration flow is an important factor in mergers and acquisitions. Moreover, this paper contributes to the growing literature on the role of firm location in corporate finance, and in particular M&As where geographic distance matters (see Uysal et al. (2008) and Kang and Kim (2008)). This paper asserts that what matters is not only a firm's location but also how that location is connected to other regions. This study reveals that migration networks, a previously underexplored dimension of firm location, could also affect corporate acquisitions. More specifically, the findings suggest that geographic proximity might not be monotonically affecting acquisition decisions. Even with substantial distance between firms, acquisition decisions could be affected by informational advantages associated with access to soft information available through migration networks.

The rest of the paper is organized as follows. Section 2 discusses related literature and prior findings. Section 3 discusses the sample selection and summary statistics. Section 4 presents the main findings and analyzes how migration flows are related to different aspects of acquisitions. The last section concludes.

2. Literature Review

Theoretically, acquisitions are highly important corporate investments aimed at generating firm growth, but the sheer magnitude of the number and volume of transactions has often raised questions given that acquisitions have been shown to not always create value for acquirers (see Moeller et al. (2004) and Betton et al. (2008) among many others). Therefore, a considerable amount of literature examines the motivation behind acquisition decisions. For example, some papers focus on managerial characteristics, such as overconfidence and personal connections, and examine how they are related to the acquisition premium (e.g., Higgins and Rodrigues (2006) and El-Khatib, Fogel, and Jandik (2015)). Additionally, acquirer-target social ties can affect merger outcomes (Ishii and Xuan (2014)), and there is also evidence that board connections (Cai and Sevilir (2012)), corporate governance (Wang and Xie (2008)) and corporate political strategies (Croci et al. (2017)) affect several facets of M&A transactions.

Above all, numerous papers examine the impact of asymmetric information on acquisitions (e.g., Moeller, Schlingemann, and Stulz (2007), Officer, Poulsen, and Stegemoller (2009), Zhu and Jog (2012), and Eckbo, Giammarino, and Heinkel (1990)) and provide the basis for positing the importance of soft information, the type of information that is difficult to codify, transmit, and communicate (Coff (1999)). Soft information is indispensable in the assessment of the value associated with information-based (or any less obvious form of) assets and synergies, and theoretically it can also affect level of competition and the division of surplus created in takeovers (e.g., Fishman (1988) and Povel and Singh (2006)).

Past studies have claimed that geographic proximity could mitigate information asymmetry. For example, Uysal et al. (2008), in their examination of how geographic distance is associated with acquirer announcement returns, find that acquirer returns in local transactions are significantly higher than those in non-local transactions, which they attribute to local informational advantage. Additionally, Ragozzino and Reuer (2011) show that acquirers are better at assessing target firms' resources and have lower risk of adverse selection when they are located closer to targets. Thus, the authors argue that geographic proximity could mitigate information asymmetry for the acquirer and influence different aspects of acquisition such as premium and time to completion. Similarly, Bick et al. (2017) find that geographic distance significantly affects acquisition premiums and time to completion, conditional on the size of the target firm. The results of Kang and Kim (2008) also emphasize the importance of geographic proximity in corporate governance and target returns. In addition to geographic proximity, target's urban location has been found as a factor influencing takeover transactions by facilitating the dissemination of soft information (Cai et al. (2016)).

Migration flow is a type of demographic information that has been relatively overlooked in the finance literature. However, there is a long list of finance studies utilizing demographic information other than population movement. For instance, Bakshi and Chen (1994) show how demographic fluctuations influence capital markets based on the life-cycle investment hypothesis about changes in investors' wealth allocation and risk aversion at different stages in life-cycle. Their results show that an increase in average age is accompanied with a decrease in demand for housing and an increase in investors' risk aversion. Similarly, Geanakoplos et al. (2004) examine people's distinctive financial needs at different stages of their lives, and they demonstrate that there is close relation between the age composition of population and the boom/bust cycle of the stock market. In addition, DellaVigna and Pollet (2007, 2013) link demographic changes with age-sensitive industries (e.g., toys, beer, life insurance, and nursing homes). They show how information on changes in cohort sizes can be used to predict changes in demand for those industries and also how such demand forecasts predict profitability and future stock returns. Additionally, their paper also presents that the demand forecasts affect industries' equity issuance decisions. The authors show that industries expecting positive demand shifts in near future would issue more equity while those anticipating positive demand shifts in distant future would issue less equity due to undervaluation.

This paper examines whether domestic interstate migration patterns can have any implications on mergers and acquisitions. A plausible mechanism promoting the influence of migration flows on takeover is interstate migration strengthening economic and business ties between areas. This view is supported by the work of Cohen et al. (2017) which shows that foreign-born resident networks promote trade and the strengthening of business ties between U.S. areas and foreign countries, and the authors claim a significant role of immigrants as economic conduits for firms. In the same vein, if interstate migration flows lead to a strengthening of business and economic ties between sending and receiving states, the economic activities of firms in those states will be linked and such linkage will include increased level of takeover activities. At the same time, there can be association between migration flows and acquisitions due to the information advantage mechanism when movers have more information and attachment about the states where they lived before and the firms in those states. For example, Pool et al. (2012) find that fund managers have home state bias as managers invest more in stocks with headquarters located in the states where they grew up. Hence, with the movers' information about their previous home states and firms in those areas, there will be more information about those states in the movers' current residence area, which might affect local firms' takeover decisions.

3. Data

3.1 Data Sources

This study uses the "State of Residence by Place of Birth Flows" data provided by the United States Census Bureau (http://www.census.gov) as the basis for the main measure of migration flows. The U.S. Census Bureau is part of the U.S. Federal Statistical System, and it produces data about various dimensions of the economy and the population in the U.S. Particularly, the place of birth flows data is based on the American Community Survey (ACS), which asks respondents about their places (states) of birth, providing information on migration flows between peoples' states of birth and states of their current residence. The data covers the period of 1980 through 2015. Since the data are available every 10 years until 2010, this study uses interpolation to obtain approximate values for each year. For each state, the number of its residents that were born in each of the other migration sending states is divided by the state total population to obtain the measure of percentage of residents that migrated from each other state.

This research uses a sample of acquisitions from the Thompson Financial SDC Mergers and Acquisitions Database. Both successful and unsuccessful acquisitions of US publicly listed targets with a deal value above US$ 1 million are included. The bidder is a listed US firm, and the bidder must seek to purchase more than 50% of the target firm's equity in order to be included in the acquisition sample. Firms' financial and accounting data is collected from CRSP and Compustat. A firm's location is defined as the state where the firm's headquarter is located. More detailed description of data sources and variable definitions are available in Essay 2 Appendix.

3.2 Summary Statistics

Table 2.1 presents sample summary statistics. According to Panel A, on average, 5.05% of a state's population is from its top 1 sending state and the number of firms in a migration sending state is about 783. Panels B and C show the descriptive statistics for acquirer and target characteristics. The sample acquirers have a mean market value of $7.80 billion, and the mean for the book-to-market ratio is 0.2334. Average acquirer debt and cash reserves are 66.49% and 14.43% of the total assets, respectively. On average, acquirer's sales growth is about 41.22% and approximately 15.45% of acquirers experienced a net loss at the fiscal year-end. According to Panel C, about 7.39% of targets are from acquirers' top 1 migration sending state. The sample targets have a mean market value of $5.87 billion, and the mean for the book-to-market ratio is 0.2962. Average target debt and cash reserves are 61.10% and 17.10% of the total assets, respectively. On average, target's sales growth is about 34.07% and approximately 31.57% of targets experiences a net loss at the fiscal year-end.

Panel D is about deal characteristics. Approximately, 59.54% of deals are horizontal, 25.96% of deals are 100% cash deals, and 13.09% of deals are tender offers. Also, about 6.22% of deals are hostile and 6.13% of deals are competing ones. Lastly, Panel E is about takeover premium and 3-day announcement returns. The median takeover premium across sample is about 35.65% and acquirers' 3-day cumulative abnormal returns around the deal announcement is -0.81% on average.

4. Empirical Findings

4.1 Probability of Target Being from the Migration Sending States

In Table 2.2, I run Probit regressions to examine the association of migration flows with acquisitions and report the estimated coefficients. The dependent variable is an indicator that takes the value of 1 if the target firm is in the migration sending state(s). The regressions include several acquirer, target, and deal characteristic as control variables with year and industry fixed effects, and standard errors are adjusted for firm clustering. Additionally, number of firms in the migration sending state(s) is also included as a control variable as targets would be more likely to be from areas with greater number of firms.

As expected, the probability of target being from the migration sending states is positively related to the number of firms in the migration sending states. Additionally, and more importantly, the variable of interest (proportion of state population from the migration sending states) has a positive and statistically significant coefficient. Moreover, the magnitude of its coefficient monotonically increases as the number of migration sending states considered in the test increases. The coefficient of percentage of population from the migration sending state is 3.1248 when only the first migration sending state is considered, and then it increases to 5.4702 when top 3 migration sending states are considered in the test. The marginal effect of migration population is not trivial. A one standard deviation increase (3.87%) in the percentage of population from the top 1 migration sending state, from its mean of 5.05%, increases the probability of the target being from the migration sending state by 1.4 percent. This marginal effect enlarges to 5.0 percent if I allow 3 top migration states.

Therefore, in sum, the results presented in Table 2.2 show that acquiring firms from states with substantial population from migration sending states are more likely to look for targets located in the migration sending states.

4.2 Economic Links vs. Information Advantage #1: Does Industry Similarity Matter?

A straight-forward explanation for the association between migration network strength and location of targets shown in this paper is that migration flows are promoting the strengthening of economic and business ties between states connected through migration, hence an increased level of economic activities, including takeovers. For example, Cohen at al. (2017) find that firms are significantly more likely to trade with countries where a large number of people living near their headquarters are originally from.

The association between migration flows and location of targets shown in this paper could also be partially explained by the information advantage offered by migration-based social networks. Unlike hard information that is mostly easy to communicate, the communication of soft information requires acquirers' intensive and multidimensional interactions with targets and comprehensive understanding of targets (Uysal et al. (2008)). I posit that the contribution of soft information for the success of acquisition and value creation can be enhanced in the presence of strong social and informational networks formed by migration flows. Then, it follows that soft information arising from migration network would be more valuable when the quality of the target firm's assets is difficult to measure and thus when there is greater uncertainty about the extent of synergies (Coff (1999)). To investigate whether the association between migration flows and targets' location is partly driven by information advantage, this paper conducts several additional tests.

The first test I perform to assess the relative importance of economic or business links and information advantage for the relation between migration flows and target location involves a comparison of industry focused takeovers and industry diversifying takeovers. If the migration network can indeed provide an information advantage when acquirers are seeking new takeover targets, then this effect should be more important when acquirer and target are in different industries due to greater degree of uncertainty about the synergies from adding a target from a different industry. I run the same Probit regressions introduced before separately for two groups sorted by whether the acquirer and target are in the same industry or not based on Fama-French 49 industry classification.

The results shown for both subsamples in Table 2.3 are in accordance with the prior findings; in the presence of strong interstate migration networks, targets are more likely to be located in the migration sending states. Additionally, like the results in Table 2.2, the magnitude of the coefficient of the proxy for the strength of the network (i.e. the percentage of the state population that hails from migration sending states) increases with the number of migration sending states in consideration. Comparing the subsample with acquirers and targets in the same industry to those with acquirers and targets from different industries, the effect appears stronger for the horizontal acquisitions when top 1 migration state is examined. However, when top 2 or 3 migration sending states are used in the tests, the magnitude of the migration flows variable coefficient is greater when acquirers and targets are in different industries. Hence, the results support the notion that migration networks influence corporate expansions via takeovers by providing valuable information to overcome the uncertainty associated with targets from different industries.

4.3 Economic Links vs. Information Advantage #2: Neighboring and Non-Neighboring States

Secondly, this paper examines whether the relation between migration flows and takeovers varies depending on whether the flows involve neighboring states or non-neighboring ones. If the relation is driven mostly by the fundamental ties that link states associated with migration flows, the effect would be stronger when the migration network involves bordering states as closer states are more likely to have stronger economic and business links. On the contrary, if the relation is also driven by information advantage, a stronger effect is expected within non-bordering migration networks since uncertainty about targets increases with distance. The main analysis is repeated separately for the subsamples of migration sending states that are sharing borders with the corresponding receiving state and those not sharing borders with their receiving state. More specifically, each migration receiving state's top 3 sending states are classified into either a group of bordering sending states or a group of non-bordering sending states.

Table 2.4 shows the result. In general, the probability of a target being from the migration sending states is positively related to the intensity of migration flows only when the migration sending states are non-bordering ones. With non-bordering migration sending states, the migration flow variable exhibits positive and significant coefficients in every model specification, and the magnitude of the coefficient increases monotonically with each additional migration sending state added to the test. In contrast, when bordering migration sending states are considered, the coefficient of migration network variable is positive only when top 1 sending state is used. The coefficient difference between bordering and non-bordering migration networks is also statistically significant. Thus, this finding supports the notion that the access to soft information in a strong migration network influences the choice of targets and mitigates the effect of uncertainty associated with distance.

4.4 Economic Links vs. Information Advantage #3: Target Size

Additionally, I also examine if the association between strength of migration network and the probability of takeover targets being from the migration states varies with target size. In the absence of information asymmetry the propensity to show preference for targets from migration sending states should not be a function of the target's size. If however, migration networks allow for access to soft information that is particularly valuable in cases involving greater information asymmetry, then it is expected that the association would be stronger when targets are smaller. Firm size is an important factor affecting the degree of information asymmetry as large firms have relatively massive amount of knowledge commonly available due to analyst coverage and high investor attention (see, e.g., Frankel and Li (2004)) while small firms are the opposite.

The results shown in Table 2.5 support the information advantage explanation. A significant linkage between migration flows and target being from the migration sending states is the strongest when targets are small. For larger targets, the statistical significance of the migration flow variable coefficient is generally much weaker. These results show that the effect of migration network as a source of soft-information advantage in takeovers is influential when there exists greater information asymmetry about target. In sum, while the linked economies explanation could coexist with the information advantage, the results in Tables 2.3, 2.4, and 2.5 generally lend more support to the information advantage explanation.

4.5 Takeover Premium and Announcement Returns

This study now turns its attention to different aspects of takeover transactions. Several past studies have shown that information advantage can be a factor influencing several dimensions of acquisition activity such as premiums and announcement returns, and many of those papers assert that such effect is more influential with greater information asymmetry about target. For instance, Dionne, La Haye, and Bergeres (2015) argue that whether informed bidders in acquisitions increase or decrease acquisition premiums depends on the magnitude of information asymmetry around the target firm. Particularly, they find that acquisition premiums are lower when there are informed bidders in an acquisition of a target with high information asymmetry. Additionally, Kang and Kim (2008) examine the importance of geographic proximity using a large sample of partial block acquisitions, and they find that geographically closer targets realize higher announcement returns and better post-announcement operating performance. Moreover, they find that such effect is more pronounced when targets are small, with a higher level of R&D investments, with high insider ownership, or when they experience poor past performance. Their research suggests that the benefit of geographic proximity is more likely to be valuable for firms with high information asymmetries. Bick et al. (2017) also find that small targets receive lower premiums and have a faster time to completion the closer they are to their acquirer due to the fact that geographic proximity ameliorates information asymmetry.

Similarly, if migration networks can prove useful in providing information advantages, they could also affect other aspects of acquisition activity and such effects would be more pronounced for targets with greater information asymmetry. Hence, in Table 2.6, I examine if there is any association between target's location and takeover premium across different subsamples of targets sorted on size. Takeover premium is computed as the difference between the offer price and the target's stock price 4 weeks before the acquisition announcement, divided by the latter. The results show that the takeover premium tends to be significantly lower when targets from the migration sending state(s) are small, whereas there is no significant association for larger targets. The coefficient difference between small targets and larger targets is also statistically significant.

In a similar setting, in Table 2.7 I test the association between whether target is from the migration sending state(s) and the acquirer's 3-day cumulative abnormal returns around the takeover announcement. I find that small targets are from migration sending state(s) tend to be associated with higher acquirer announcement returns. On the contrary, acquirers' announcement returns are not significantly associated with targets from the migration sending state(s) when those targets are not small. Hence, in sum, the results in Tables 2.6 and 2.7 present evidence that supports the view that information advantages arising from migration networks are valuable for acquirers only when targets are small, i.e., more likely to be associated with substantial information asymmetry.

It has been often documented in the literature that institutional investors are better informed and more sophisticated, on average (Nofsinger and Sias (1999), Bartov, Radhakrishnar, and Krinsky (2000), Chakravarty (2001), Cohen, Gompers, and Vuolteenaho (2002), Jiambalvo, Rajgopal, and Venkatachalam (2002), Collins, Gong, and Hribar (2003), Gibson, Safieddine, and Sonti (2004), Ke and Petroni (2004), Amihud and Li (2006), Sias, Starks, and Titman (2006), Choi and Sias (2012), and Boone and White (2015)). Thus, their presence (or lack thereof), is associated with lower (greater) degrees of informational asymmetry. In Table 2.8 I run the takeover premium regressions separately for four groups of acquisition samples sorted by target size and institutional ownership. Similar to the previous results, the informational advantage arising from migration network seems more meaningful when acquisitions involve targets with greater informational asymmetry. Specifically, as shown in Table 2.8, the acquisition premium is significantly lower for targets from the migration sending states that are small and have low levels of institutional ownership. For all other size and institutional ownership subsamples, the coefficient of the target location is insignificant.

In Table 2.9, I follow the same structure as in Table 2.8, but instead of takeover premium, I focus on the effect of migration network on acquirer announcement returns. Similar to the takeover premium results, acquisitions of targets in the migration sending states are associated with acquirers' higher announcement returns only when those targets are small with low institutional ownership. When either of the two criteria is not satisfied, targets from the migration sending states are not associated with acquirer's announcement returns. In sum, the results are in accordance with the idea that acquirers could benefit from information advantages provided by migration networks, but when the targets are associated with a significant degree of information asymmetry.

5. Summary and Conclusions

The finance literature provides abundant evidence regarding different factors influencing corporate takeovers, which include geographic proximity, social networks, and political connections. This study expands this strand of finance literature by relating acquisitions with the availability of social and business networks formed via interstate migration flows, a type of demographic information that is not utilized extensively in M&A studies. Migration flows between sending and receiving states are identified using information about people's states of birth and states of current residence available from the U.S. Census Bureau website. For each receiving state, sending states are ranked by the percentage of receiving state's nonnative population who moved from the sending states, and up to three top ranked sending states along with the receiving state are defined as major migration network in this study.

The main finding of this paper is that targets are more likely to be from the migration sending states when migration networks are sturdier. To test the relative importance of two potential explanations, the strengthening of economic/business ties between areas linked via migration flows and the information advantage these networks can provide, I perform a slew of additional tests. The results support the notion that the information advantage is at least a partial driver of the propensity to choose targets from migration sending states, especially when information asymmetry is more pronounced. It is found that targets are more likely to be from migration sending states with stronger migration flows when acquirer and target are in different industries. Additionally, the association between migration flows and location of targets being in migration sending state is stronger when migration network involves non-neighboring states and when targets are small.

Focusing on target size and level of institutional ownership as indicators of information asymmetry, this paper finds that takeover premium is smaller and acquirer announcement returns are higher when small targets with low institutional ownership are from the migration sending states. These results substantiate the view that migration networks allow for better access to and easier transmission of soft information leading to an informational advantage to acquirers, and the effect of such information advantage is pronounced only when targets are associated with substantial degree of informational asymmetry.

In summary, this paper shows that domestic population movements have significant implications for the corporate acquisitions market. Particularly, the findings presented here provide evidence that migration networks can potentially be a source of information advantage to acquirers looking for target firms in migration sending states. Furthermore, this paper can provide the motivation for future work on the potential influence of domestic population movements on other aspects of corporate finance.

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Table 2.1
Descriptive statistics

This table provides descriptive statistics for the sample. Refer to Essay 2 Appendix for detailed variable descriptions.

	N	Mean	Std. Dev.	10th percentile	Median	90th percentile
Panel A: Variables related to migration sending state						
% of population from the migration sending state	7,619	0.0505	0.0387	0.0219	0.0345	0.1138
Number of firms in the migration sending state	7,619	783.4	470.7	119.0	947.0	1,260.0
Panel B: Acquirer characteristics						
Acquirer market value	4,830	7.7958	2.1937	4.9933	7.8205	10.6094
Acquirer B/M	4,830	0.2334	0.2503	0.0634	0.1763	0.4615
Acquirer leverage	4,947	0.6649	1.7047	0.2514	0.6396	0.9289
Acquirer cash flows	4,361	0.0134	0.2164	-0.0155	0.0260	0.0772
Acquirer cash reserves	4,930	0.1443	0.1815	0.0120	0.0672	0.4095
Acquirer ROA	4,953	-0.0609	3.8093	-0.0553	0.0180	0.1152
Acquirer sales growth	4,776	0.4122	7.4292	-0.0632	0.1305	0.6800
Acquirer net loss	5,037	0.1545	0.3614	0.0000	0.0000	1.0000
Panel C: Target characteristics						
Target from the migration sending state	7,619	0.0739	0.2616	0.0000	0.0000	0.0000
Target market value	5,280	5.8694	1.9215	3.4014	5.7986	8.3336
Target B/M	5,280	0.2962	0.2876	0.0636	0.2443	0.6035
Target leverage	5,410	0.6110	0.4517	0.1905	0.5949	0.9283
Target cash flows	5,018	-0.0114	0.2065	-0.1306	0.0215	0.0900
Target cash reserves	5,414	0.1710	0.2147	0.0086	0.0720	0.5202
Target ROA	5,429	-0.0730	0.8174	-0.2768	0.0118	0.1017
Target sales growth	5,240	0.3407	2.1723	-0.1403	0.1002	0.6829
Target net loss	5,547	0.3157	0.4648	0.0000	0.0000	1.0000
Panel D: Deal characteristics						
Horizontal	7,619	0.5954	0.4909	0.0000	1.0000	1.0000
Cash	7,619	0.2596	0.4385	0.0000	0.0000	1.0000
Tender offer	7,619	0.1309	0.3373	0.0000	0.0000	1.0000
Hostile	7,619	0.0622	0.2416	0.0000	0.0000	0.0000
Competing	7,619	0.0613	0.2399	0.0000	0.0000	0.0000
Panel E: Takeover premium and 3-day CAR						
Premium	5,826	0.4789	1.1126	0.0212	0.3565	0.9368
CAR	4,518	-0.0081	0.0838	-0.0812	-0.0071	0.0581

Table 2.2
Probability of target being from the migration sending states

This table reports the estimated coefficients from the Probit regressions where the dependent variable is dummy variable which equals one if target is from the migration sending state(s). The key explanatory variable is percentage of population from the migration sending state(s). Other control variables are number of firms in the migration sending state(s), acquirer characteristics, target characteristics, and deal characteristics. Year and industry fixed effects are based on calendar year dummies and Fama-French 49 industry classification dummies, respectively. The *z*-statistics reported in parentheses are based on standard errors adjusted for firm clustering. Refer to Essay 2 Appendix for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Dependent variable: Target from the migration sending state(s)					
	Top 1		Top 2		Top 3	
		Marginal effect		Marginal effect		Marginal effect
% of population from the migration sending state(s)	3.1248***	0.3584***	3.8437***	0.7318***	5.4702***	1.2870***
	(3.73)		(3.43)		(3.60)	
Number of firms in the migration sending state(s)	0.0006***	0.0001***	0.0004***	0.0001***	0.0004***	0.0001***
	(6.10)		(3.98)		(2.91)	
Acquirer market value	0.0063	0.0007	0.0053	0.0010	0.0109	0.0026
	(0.26)		(0.24)		(0.55)	
Acquirer B/M	0.3103	0.0356	0.1999	0.0381	0.2080	0.0489
	(1.32)		(0.89)		(0.99)	
Acquirer leverage	0.1927	0.0221	0.2683	0.0511	0.3020	0.0711
	(0.82)		(1.27)		(1.55)	
Acquirer cash flows	0.1961	0.0225	0.0790	0.0150	0.2592	0.0610
	(0.47)		(0.20)		(0.64)	
Acquirer cash reserves	0.3059	0.0351	0.2904	0.0553	0.3172	0.0746
	(1.29)		(1.35)		(1.59)	
Acquirer ROA	-0.1116	-0.0128	0.0389	0.0074	-0.0712	-0.0168
	(-0.42)		(0.15)		(-0.28)	
Acquirer sales growth	-0.0308	-0.0035	-0.0319	-0.0061	-0.0230	-0.0054
	(-0.78)		(-1.03)		(-0.86)	
Acquirer net loss	0.1323	0.0163	0.0627	0.0123	0.0747	0.0180
	(1.12)		(0.59)		(0.74)	
Target market value	0.0266	0.0031	0.0389	0.0074	0.0417*	0.0098*
	(0.89)		(1.57)		(1.80)	
Target B/M	0.1685	0.0193	0.2986**	0.0568**	0.2617**	0.0616**
	(1.17)		(2.29)		(2.08)	
Target leverage	0.0430	0.0049	0.0869	0.0166	0.0777	0.0183
	(0.48)		(1.05)		(0.93)	
Target cash flows	0.0465	0.0053	0.0796	0.0152	0.0458	0.0108
	(0.22)		(0.39)		(0.23)	
Target cash reserves	-0.0329	-0.0038	-0.1551	-0.0295	-0.2149	-0.0506
	(-0.16)		(-0.84)		(-1.22)	
Target ROA	-0.2163	-0.0248	-0.1218	-0.0232	-0.0708	-0.0167
	(-1.61)		(-0.96)		(-0.56)	
Target sales growth	-0.0038	-0.0004	0.0211*	0.0040*	0.0172	0.0040
	(-0.30)		(1.86)		(1.52)	
Target net loss	0.0245	0.0028	0.0807	0.0156	0.0536	0.0127
	(0.27)		(1.00)		(0.71)	
Horizontal	0.1624*	0.0183*	0.1633*	0.0306*	0.0903	0.0211
	(1.66)		(1.90)		(1.14)	
Cash	0.0434	0.0050	-0.0188	-0.0036	0.0078	0.0018
	(0.48)		(-0.23)		(0.11)	

Table 2.2 (Continued)

Tender offer	-0.1913*	-0.0199*	-0.1499	-0.0269	-0.0408	-0.0095
	(-1.81)		(-1.62)		(-0.49)	
Hostile	0.1140	0.0141	0.0179	0.0034	-0.0586	-0.0134
	(0.76)		(0.13)		(-0.45)	
Competing	-0.0516	-0.0057	-0.1248	-0.0222	-0.1235	-0.0275
	(-0.37)		(-0.98)		(-1.03)	
Constant	-5.2215***		-2.5962**		-2.5086**	
	(-6.39)		(-2.37)		(-2.44)	
Year-fixed	Yes		Yes		Yes	
Industry-fixed	Yes		Yes		Yes	
N	2,916		2,999		3,019	
Pseudo R-squared	0.1052		0.0600		0.0432	

Table 2.3

Probability of target being from the migration sending states by industry similarity

This table reports the estimated coefficients from the Probit regressions separately for two groups sorted by whether the acquirer and target are in the same industry or not based on Fama-French 49 industry classification. The dependent variable is dummy variable which equals one if target is from the migration sending state(s). The key explanatory variable is percentage of population from the migration sending state(s). Other control variables are number of firms in the migration sending state(s), acquirer characteristics, target characteristics, and deal characteristics. Year and industry fixed effects are based on calendar year dummies and Fama-French 49 industry classification dummies, respectively. The *z*-statistics reported in parentheses are based on standard errors adjusted for firm clustering. Refer to Essay 2 Appendix for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Dependent variable: Target from the migration sending state(s)					
	Top 1		Top 2		Top 3	
Industry	Same	Different	Same	Different	Same	Different
% of population from the migration sending state(s)	3.5943***	2.5136*	3.9819***	4.0853***	5.1171****	6.3043***
	(3.21)	(1.85)	(2.61)	(2.60)	(2.48)	(2.71)
Number of firms in the migration sending state(s)	0.0005***	0.0008***	0.0003**	0.0005***	0.0002	0.0006***
	(4.16)	(4.73)	(2.44)	(3.29)	(1.37)	(3.10)
Acquirer characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes	Yes	Yes
N	1,625	1,084	1,682	1.191	1,726	1,227
Pseudo R-squared	0.1113	0.1720	0.0688	0.1002	0.0495	0.0859
	(% of population from the migration sending state(s)) coefficient difference (Different – Same)					
Difference	-1.0807		0.1034		1.1872	
	[0.270]		[0.481]		[0.351]	

Table 2.4

Probability of target being from the bordering and non-bordering migration sending states

This table reports the estimated coefficients from the Probit regressions separately for two groups based on whether the migration sending states share borders with the corresponding receiving state or not. The dependent variable is dummy variable which equals one if target is from the migration sending state(s). The key explanatory variable is percentage of population from the migration sending state(s). Other control variables are number of firms in the migration sending state(s), acquirer characteristics, target characteristics, and deal characteristics. Year and industry fixed effects are based on calendar year dummies and Fama-French 49 industry classification dummies, respectively. The *z*-statistics reported in parentheses are based on standard errors adjusted for firm clustering. Refer to Essay 2 Appendix for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Dependent variable: Target from the migration sending state(s)					
	Top 1		Top 2		Top 3	
Industry	Bordering	Non-bordering	Bordering	Non-bordering	Bordering	Non-bordering
% of population from the migration sending state(s)	3.0091*** (2.78)	3.8891* (1.77)	0.9285 (0.74)	8.6766*** (3.48)	-1.5419 (-1.03)	12.5985*** (5.68)
Number of firms in the migration sending state(s)	0.0005*** (4.01)	0.0025*** (7.83)	0.0008*** (5.87)	0.0011*** (5.80)	0.0008*** (5.27)	0.0006*** (5.41)
Acquirer characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes	Yes	Yes
N	1,819	970	2,307	1,275	2,349	1,928
Pseudo R-squared	0.1339	0.2676	0.1084	0.1627	0.0848	0.1375
	(% of population from the migration sending state(s)) coefficient difference (Non-bordering – Bordering)					
Difference	0.8800 [0.360]		7.7481*** [0.003]		14.1404*** [0.000]	

Table 2.5

Probability of target being from the migration sending states by target size

This table reports the estimated coefficients from the Probit regressions separately for the groups sorted by target size. The dependent variable is dummy variable which equals one if target is from the migration sending state(s). The key explanatory variable is percentage of population from the migration sending state(s). Other control variables are number of firms in the migration sending state(s), acquirer characteristics, target characteristics, and deal characteristics. Year and industry fixed effects are based on calendar year dummies and Fama-French 49 industry classification dummies, respectively. The *z*-statistics reported in parentheses are based on standard errors adjusted for firm clustering. Refer to Essay 2 Appendix for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Dependent variable: Target from the migration sending state(s)					
	Top 1		Top 2		Top 3	
Target size	Small	Others	Small	Others	Small	Others
% of population from the migration sending state(s)	4.3599***	2.9557***	5.4996***	3.4313**	9.4289***	4.5381*
	(2.99)	(2.70)	(2.96)	(2.32)	(3.73)	(1.65)
Number of firms in the migration sending state(s)	0.0014***	0.0004***	0.0006***	0.0004***	0.0005**	0.0005**
	(5.39)	(3.82)	(3.04)	(3.30)	(2.44)	(2.35)
Acquirer characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes	Yes	Yes
N	787	1,846	949	1,923	995	1,932
Pseudo R-squared	0.2709	0.1006	0.1563	0.0857	0.1281	0.0644
	(% of population from the migration sending state(s)) coefficient difference (Small – Others)					
Difference	1.4042		2.0683		4.8791*	
	[0.221]		[0.192]		[0.065]	

Table 2.6
Takeover premium by target size

This table reports the estimated coefficients from the regressions separately for the groups sorted by target size. The dependent variable is takeover premium which is computed as the difference between the offer price and the target's stock price 4 weeks before the acquisition announcement divided by the latter. The key explanatory variable is percentage of population from the migration sending state(s). Other control variables are acquirer characteristics, target characteristics, and deal characteristics. Year and industry fixed effects are based on calendar year dummies and Fama-French 49 industry classification dummies, respectively. The *t*-statistics reported in parentheses are based on standard errors adjusted for firm clustering. Refer to Essay 2 Appendix for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Dependent variable: Premium					
	Top 1		Top 2		Top 3	
Target size	Small	Others	Small	Others	Small	Others
Target from the migration sending state(s)	-0.1449**	-0.0063	-0.1515**	-0.0099	-0.0744	-0.0001
	(-2.00)	(-0.18)	(-2.17)	(-0.39)	(-1.21)	(-0.94)
Acquirer characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes	Yes	Yes
N	921	1,844	921	1,844	921	1,844
Pseudo R-squared	0.1444	0.1022	0.1458	0.1025	0.1430	0.1029
	(Target from the migration sending state(s)) coefficient difference (Small – Others)					
Difference	-0.1386**		-0.1416**		-0.0743	
	[0.042]		[0.028]		[0.113]	

Table 2.7

Acquirer announcement returns by target size

This table reports the estimated coefficients from the regressions separately for the groups sorted by target size. The dependent variable is acquirer 3-day cumulative abnormal returns. The key explanatory variable is percentage of population from the migration sending state(s). Other control variables are acquirer characteristics, target characteristics, and deal characteristics. Year and industry fixed effects are based on calendar year dummies and Fama-French 49 industry classification dummies, respectively. The *t*-statistics reported in parentheses are based on standard errors adjusted for firm clustering. Refer to Essay 2 Appendix for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Dependent variable:3-day CAR					
	Top 1		Top 2		Top 3	
Target size	Small	Others	Small	Others	Small	Others
Target from the migration sending state(s)	0.0274**	-0.0029	0.0226**	-0.0011	0.0200**	-0.0012
	(2.16)	(-0.47)	(2.28)	(-0.25)	(2.37)	(-0.29)
Acquirer characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes	Yes	Yes
N	916	1,743	916	1,743	916	1,743
Pseudo R-squared	0.1516	0.1601	0.1510	0.1601	0.1507	0.1600
	(Target from the migration sending state(s)) coefficient difference (Small – Others)					
Difference	0.0303**		0.0237**		0.0212**	
	[0.016]		[0.014]		[0.012]	

Table 2.8
Takeover premium by institutional ownership and target size

This table reports the estimated coefficients from the regressions separately for four groups sorted by institutional ownership and target size. The dependent variable is takeover premium which is computed as the difference between the offer price and the target's stock price 4 weeks before the acquisition announcement divided by the latter. The key explanatory variable is percentage of population from the migration sending state(s). Other control variables are acquirer characteristics, target characteristics, and deal characteristics. Year and industry fixed effects are based on calendar year dummies and Fama-French 49 industry classification dummies, respectively. The *t*-statistics reported in parentheses are based on standard errors adjusted for firm clustering. Refer to Essay 2 Appendix for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

Panel A: Top 1

	Dependent variable: Premium			
Institutional ownership	Low		High	
Target size	Small	Large	Small	Large
Target from the migration sending state	-0.2120***	-0.0043	-0.1268	0.0572
	(-2.70)	(-0.09)	(-1.47)	(0.72)
Acquirer characteristics	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes
N	550	579	588	667
Pseudo R-squared	0.2308	0.3052	0.2126	0.1685
	(Target from the migration sending state) coefficient difference (Small – Large)			
Difference	-0.2077**		-0.184*	
	[0.012]		[0.058]	

Panel B: Top 2

	Dependent variable: Premium			
Institutional ownership	Low		High	
Target size	Small	Large	Small	Large
Target from the migration sending states	-0.1810***	-0.0434	-0.1069	0.0180
	(-2.91)	(-1.24)	(-1.34)	(0.32)
Acquirer characteristics	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes
N	550	579	588	667
Pseudo R-squared	0.2323	0.3070	0.2124	0.1683
	(Target from the migration sending states) coefficient difference (Small – Large)			
Difference	-0.1376**		-0.1249	
	[0.027]		[0.100]	

Table 2.8 (Continued)
Panel C: Top 3

	Dependent variable: Premium			
Institutional ownership	Low		High	
Target size	Small	Large	Small	Large
Target from the migration sending states	-0.1229*	-0.0327	-0.0309	0.0019
	(-1.90)	(-1.03)	(-0.50)	(0.03)
Acquirer characteristics	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes
N	550	579	588	667
Pseudo R-squared	0.2290	0.3064	0.2108	0.1682
	(Target from the migration sending states) coefficient difference (Small – Large)			
Difference	-0.0902		-0.0328	
	[0.105]		[0.472]	

Table 2.9

Acquirer announcement returns by institutional ownership and target size

This table reports the estimated coefficients from the regressions separately for four groups sorted by institutional ownership and target size. The dependent variable is acquirer 3-day cumulative abnormal returns. The key explanatory variable is percentage of population from the migration sending state(s). Other control variables are acquirer characteristics, target characteristics, and deal characteristics. Year and industry fixed effects are based on calendar year dummies and Fama-French 49 industry classification dummies, respectively. The *t*-statistics reported in parentheses are based on standard errors adjusted for firm clustering. Refer to Essay 2 Appendix for detailed variable descriptions. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

Panel A: Top 1

	Dependent variable: 3-Day CAR			
Institutional ownership	Low		High	
Target size	Small	Large	Small	Large
Target from the migration sending state	0.0426**	0.0092	-0.0116	0.0030
	(2.47)	(0.90)	(-1.18)	(0.28)
Acquirer characteristics	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes
N	576	576	599	650
Pseudo R-squared	0.2426	0.3132	0.1824	0.2499
	(Target from the migration sending state) coefficient difference (Small – Large)			
Difference	0.0334**		-0.0146	
	[0.047]		[0.158]	

Panel B: Top 2

	Dependent variable: 3-Day CAR			
Institutional ownership	Low		High	
Target size	Small	Large	Small	Large
Target from the migration sending states	0.0348***	0.0047	-0.0094	-0.0019
	(3.06)	(0.66)	(-1.07)	(-0.21)
Acquirer characteristics	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes
N	576	576	599	650
Pseudo R-squared	0.2440	0.3124	0.1821	0.2498
	(Target from the migration sending states) coefficient difference (Small – Large)			
Difference	0.0301**		0.0075	
	[0.012]		[0.276]	

Table 2.9 (Continued)
Panel C: Top 3

	Dependent variable: 3-Day CAR			
Institutional ownership	Low		High	
Target size	Small	Large	Small	Large
Target from the migration sending states	0.0342***	0.0086	-0.0047	-0.0046
	(3.50)	(1.31)	(-0.62)	(-0.60)
Acquirer characteristics	Yes	Yes	Yes	Yes
Target characteristics	Yes	Yes	Yes	Yes
Deal characteristics	Yes	Yes	Yes	Yes
Year-fixed	Yes	Yes	Yes	Yes
Industry-fixed	Yes	Yes	Yes	Yes
N	576	576	599	650
Pseudo R-squared	0.2473	0.3142	0.1810	0.2502
	(Target from the migration sending states) coefficient difference (Small – Large)			
Difference	0.0256**		-0.0001	
	[0.015]		[0.496]	

APPENDICES

Essay 1 Appendix A: Robustness Checks
Table A.1
Market index excluding local and migration state stocks

Panel A reports betas from the analysis done at the firm level. For each stock in the sample, I estimate the firm's regression of weekly returns on the Carhart's (1997) 4 factors, local returns, and migration state(s) returns.

$$R_w^{I,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{LOC}(R_w^{LOC} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

In Panel B the analysis is done at the state level. For each state, I estimate the regression of weekly state returns on the Carhart's (1997) 4 factors and migration state(s) returns.

$$R_w^{STATE,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

where $R_w^{I,y}$ = the weekly return of an individual firm *I* in state *y*. $R_w^{STATE,y}$ = the equally-weighted return of all stocks in a state *y*. R_w^F = the one-week Treasury bill rate. R_w^{MIG} = the return of an index consisting of state *y*'s top 1 (or top 2, or top 3) migration sending state(s) equally-weighted portfolio(s) where the weight of each sending state portfolio return in the index corresponds to the portion of *y*'s nonnative population born in the sending state. R_w^{LOC} = the equally-weighted return of all stocks from the firm's corresponding state *y*, excluding the firm itself. R_w^{MKT} = the value-weighted return of all stocks in the market excluding all stocks from the firm's state *y* and the migration sending state(s). SMB_w (small minus big) = the weekly difference between the returns on small and big firms. HML_w (high minus low) = the weekly difference between the returns on high book-to-market and low book-to-market firms. UMD_w (up minus down) = the momentum factor computed as the weekly difference of the returns on winner and loser firms. The averages of the estimated coefficients (betas) and their *t*-statistics are presented in the table. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

Panel A: Firm-level

	Top 1	Top 2	Top 3	Excluding bordering states
β_{MIG}	0.3703***	0.4050***	0.4464***	0.3567***
	(25.29)	(17.04)	(17.27)	(29.65)
β_{LOC}	0.5919***	0.5613***	0.5290***	0.6220***
	(43.87)	(32.56)	(42.70)	(57.66)
β_{MKT}	0.0365**	0.0330*	0.0266	0.0134
	(2.80)	(2.24)	(1.12)	(1.42)
β_{SMB}	0.0008***	0.0007***	0.0006***	0.0007***
	(6.85)	(5.82)	(5.12)	(9.26)
β_{HML}	0.0001	0.0002	-0.0001	-0.0001
	(0.90)	(1.00)	(-0.85)	(-1.70)
β_{UMD}	-0.0000	-0.0001	0.0001	-0.0001
	(-0.11)	(-0.61)	(0.62)	(-1.73)

Panel B: State-level comovement

	Top 1	Top 2	Top 3	Excluding bordering states
β_{MIG}	0.6644***	0.7409***	0.7821***	0.6348***
	(22.21)	(26.20)	(29.36)	(14.98)
β_{MKT}	0.3103***	0.2388***	0.2009***	0.3441***
	(10.65)	(8.67)	(7.76)	(9.08)
β_{SMB}	0.0014***	0.0010***	0.0009***	0.0016***
	(6.79)	(5.75)	(5.02)	(8.77)
β_{HML}	0.0014***	0.0012***	0.0011***	0.0014***
	(6.83)	(6.01)	(5.32)	(5.81)
β_{UMD}	-0.0011***	-0.0003***	-0.0003***	-0.0006***
	(-4.84)	(-3.82)	(-3.12)	(-4.28)

Table A.2

Migration flow based on states of last year residence and comovement

Panel A reports the average of migration comovement measures where migration flow is based on people's states of last year residence (state-to-state migration flow). For each stock in the sample, I estimate the firm's regression of weekly returns on the Carhart's (1997) 4 factors, local returns, and migration state(s) returns.

$$R_w^{I,y} - R_w^F = \alpha + \beta_{MIG}(R_w^{MIG} - R_w^F) + \beta_{LOC}(R_w^{LOC} - R_w^F) + \beta_{MKT}(R_w^{MKT} - R_w^F) + \beta_{SMB}SMB_w + \beta_{HML}HML_w + \beta_{UMD}UMD_w + e_w.$$

where $R_w^{I,y}$ = the weekly return of an individual firm *I* in state y. R_w^F = the one-week Treasury bill rate. R_w^{MIG} = the return of an index consisting of state y's top 1 (or top 2, or top 3) migration sending state(s) equally-weighted portfolio(s) where the weight of each sending state portfolio return in the index corresponds to the portion of y's nonnative population from the sending state. R_w^{LOC} = the equally-weighted return of all stocks from the firm's corresponding state *y*, excluding the firm itself. R_w^{MKT} = the value-weighted return of all stocks in the market. SMB_w (small minus big) = the weekly difference between the returns on small and big firms. HML_w (high minus low) = the weekly difference between the returns on high book-to-market and low book-to-market firms. UMD_w (up minus down) = the momentum factor computed as the weekly difference of the returns on winner and loser firms. The averages of the estimated coefficients (betas) and their *t*-statistics are presented in the table. Panel B reports coefficient estimates from Fama-MacBeth regressions of migration comovement measure estimated in Panel A. Refer to Essay 1 Appendix B for detailed variable descriptions. *T*-statistics are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

Panel A: Migration comovement

	Top 1	Top 2	Top 3
β_{MIG}	0.2035**	-.2258**	0.3041***
	(3.06)	(2.50)	(4.53)
β_{LOC}	0.7059***	0.7085***	0.6452***
	(11.14)	(7.49)	(12.52)
β_{MKT}	0.0420	0.0125	0.0117
	(1.79)	(0.34)	(0.66)
β_{SMB}	0.0005**	0.0003*	0.0002
	(3.16)	(2.23)	(1.11)
β_{HML}	0.0006	0.0004	0.0006
	(1.47)	(1.08)	(1.25)
β_{UMD}	-0.0004**	-0.0003**	-0.0004**
	(-2.99)	(-2.72)	(-2.75)

Table A.2 (Continued)

Panel B: Fama-MacBeth regressions			
Dependent variable: Migration comovement (β_{MIG} from the firms' regression of weekly returns)			
	Top 1	Top 2	Top 3
Turnover	-0.0621	-0.0966	-0.1872
	(-1.10)	(-1.22)	(-1.40)
Size	-0.1663***	-0.1659***	-0.1538**
	(-6.81)	(-6.45)	(-3.23)
B/M	0.0253	0.1811*	-0.0758
	(0.49)	(2.08)	(-0.45)
Leverage	0.2082	0.1374	0.2891
	(1.77)	(1.14)	(1.62)
3-year ROA	-0.2739*	-0.3815**	-0.3507*
	(-2.06)	(-2.49)	(-2.11)
Firm age	0.0309	0.0456	-0.0298
	(1.25)	(1.60)	(-0.48)
Previous year stock return	-0.0824	-0.0810	-0.1202
	(-1.29)	(-1.13)	(-0.90)
Dividend yield	0.4171	0.3742	0.2965
	(1.50)	(0.89)	(0.44)
3-year R&D expenditures	0.0460	-0.2081	-1.9213
	(0.11)	(-0.39)	(-1.00)
3-year advertising expenditures	0.6383	0.2367	0.3224
	(1.34)	(0.78)	(0.92)
Number of firms in the migration receiving state	-0.0003**	-0.0002*	-0.0002
	(-3.47)	(-2.44)	(-1.89)
Number of firms in the migration sending state(s)	0.0001	-0.0001	0.0007
	(0.21)	(-0.44)	(0.85)
Non-bordering dummy	0.1090***	0.0358	-0.0537
	(3.91)	(0.59)	(-0.53)
% of population from the migration sending state(s)	2.9437*	4.8343**	1.3064
	(2.31)	(2.56)	(0.34)
Industry cluster	-0.0442	-0.0439*	0.0169
	(-1.64)	(-2.02)	(0.54)
Same industry firms in the migration sending state(s)	1.1546**	0.4978	1.0334
	(3.27)	(1.44)	(0.72)
% of market portfolio represented by the migration sending state(s)	-0.5284	0.3565	-1.1122
	(-0.29)	(0.46)	(-0.30)
PAC	0.2344**	0.1440*	0.0946
	(3.54)	(2.36)	(0.86)
Constant	2.2794***	2.2699***	2.3603***
	(6.04)	(6.14)	(4.18)
N. of observations	18,818	18,818	18,818
R-squared	0.031	0.026	0.004

Table A.3
Determinants of migration comovement

Coefficient estimates from regressions of migration comovement measure on firm, state, and migration state(s) characteristics are presented in the table. The dependent variable is the estimated coefficient (beta) from the individual firm's regression of weekly returns on the Carhart's (1997) 4 factors, local returns, and migration state(s) returns. Refer to Essay 1 Appendix B for detailed variable descriptions. Standard errors are robust to clustering at the firm level or clustering at the firm and year level or coefficients are reported after controlling for industry fixed effects according to the Fama and French 48-industry classifications. *T*-statistics are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10%-levels, respectively.

	Dependent variable: Migration comovement (β_{MIG} from the firms' regression of weekly returns)								
	Clustering at the firm level			Clustering at the firm and year level			Industry fixed effects		
	Top 1	Top 2	Top 3	Top 1	Top 2	Top 3	Top 1	Top 2	Top 3
Turnover	-0.0773	0.0468	-0.0146	-0.0773	0.0468	-0.0146	-0.0869*	0.0382	0.0085
	(-0.98)	(1.07)	(-0.30)	(-0.85)	(0.77)	(-0.26)	(-1.92)	(0.89)	(0.20)
Size	-0.0615***	-0.1024***	-0.1068***	-0.0615***	-0.1024***	-0.1068***	-0.0667***	-0.1064***	-0.1113***
	(-3.04)	(-7.44)	(-9.07)	(-3.10)	(-7.09)	(-7.33)	(-6.08)	(-10.16)	(-10.84)
B/M	0.3081	-0.0083	0.1982	0.3081	-0.0083	0.1982	0.3211***	0.0108	0.2249***
	(1.36)	(-0.07)	(1.16)	(1.45)	(-0.10)	(1.37)	(5.75)	(0.20)	(4.35)
Leverage	-0.1448	0.0810	0.0746	-0.1448	0.0810	0.0746	-0.1616	0.1239	0.0797
	(-1.08)	(0.63)	(0.54)	(-1.16)	(0.67)	(0.64)	(-1.39)	(1.12)	(0.74)
3-year ROA	-0.3613***	-0.3017***	-0.3529***	-0.3613***	-0.3017***	-0.3529***	-0.3344***	-0.2777***	-0.3167***
	(-3.08)	(-4.62)	(-4.87)	(-3.02)	(-4.18)	(-4.11)	(-4.87)	(-4.27)	(-4.98)
Firm age	-0.0489*	-0.0062	0.0081	-0.0489*	-0.0062	0.0081	-0.0335	0.0059	0.0150
	(-1.72)	(-0.22)	(0.36)	(-1.84)	(-0.21)	(0.27)	(-1.35)	(0.25)	(0.65)
Previous year stock return	-0.0131	-0.0518***	-0.0636***	-0.0131	-0.0518***	-0.0636***	-0.0117	-0.0491***	-0.0610***
	(-0.56)	(-3.76)	(-3.99)	(-0.54)	(-3.14)	(-3.25)	(-0.59)	(-2.62)	(-3.32)
Dividend yield	-0.0750	0.1157	-0.7405**	-0.0750	0.1157	-0.7405**	0.0728	0.3358	-0.6726*
	(-0.13)	(0.19)	(-2.46)	(-0.13)	(0.19)	(-2.34)	(0.19)	(0.91)	(-1.86)
3-year R&D expenditures	-0.6545	-0.1745	-0.4469*	-0.6545	-0.1745	-0.4469	-0.8112**	-0.2950	-0.5668*
	(-1.63)	(-0.67)	(-1.68)	(-1.45)	(-0.61)	(-1.40)	(-2.44)	(-0.94)	(-1.85)
3-year advertising expenditures	1.0443	-0.2105	-0.4333	1.0443	-0.2105	-0.4333	0.5120	-0.4931	-0.5620
	(1.34)	(-0.65)	(-1.29)	(1.37)	(-0.62)	(-1.35)	(1.06)	(-1.08)	(-1.25)
# of firms in receiving state	-0.0002***	-0.0003***	-0.0003***	-0.0002***	-0.0003***	-0.0003***	-0.0002***	-0.0003***	-0.0003***
	(-4.80)	(-4.56)	(-5.61)	(-4.87)	(-5.54)	(-4.84)	(-4.79)	(-6.71)	(-5.07)
# of firms in the migration sending state(s)	0.0002***	0.0003**	0.0004***	0.0002**	0.0003*	0.0004***	0.0002***	0.0003**	0.0004***
	(2.73)	(2.36)	(4.79)	(2.35)	(1.65)	(3.71)	(2.84)	(2.45)	(3.21)
Non-bordering state dummy	-0.0275	-0.0339	0.0067	-0.0275	-0.0339	0.0067	-0.0260	-0.0178	0.0071
	(-0.71)	(-1.01)	(0.14)	(-0.81)	(-0.96)	(0.15)	(-0.53)	(-0.43)	(0.18)

Table A.3 (Continued)

% of population from the	1.7928***	2.6070***	3.2389***	1.7928***	2.6070***	3.2389***	1.4508***	2.2445***	2.9862**
migration sending state(s)	(3.46)	(4.04)	(3.30)	(3.43)	(5.57)	(3.50)	(2.59)	(2.77)	(2.40)
Industry cluster	-0.0892***	-0.0597*	-0.1469***	-0.0892***	-0.0597	-0.1469***	-0.0746*	-0.0463	-0.1435***
	(-2.97)	(-1.73)	(-2.70)	(-2.82)	(-1.53)	(-2.65)	(-1.81)	(-1.18)	(-3.72)
Same industry firms in the	2.1408***	1.4850***	0.8397**	2.1408***	1.4850***	0.8397**	3.2895***	2.4121***	2.0951***
migration sending state(s)	(7.48)	(5.11)	(2.46)	(6.16)	(4.55)	(2.45)	(6.26)	(4.23)	(3.09)
% of market portfolio in the	0.1289	0.1923	-0.6637	0.1289	0.1923	-0.6637	0.1407	0.2512	-0.3377
migration sending state	(0.35)	(0.26)	(-0.70)	(0.29)	(0.20)	(-0.64)	(0.27)	(0.32)	(-0.38)
PAC	0.0601	0.0554*	0.0293	0.0601	0.0554	0.0293	0.0604	0.0619	0.0356
	(1.60)	(1.96)	(0.99)	(1.30)	(1.63)	(0.83)	(0.72)	(0.86)	(0.52)
Constant	0.9160***	1.4267***	1.4795***	0.9160***	1.4267***	1.4795***	0.8980***	1.3887***	1.4502***
	(3.29)	(9.47)	(8.60)	(3.52)	(8.61)	(8.56)	(6.08)	(9.75)	(10.19)
N. of observations	103,067	103,067	103,067	103,067	103,067	103,067	103,067	103,067	103,067
R-squared	0.004	0.004	0.005	0.004	0.004	0.005	0.004	0.004	0.005

Essay 1 Appendix B: Variable Definitions

Variable	Definition
	Firm characteristics
Turnover	The log of one plus the average over the year of the monthly trading volume scaled by the number of outstanding shares
Size	The log of one plus the market value of common shares
B/M	The log of one plus the ratio of market equity to book equity for the firm. The market equity value of the firm (M) is the value of all common stock outstanding, which is taken from CRSP as of fiscal year end.
Leverage	Total debt in current liabilities (Compustat item 34) plus total log-term debt (Compustat item 9), divided by total assets (Compustat item 6)
3-year ROA	3-year average of return on assets from year y-3 to y-1
Firm age	The log of one plus the number of years since the stock inclusion in the CRSP database
Previous year stock return	Stock return in year y-1
Dividend yield	Total dividends paid in year y divided by share price
3-year R&D expenditures	3-year average ratio of R&D expenditures to sales from year y-3 to y-1
3-year advertising expenditures	3-year average ratio of advertising expenditures to sales from year y-3 to y-1
PAC	It equals 1 if the firm is contributing to PACs by migration state(s) based politicians. The data is from the Federal Election Commission (FEC) summary files on political contributions to House and Senate election campaigns. When it is used as a state-level variable, it is computed as follows: {(number of state *y* firms with PAC donation to migration sending state(s) politicians)+(number of migration sending state firms with PAC donation to state *y* politicians)}/total number of firms in state *y* and migration sending state.
Market value	The log of one plus market value of equity plus total debt (long-term debt + debt in current liabilities) at the fiscal year-end.
Cash flows	Cash flows (income before extraordinary items + depreciation and amortization – preferred stock dividends – common stock dividends) divided by the equity market value at the fiscal year-end.
Cash reserves	Cash and short-term investments divided by total assets at the fiscal year-end.
Sales growth	Current fiscal year sales minus previous fiscal year sales divided by previous fiscal year sales.
Net loss	It equals 1 if net income is negative and 0 otherwise at the fiscal year-end.
	State variables
Number of firms in the receiving state	The number of firms whose headquarters are located in the state
Number of firms in the migration sending state(s)	The number of firms whose headquarters are located in the migration state(s). When considering more than top 1 migration state, weighted average number of firms is used where the weight is the percentage of nonnative population from each migration sending state.
Distance	The distance between the capital city of the state the firm's headquarter is located and the capital city of the migration state measured based on the standard formula for computing the distance d(a, b) in statutory miles between two points, a and b. The formula is as follows: d(a, b) = arcos{cos(a1)cos(a2)cos(b1)cos(b2)+cos(a1)*sin(a2)cos(b1)sin(b2)+sin(a1)sin(b1)}r, where a1 and b1 (a2 and b2) are the latitudes (longitudes) of the two points (expressed in radians), respectively. r denotes the radius of the Earth, which is approximately 3963 statutory miles. When considering more than top 1 migration state, weighted average distance is used where the weight is the percentage of nonnative population from each migration sending state.
Industry cluster	It equals 1 if 20% or more of the market capitalization of firms located in the state is from a single industry.
Same industry firms in the migration sending state(s)	Percentage of firms located in the migration state(s) that are in the firm's major industry. When considering more than top 1 migration state, weighted average percentage is used where the weight is the percentage of nonnative population from each migration sending state.
% of population from the migration sending state(s)	Percentage of people who live in the state but were born in the migration state(s). The data is from U.S. Census. When considering more than top 1 migration state, the average percentage is used.
% of market portfolio represented by the migration sending state(s)	Percentage of the U.S. market represented by the firms located in the migration state(s). When considering more than top 1 migration state, weighted average percentage is used where the weight is the percentage of nonnative population from each migration sending state.
Non-bordering state dummy	It equals 1 if the top 1 migration state is a non-bordering state. When considering more than top 1 migration state, it equals 1 if any of the migration sending states is non-bordering.

Essay 1 Appendix B (Continued)

Migration sending state(s)' economic relevance	Number of times a firm's 10-K mentioning migration sending state name divided by the total number of times the firm's 10-K mentioning any state. When considering more than top 1 migration state, weighted average measure is used where the weight is the percentage of nonnative population from each migration sending state.
	Returns
Local returns	The equally-weighted return of all stocks from the state that the firm is located, excluding the firm itself
Market returns	The value-weighted return of all stocks in the market
Migration returns	The return of an index consisting of state *y*'s top 1 (or top 2, or top 3) migration sending state(s) equally-weighted portfolio(s). The weight of each sending state portfolio return in the index corresponds to the portion of *y*'s nonnative population born in the sending state.
SMB	The weekly difference between the returns on small and big firms
HML	The weekly difference between the returns on high book-to-market and low book-to-market firms
UMD	The momentum factor computed as the weekly difference of the returns on winner and loser firms
Long-term reversal	The return over the 48-month period starting 13 months ago
	Biased holdings
Fraction of retail investor's portfolio in migration sending state(s)	The fraction of an investor's portfolio that consists of shares of firms located in the migration state(s)
Retail investor's biased holding of migration state(s) firms	The ratio of the fraction of an investor's portfolio that consists of shares of firms located in the migration state(s) to the fraction of the migration state(s)' total public equity value in the U.S. market. When considering more than top 1 migration state, weighted average ratio is used where the weight is the percentage of nonnative population from each migration sending state.
	Regional characteristics
State population density	The log of one plus state population per square mile
# of firms in state	The log of one plus the number of firms headquartered in the state
	Retail investor characteristics
Large city	A dummy variable that equals to 1 if the investor is in one of the largest 99 cities and 0 otherwise
Size of total holding	The log of one plus the size of the investor's total holdings
Age	The log of one plus the age of investor
Spouse's age	The log of one plus the age of investor's spouse
Married	A dummy variable that equals to 1 if an investor is married and 0 otherwise
Own house	A dummy variable that equals to 1 if an investor owns a house and 0 otherwise
Male	A dummy variable that equals to 1 if an investor is male and 0 otherwise
	Turnover and holidays
Mkt. turnover	Total share volume divided by the total number of shares outstanding in the CRSP universe
Holiday	A dummy variable that equals one if it is a holiday in the top receiving state(s) but not a holiday in the sending state
Migration %	Number of residents in the top receiving state with holiday who are originally from the sending state divided by total population in the sending state

Essay 1 Appendix C: List of State-Level Holidays

Receiving states	Holiday	Date	Sending states
VA	Lee-Jackson Day	Friday before 3rd Monday in January	PA, NC, NY
AL, AR	Robert E. Lee's Birthday	(before Martin Luther King Jr. Day was officially observed for the first time in 2000) January 15-21 (floating Monday)	GA, OK, TN, TX
NY, IL	Lincoln's Birthday	February 12	IN, NJ, SC
LA	Mardi Gras	Tuesday before Ash Wednesday	AR, CA, MS, SC, TX
VT	Town Meeting Day	March 1-7 (floating Tuesday)	MA, NH, NY
AK	Seward's Day	March 25-31 (floating Monday)	CA, OR, TX, WA
HI	Prince Jonah Kalanianaole Day	March 26	CA, IL, NY, TX
CA	Cesar Chavez Day	March 31	IL, TX, WA
MA, ME	Patriot's Day	April 15-21 (floating Monday)	CT, NH, NY, RI
AL, GA, MS	Confederate Memorial Day	April 24-30 (floating Monday)	FL, LA, NY, TN
NE	Arbor Day	Last Friday in April	CA, IA, SD
MO	Truman Day	May 8	AR, CA, IL, KS
SC	Confederate Memorial Day	May 10	GA, NC, NY
HI	King Kamehameha I Day	June 11	CA, IL, NY, TX
WV	West Virginia Day	June 20	MD, OH, PA, VA
UT	Pioneer Day	July 24	AZ, CO, ID
RI	Victory Day	Second Monday in August	CT, MA
HI	Statehood Day	August 15-21 (floating Friday)	CA, IL, NY, TX
VT	Bennington Battle Day	August 16	MA, NY
AL, CO, GA, IN, IL, ME, MT, MO, NE, NJ, NM, NY, OH, SD, VA	Columbus Day	October 8-14 (floating Monday)	FL, IA, KS, KY, MN, MS, NC, ND, NH, OK, SC, TX, WI
AK	Alaska Day	October 18	IL, OR, TX, WA
NV	Nevada Day	Last Friday in October	CA, IL
CA, DE, FL, IL, IN, KY, ME, MI, MN, NC, NE, NH, NM, NV, OK, PA, SC, TX, VA, WV	Day after Thanksgiving	November 23-29 (floating Friday)	AR, AZ, CO, GA, KS, LA, MA, MO, ND, NJ, NY, OH, SD, TN, WI
AR, GA, IN, KY, MI, NC, TN, TX, VA, WV, WI	Christmas Eve	December 24	AL, CA, FL, IL, MD, MN, MO, MS, NY, OH, OK, PA
NC, OK, SC, TX	Day after Christmas	December 26	CA, VA, NY
KY, MI, WV, WI	New Year's Eve	December 31	IL, IN, MD, MN, OH, TN, VA

Essay 2 Appendix: Variable Definitions

Variable	Definition
Variables related to migration sending state	
% of population from the migration sending state	Percentage of people who live in the state but were born in the migration state(s). The data is from U.S. Census. When considering more than top1 migration state, the average percentage is used.
Number of firms in the migration sending state	The number of firms whose headquarters are located in the migration state(s). When considering more than top 1 migration state, weighted average number of firms is used where the weight is the percentage of nonnative population from each migration sending state.
Acquirer/target characteristics	
Market value	The log of one plus market value of equity plus total debt (long-term debt + debt in current liabilities) at the fiscal year-end from Compustat.
B/M	The log of one plus the ratio of market equity to book equity for the firm. The market equity value of the firm (M) is the value of all common stock outstanding, which is taken from CRSP as of fiscal year-end.
Leverage	Total debt in current liabilities (Compustat item 34) plus total long-term debt (Compustat item 9), divided by total assets (Compustat item 6).
Cash flows	Cash flows (income before extraordinary items + depreciation and amortization – preferred stock dividends – common stock dividends) divided by the equity market value at the fiscal year-end from Compustat.
Cash reserves	Cash and short-term investments divided by total assets at the fiscal year-end from Compustat.
ROA	The ratio of operating income to total assets at the fiscal year-end from Compustat.
Sales growth	Current fiscal year sales minus previous fiscal year sales divided by previous fiscal year sales from Compustat.
Net loss	A dummy variable that takes the value of 1 if net income is negative and 0 otherwise at the fiscal year-end from Compustat.
Target from the migration sending state	A dummy variable that takes the value of 1 if the target headquarter is located in the migration sending state.
Deal characteristics	
Horizontal	A dummy variable that takes the value of 1 if the acquirer and target operate in the same Fama-French 49 industry and 0 otherwise. The variable is created using data from Thomson Financial SDC Mergers and Acquisitions Database.
Cash	A dummy variable that takes the value of 1 for the deal in which consideration is 100% cash and 0 otherwise. The variable is created using data from Thomson Financial SDC Mergers and Acquisitions Database.
Tender offer	A dummy variable that takes the value of 1 for tender offers and 0 otherwise. The variable is created using data from Thomson Financial SDC Mergers and Acquisitions Database.
Hostile	A dummy variable that takes the value of 1 for deals defined as hostile or unsolicited and 0 otherwise. The variable is created using data from Thomson Financial SDC Mergers and Acquisitions Database.
Competing	A dummy variable that takes the value of 1 for deals that there is a competing bidder and 0 otherwise. The variable is created using data from Thomson Financial SDC Mergers and Acquisitions Database.
Premium and CAR	
Premium	Takeover premium from Thomson Financial SDC Mergers and Acquisitions Database, which is computed as the difference between the offer price and the target's stock price 4 weeks before the acquisition announcement divided by the latter.
CAR	Acquirer's three-day cumulative abnormal return around deal announcement [-1, 1] window from CRSP.