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Foster finance and accounting research with higher purpose and help individuals and organizations become purpose-driven.

In May 2012, Wells Fargo Advisors awarded a gift to Washington University in St. Louis to support Olin Business School. Olin’s newly named Wells Fargo Advisors Center for Finance and Accounting Research (WFA-CFAR) will be a catalyst for enhancing finance and accounting research and education, which benefits faculty members, students, and businesses. To that end, initiatives housed under the WFA-CFAR umbrella include:

**Specialized master’s degree programs** in finance (MSF) and accounting (MACC), which provide rigorous curricula and industry-specific knowledge to students through a 10- or 17-month format.

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Kristen Jones

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To obtain copies of the original research papers summarized here or to recommend your company for a future research project, please contact Kristen Jones, Wells Fargo Advisors Center for Finance and Accounting Research Program Manager at kristen.jones@wustl.edu or 314-935-4573.
I am pleased to continue our magazine, SEE FAR. Apart from the obvious attempt to “capitalize” on the WFA-CFAR name, the name also captures the essence of our research: looking to the future rather than concentrating exclusively on current events and thinking, and focusing on big-picture issues that have far-reaching consequences.

All the articles in SEE FAR are based on finance and accounting research that has been previously published in an academic journal or as a monograph, or is currently a working paper that will be published in the future. The original papers have been rewritten as executive summaries for SEE FAR so that they are accessible to a broad audience, rather than solely to those in academia. While this is not an easy task, I believe that this will not only help us build a bridge between the research of Olin Business School faculty and those in the world of practice, but will also add to the knowledge people use on a daily basis. The intellectual capital generated by our faculty members’ research is quite impressive—Olin consistently ranks among the top schools in terms of our research output. For this reason, it is important that WFA-CFAR research is made available to as many of our stakeholders as possible.

This publication serves as one way we support our mission to disseminate cutting-edge faculty research in accounting and finance. Another important way is through sponsoring academic conferences. With the return to in-person events this year, we were happy to be able to host our annual Conference on Corporate Finance on our St. Louis campus again this past fall. We have also been able to sponsor several other research events, including a one-day conference on labor and finance, a meeting of the Finance Theory Group, and a joint workshop between Olin Business School and the St. Louis Fed. These conferences and seminars provide an opportunity to highlight not only research from our own faculty, but from leading scholars across the country and around the globe.

I hope that you enjoy reading the summaries in this issue. I would like to thank my faculty colleagues who participated in helping us create this issue by providing their papers and working with us to convert them into what you will read on the following pages. I look forward to any feedback you have to help us improve this magazine. Please contact WFA-CFAR Program Manager Kristen Jones at kristen.jones@wustl.edu with your insights.

Sincerely yours,

Mark Leary
Co-Vice Dean of Faculty and Research, Interim Director of WFA-CFAR and Professor of Finance, Olin School of Business, Washington University in St. Louis
The United States is increasingly divided along partisan lines. Pew Research Center (2017) shows that party identification is now a more significant predictor of Americans’ fundamental political values than any other social or demographic divide. Social groups, such as families and neighborhoods, are becoming increasingly politically homogeneous. In contrast, the workplace has long been considered the social context best positioned to provide opportunities for regular interactions and conversations across partisan lines (Mutz and Mondak, 2006; Hertel-Fernandez, 2020).

To better understand polarization in the workplace, we study political polarization among important decision-makers in the firm: top executives. Top executives are responsible for designing and executing the most important corporate decisions. Therefore, political polarization in executive teams may have important implications for firm outcomes.

We combine data on the top-5 earning executives in U.S. S&P 1500 firms with information on party affiliations from voter registration records. We use voter registration records from California, Colorado, Illinois, Massachusetts, North Carolina, New Jersey, New York, Ohio, and Texas, spanning the period from 2008 to 2020. We restrict our sample to these locations because other states either do not share voter registration records or do not track voters’ party affiliations over time.

We observe that U.S. executives are predominantly Republican. Among executives that we can link to a political party in the voter records, 69% are Republican and 31% are Democrat. The share of Republican executives is substantially higher in the voter registration data compared to the political contributions data, as many executives donate to both parties. The share of Republican executives increases from 63% in 2008 to 75% in 2016 and then declines to 68% in 2020.
We show executive teams became more partisan between 2008 and 2020. We define partisanship as the degree to which a single party dominates political views within the same executive team. More specifically, we measure the partisanship of executive teams as the probability that two randomly drawn executives from the same team are affiliated with the same political party. Based on this measure, we find a 7.7-percentage-point increase in the average partisanship of executive teams over our sample period. As a reference point, this increase is almost three quarters of the decrease in gender homogeneity that we observe over the same time period. The years with the highest annual increase in partisanship are 2010, 2012, and 2016, that is around presidential elections and the passage of the controversial Affordable Care Act ("Obamacare").

What drives the increase in the political polarization of executive teams? One possibility is that the increase in partisanship is a reflection of changes in the share of Republicans and Democrats in the overall population of executives. Alternatively, the increase in partisanship could result from an increased tendency of executives to match with like-minded partisan executives. Using Monte Carlo simulations to generate measures of randomly occurring partisanship, we document that 61% of the increase in partisanship is driven by an increased tendency of executives to match with other executives who share their political views. The remaining 39% is driven by the executive population as a whole becoming more politically homogeneous (i.e. Republican). Most of the changes in team partisanship are driven by executive turnovers, rather than by within-person changes in party affiliation. Further decomposing the increase in assortative matching, we find that a substantial part of the effect is driven by executives increasingly sorting on political ideology into states and industries.

Political Alignment and Executive Departure
We also study the role of political views in shaping executive team formation at a more granular level. Specifically, we test whether political alignment with other team members influences departure decisions of corporate executives. We find that, within a given firm-year, executives who are politically misaligned with the majority of the team have a 3.2-percentage-point higher probability of leaving the firm, relative to executives whose views are aligned with the
We find that, within a given firm-year, executives who are politically misaligned with the majority of the team have a 3.2-percentage-point higher probability of leaving the firm, relative to executives whose views are aligned with the rest of the team. This effect corresponds to a 24% increase in the likelihood of departure relative to the unconditional turnover probability of 13%. We observe again an increase in this effect over time.

An important remaining question is whether the departure of politically misaligned executives is good or bad for shareholders. From a theoretical perspective, the implications of reduced political diversity on shareholder value are ambiguous. On the one hand, greater political homogeneity may be bad for shareholders if it leads to group think or inefficient hiring and firing decisions. On the other hand, if partisan disagreement leads to deadlock in politically diverse teams, greater political homogeneity may be in the interest of shareholders. To provide some initial evidence on this important question, we study abnormal stock returns around the departures of politically aligned and misaligned executives. Departures of misaligned executives are associated with substantially larger losses for shareholders. The incremental losses to shareholders around executive departures amount to $238 million for executives who are politically misaligned. We also find evidence that departures of misaligned CEOs are more likely to be involuntary.

The large, negative stock price reaction to the departures of misaligned executives suggests that these departures may not necessarily be in the financial interest of shareholders. In other words, shareholders of public U.S. firms may have good reasons to be concerned about the trend toward greater partisanship. Shareholder proposals and discussions about ideological diversity at annual shareholder meetings, such as the one at Apple's annual shareholder meeting in 2019 (Sherr, 2019) may thus become a more common phenomenon.

Conclusion
This paper establishes a new stylized fact, namely, that executive teams in U.S. firms are becoming increasingly partisan, leading to a political polarization of corporate America. This trend implies the growing tendency of U.S. individuals to socialize and form relationships and friendships with politically like-minded individuals extends also to the highest-level decision makers in the workplace. The rise in partisanship is explained by both an increasing share of Republican executives and, to a larger degree, by increased matching of executives with politically like-minded individuals. Finally, we also explore the potential implications of executives' matching on political affiliation for shareholder value. Stock price reactions to executive departures are substantially more negative for executives who are misaligned with the political views of the team's majority than for executives who are aligned with the majority. Hence, some aspects of the rising polarization among U.S. executives may have negative consequences for firms' shareholders.

References
The past years have witnessed a revolution of information technology communication, ranging from personal and mainframe computers, to broadband internet and WIFI. These advances have certainly reduced the cost of some forms of information collection. Other forms, such as face-to-face interactions, are still subject to constraints of time and distance. In this paper, we study the implications of information collection costs for information production. In particular, does lowering the cost of collecting information actually lead agents to collect more and better quality information? If so, what are the implications for financial market efficiency? And can information technology replace human face-to-face interaction? A vivid example is that the COVID-19 pandemic has fundamentally changed how people interact and communicate. We tackle these questions through the lens of financial analysts, who play an important role in information production to financial markets. In particular, we take advantage of the massive high-speed rail (HSR) construction in China in the past one and a half decades. We examine how the introduction of HSRs, which drastically eased travel between cities in China, affects analysts’ information collection and production, and the resulting impact on price efficiency.

We conducted empirical tests and a large-scale survey of financial analysts to answer the question. We next summarize the key empirical and survey findings. We end with a discussion of the implications of our findings for businesses and policy makers.

Prior research (Brown et al. 2015) shows that corporate site visits represent a major channel for analysts to collect corporate
clients’ information. We therefore first analyze the impact of HSR introduction connecting a firm-city to its broker-city in the prior year on analysts’ corporate site visits. As indicated in Figure 1, we find connected analysts significantly increased the number of site visits, by 4.9% annually, following HSR introduction. These results cannot be explained by expected higher growth of the firm’s city, the centrality of the analyst’s city, nor to firm–and broker–specific shocks. We also show connected analysts increase the likelihood of initiating coverage of a firm to which they are connected post HSR introduction. Our evidence suggests information-cost reduction improves analysts’ information production at both the intensive margin (gathering more information about a particular firm) and extensive margin (gathering information about more firms).

Our survey evidence, summarized in Figure 3 (page 15), echoes these findings: 96% of respondents agreed they would visit a portfolio company more frequently after the introduction of an HSR route connecting them to the firm. The impact is particularly acute for cities that are harder to reach and for analysts who are more time constrained. Our results also suggest face-to-face interaction still represents an important source of information, and reductions in information-acquisition costs (travel time) significantly increase the amount of information that agents collect.

We test whether HSR introduction affects analysts’ information quality, measured by their earnings forecast accuracy. As shown in Figure 2, the HSR introduction connecting a firm-analyst pair significantly increases forecast accuracy by 2.1%. Our survey evidence corroborates these findings: 82% of survey respondents agreed or strongly agreed the HSR introduction has helped them make better earnings forecasts. Only 8% thought it would not be likely to have an impact. In sum, the combined evidence suggests reductions in information-acquisition costs result in more information gathering and higher information quality.

02 We study whether acquisition costs affect price efficiency. Because the introduction of an HSR connection reduces information-acquisition costs and leads to more frequent information collection and better information at the hands of analysts, we expect the market reaction to analyst-forecast revisions to be stronger, analyst stock recommendations to be more profitable, and analysts’ information to be reflected in prices faster, increasing price efficiency. Indeed, we find a significant increase of 1.7% in investors’ reaction to forecast revisions and an increase of 1.9% to stock recommendations, post HSR introduction (measured by three-day abnormal returns). We also find the market reaction to a firm’s earnings announcements...
The Impact of Direct HSR Connection

Questions:
- Conducting more site visits in person
- Obtaining more firm-specific information
- Better understanding strategies/operation/performance
- Better understanding key challenges/issues facing companies
- Better understanding corporate culture/employees’ morale
- Increase frequency of visit
- Increase flexibility to visit when most useful
- Better understand current state of company
- Talk to non-management employees
- Make more accurate earnings forecasts
- Help forecast the company’s long-term growth

Figure 3: Survey Responses Among Remote Respondents
This figure shows the distribution of survey responses among remote analysts. Remote analysts are those employed by a broker located in cities other than Beijing, Shanghai, Shenzhen, or Guangzhou. On the horizontal axis, positive (negative) percentages refer to “strongly agree,” “agree,” and “neutral” (“disagree” and “strongly disagree”) responses.

Our findings also provide insights for policymakers. When financial markets, as in China, are not fully developed, an investment in infrastructure (e.g., railways, highways, faster internet network, and faster and more efficient telecommunications) has a meaningful positive externality on informational market efficiency. Although some macro-level evidence suggests that construction of transportation infrastructure promotes economic growth (Duranton and Turner, 2012; Donaldson and Hornbeck, 2016), the micro-level firm evidence has been limited, particularly in the context of financial markets. Thus, our paper fills that void by providing evidence that building infrastructure promotes informational efficiency in financial markets.

References


Current Trading Environment

Let’s begin by providing some background on the current trading environment. In simple terms, retail brokers such as TD Ameritrade traditionally sent their clients’ orders to national securities exchanges such as the NYSE or Nasdaq. However, this is no longer the mainstream approach. Instead, orders are sent to market makers, also known as wholesalers, such as Citadel to be matched off exchange. These wholesalers commit to providing retail brokers with liquidity at the current national best offer (when the investor is buying) or national best bid (when the retail investor is selling), or better. Retail order flow is typically less informed, making it more profitable for wholesalers to provide liquidity. In order to attract retail order flow, wholesalers are willing to share a portion of their profit in form of Payments For Order Flow (PFOF) to the retail broker who sent them the orders, and a portion to the retail investors as price improvement. The practice of payments for order flow (PFOF) has raised concerns.
about potential conflicts of interests between brokers and retail investors. A higher PFOF may be associated with a lower quality of execution, which could be a potential primary driver for the large dispersion we discovered across brokers.

**Our Trading Experiment**

We run a controlled trading experiment to identify variation in price execution across brokers by opening six individual accounts at five brokers. Importantly, there is a fair amount of variation in PFOF across these brokers. All five selected brokers offer zero commissions accounts. Three brokers (TD Ameritrade, Robinhood and E*Trade) collect PFOF for equity market orders and route nearly all their trades to the same six market centers, which are off-exchange wholesalers. PFOF per share varies across these three brokers. Fidelity has zero commissions and accepts no PFOF yet still routes nearly all trades to these six wholesalers. Interactive Brokers offers accounts with and without commissions, the latter with PFOF. Additionally, Interactive Brokers routes orders to trading venues that differ from these six wholesalers.

Our experiment generated approximately 85,000 trades over the period from December 21, 2021, to June 9, 2022, period. To ensure a sample that is representative of the underlying stock population, we selected a stratified sample of the stocks using 128 bins sorted by various factors. We placed orders that were identical in type (market orders), ticker (stock), size (dollars and shares traded), and submission time at different brokers. All trades were intraday, i.e., we bought equities after the market opens and then sold them within 30 minutes, spread throughout the day.

**The “Actual Retail Price” Varies Across Brokers**

We then compare execution prices across brokers and venues across this large sample. Since we placed the trades, we know whether each trade is a purchase or sale, which is crucial to measure price improvement. Table 1 shows the comparison of price improvements across brokers. We present the percentage of trades that have price improvement, the price improvement measured as the differences between the execution price and the best bid or offer, either in dollars or relative to the NBBO spread, as well as round-trip trading costs.

We find significant variations in “actual retail price” of equity trades across different brokers. Although we anticipated that trading would not be entirely “free,” we were taken aback by the broad range of execution prices we encountered while conducting identical trades simultaneously.

Among the brokers we analyze, TD Ameritrade stands out for its outstanding price improvement, with 99.4% of its trades inside the NBBO and a price improvement of 47.2% of the spread. To put this in perspective, a roundtrip trade would only cost 5.6% (=2 x (50% – 47.2%)) of the quoted spread, making TD Ameritrade’s execution quality highly desirable. In dollar terms, TD Ameritrade provides an average price improvement of 7.8 cents, close to the maximum amount of 8.4 cents. In contrast, Interactive Brokers (IBKR) Pro has price improvement on only 76% of all trades to these six wholesalers. Interactive Brokers offers accounts with and without commissions, the latter with PFOF. Additionally, Interactive Brokers routes orders to trading venues that differ from these six wholesalers.

In Table 1, we present our findings for six brokerage accounts, which demonstrate that the average round-trip cost varied from –0.07% to –0.46%; the average price improvement ranged from $0.03 to $0.08 per share. Such dispersion is both statistically significant and economically meaningful.

**TABLE 1: Comparison of Price Improvement**

<table>
<thead>
<tr>
<th>Broker/Account:</th>
<th>Freq of PI</th>
<th>PI(%NBBO)</th>
<th>PI($)</th>
<th>Round-trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midpoint (Benchmark)</td>
<td>100%</td>
<td>50%</td>
<td>$0.0836</td>
<td>0%</td>
</tr>
<tr>
<td>TD Ameritrade</td>
<td>99.4%</td>
<td>47.2%</td>
<td>$0.0784</td>
<td>-0.072%</td>
</tr>
<tr>
<td>E*Trade</td>
<td>96.2%</td>
<td>36.1%</td>
<td>$0.0560</td>
<td>-0.197%</td>
</tr>
<tr>
<td>Fidelity</td>
<td>92.9%</td>
<td>35.8%</td>
<td>$0.0654</td>
<td>-0.234%</td>
</tr>
<tr>
<td>Robinhood</td>
<td>85.0%</td>
<td>26.8%</td>
<td>$0.0444</td>
<td>-0.314%</td>
</tr>
<tr>
<td>Interactive Broker (IBKR) Lite</td>
<td>63.4%</td>
<td>19.5%</td>
<td>$0.0356</td>
<td>-0.444%</td>
</tr>
<tr>
<td>Interactive Broker (IBKR) Pro</td>
<td>76.4%</td>
<td>18.8%</td>
<td>$0.0278</td>
<td>-0.462%</td>
</tr>
<tr>
<td>NBBO (Worst Possible)</td>
<td>0%</td>
<td>0%</td>
<td>$0</td>
<td>-0.619%</td>
</tr>
</tbody>
</table>

*Round trip trading costs are defined as the difference between the actual return of the trade and the return that would have been realized if both buy and sell trades were executed at the NBBO midpoint.*
its trades, and its average price improvement is only 18.8% of the spread. This results in a roundtrip trade cost of 62% (= 2 x 50% – 18.8%) of the spread, which is over ten times more expensive than TD Ameritrade (even without accounting for commissions). The average price improvement in dollar terms for Interactive Brokers (IBKR) Pro is only 2.8 cents. In between the top and bottom brokerage accounts, we find that Fidelity and E*Trade offer similar execution quality, with Robinhood and Interactive Brokers (IBKR) Lite lagging behind.

**What Explains the Wide Execution Dispersion?**

We consider three hypotheses to explain the wide execution dispersion across brokerage accounts. We find that the large variations in executions across brokers do not seem to be primarily driven by the variations in PFOF, nor expected by estimations based on public disclosures by brokers and market centers. Rather, our observed large execution differences are largely explained by different brokers receiving differential execution quality at the same market center for identical trades placed simultaneously.

**Payments for Order Flow (PFOF).** Brokers will cater to the demands of retail investors, but conflicts of interest might arise. For example, brokers have incentives to collect fees from PFOF. In theory, these payments might affect price execution. For example, market centers who pay an additional dollar in PFOF to a broker might offer a dollar less in price improvement to the broker.

Our analysis reveals that the variations in PFOF are orders of magnitude smaller than the variations in price improvement across brokers. In the cross-section, as Figure 3 shows, even though there might be a negative relationship between PFOF and price improvements, the economic magnitude of the relationship may be too small to explain the large variations in price improvements across the brokers.

**Estimation Based on Public Disclosures.** Based on the information that is publicly disclosed by brokers and market centers, we calculate the expected price improvement for each broker. We take a weighted average of the stock-level execution quality of each market center (obtained from Market Center’s 605 report), with the weighting based on the fraction of orders that the broker sends to each market center (obtained from each Broker’s 606 report). It is important to note that the market center’s 605 report does not provide execution quality information by brokers. Therefore, we implicitly assume that market centers provide the same execution to all brokers.

**Differential Pricing by Market Center.** To investigate whether trades from different brokers receive different executions at the same market center, we requested specific routing information

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**Figure 3: Price Improvements and Payments for Order Flow**

**Figure 4: Actual Price Improvements vs. Expected Price Improvements Based on Public Disclosures**

**Figure 5: Differential Pricing by Market Centers**
Brokers provide voluntary disclosures that offer inconsistent and opaque information about the quality of their execution, with most claiming high rates of price improvement over an easy-to-beat benchmark (i.e., NBBO).

for our trades.2 We were able to receive a complete list of routing information for our trades from TD Ameritrade, E*Trade, Fidelity, and Robinhood. However, Interactive Brokers did not respond to our requests.

Figure 5 (previous page) presents the comparison between TD Ameritrade and Robinhood, as well as between TD Ameritrade and E*Trade. We split the simultaneous trades into two groups: those that are routed to different venues and those that are routed to the same venue. Our results indicate that different brokers indeed receive systematically different execution at the same venue. In both comparisons, the same-venue differences are statistically significant. Interestingly, the magnitude of the same-venue differences is similar to that of the different-venue differences, indicating that the differential pricing is a universal phenomenon rather than driven by specific market centers. Taken together, we find strong evidence that our observed wide dispersion in price execution is due to different brokers receiving differential pricing from market centers for the same trades.

Possible Explanations for Differential Pricing by Market Centers
Our results show that the primary driver for the large variations in execution prices across brokers is different brokers systematically receiving differential price execution by the same market center. We further provide possible explanations for the differential pricing by market centers as a relevant starting point for future research.

Quality of Order Flow. Some brokers may have investors who generate order flow that is more attractive to market centers. For instance, a broker’s investor clientele might produce trades that are less correlated and less concentrated, such as Robinhood, or less informed, such as Interactive Brokers, compared to their competitors. Market centers may be less likely to provide better price improvement for highly correlated trades as this could pose a higher inventory risk. Furthermore, a market with fewer informed trades could result in lower transaction costs since the market maker need not worry as much about adverse selection.

Size of Order Flow. Market centers incur significant fixed costs that they must cover to become profitable. Thus, attracting a portion of the flow from large brokers is crucial. Moreover, establishing and maintaining relationships and an order flow pipeline with a specific broker incurs additional costs. To benefit from economies of scale, market centers might compete more aggressively for order flow from brokers with large aggregates of order flows. For instance, TD Ameritrade has more than double the volume of other brokers in our analysis.

Objective Function or Monitoring Quality. Different brokers might have different objective functions when routing order flow. Some brokers might be particularly sensitive to price improvements, others less so. Market centers will cater to these brokers objectives if doing so attracts more profitable order flow. In this setting, brokers who care about dimensions other than price improvement might receive systematically worse price improvement. For example, Robinhood and Interactive Brokers might value trade execution dimensions other than price improvement.

Closing Thoughts
Our trading experiment reveals an astonishing dispersion in the quality of price execution across our sample of six brokerage accounts. The average round trip cost ranged from −0.07% to −0.46% for the same simultaneous trades at different market centers, which is a substantial dispersion. Aggregated across all retail trades, a single basis point of cost (or savings) is equivalent to approximately $2 billion annually.

Our further investigation shows that payment for order flow (PFOF) does not seem to be the primary driver of differences in price execution. The reported PFOF in dollars per share are rather small relative to the magnitude of price improvement. We then turn to market centers to unravel the drivers of variations in price execution. We find that the price differences we observe are due to different brokers getting different execution prices for the same trade, at the same time, at the same venue. We provide some potential economic reasons for the differences in price execution across brokers, including quality of order flow, size of order flow, and different broker objection functions.

Our results also suggest that the current disclosure environment under Reg NMS does not provide sufficient information for retail investors to identify such discrepancies. The SEC’s Rule 606 broker reports were designed “to improve the ability of their customers to determine the quality of such broker-dealer services.” However, our trading experiment has revealed that these reports are inadequate for this purpose. Brokers provide voluntary disclosures that offer inconsistent and opaque information about the quality of their execution, with most claiming high rates of price improvement over an easy-to-beat benchmark (i.e., NBBO). Moreover, it’s worth noting that market centers do publish security-level price execution information in their Rule 606 reports, but these figures are averaged across trades from all brokers. This means they do not provide individual figures for different brokers from whom they receive order flow. Since there is significant variation in price execution across retail brokers, current disclosures fail to provide meaningful information to investors. To improve the situation, we suggest expanding the scope of reports to display security-level execution statistics by brokers. This will enable investors to compare execution quality across different brokers and make informed decisions.

Our findings have reached a broad audience through reports in a variety of outlets such as the Wall Street Journal, Bloomberg, Barron’s, Yahoo! Finance, and CNBC. It seems that the large broker execution differences we document were not only unknown to the retail trading community, but also unknown to a large portion of the financial industry. This reaction to the release of our study also suggests that centralized and systematic public disclosure is needed for improving transparency of the “actual retail price” for equity trades.

2 Reg NMS has a provision under Rule 606(b)(5) to “require a broker-dealer, upon request of a customer […] to provide customer-specific disclosures, for the prior six months, regarding […] its routing of such orders to various trading centers.”
Recent technological advancements, specifically the advent of smartphones, have revolutionized the commercial landscape, providing consumers and workers with new ways to access retail marketplaces and flexible work opportunities. This collection of markets that match service providers to consumers on a gig (or job) basis has been dubbed “the gig economy,” which includes companies like Uber, Lyft, DoorDash, and Task Rabbit.

The gig economy functions through a basic business model where gig workers serve as independent contractors to an on-demand company, providing services to the company’s clients through online platforms or smartphone applications.

The app-enabled gig platforms offer unprecedented flexibility, allowing gig workers to work only when they wish, and for as long as they want. The platforms also enable workers to control various aspects of their work, such as the selection of jobs, setting their hours and level of participation. In many ways, the gig economy can be seen as an extension of traditional freelance work. However, it differs in that the tech-platform company attracts clients, reducing the entry costs for providers. This can also attract workers with a wider variety of demographic, skill, and career characteristics. Because gig workers do not have to invest in establishing a company and marketing to a consumer base, their operating costs may be lower.

Entrepreneurship has long been associated with risk-taking, as argued by Knight in 1921. Due to moral hazard and adverse selection problems, capital markets often fail to provide sufficient capital to entrepreneurs, leaving them to finance themselves and bear the risk of failure. Providing a channel for income supplement or employment fallbacks as insurance for failed entrepreneurs should encourage more entrepreneurial entry. This paper argues that the platform-enabled gig economy, with its flexible work hours and low entry barriers, offers such insurance against the volatility of entrepreneurial income.
a result, participation in the gig market is often more transitory than the traditional freelancing market.

App platforms such as Uber, Lyft, and others make it easy for prospective providers to engage in gig work, as the low barriers to entry allow gig work to substitute for other employment in times of economic downturn or provide supplemental income opportunities.

We investigate the impact of gig work opportunities on the emergence of new entrepreneurial ventures, using the rollout of ridehailing platforms as a natural experiment. Ridehailing was one of the first gig economy platforms to achieve significant scale in the U.S. Uber launched in San Francisco in 2010, followed by Lyft and Sidecar two years later. The spread of ridehailing services across the U.S. accelerated rapidly after 2013, as shown in Figure 1.

The introduction of ridehailing into a city represented a supply shock for flexible gig work, and we leverage this shock to design our empirical analysis. As one of the first gig platforms, ridehailing’s expansion provided a unique opportunity to study the effect of gig work opportunities on new entrepreneurial ventures.

Our analysis of gig employment on entrepreneurial activity, is based on the Knightian view that an individual’s decision to pursue entrepreneurship or full-time wage-employment is determined by the relative expected returns offered by these choices. The option value of accessing gig work opportunities in the event of failure or in low states of the world can enhance the expected returns of entrepreneurship and thus affect their decision to pursue it. In other words, the existence of gig opportunities may enable a potential entrepreneur to launch a business that would not provide sufficient income in the absence of supplemental gig income. Moreover, the “insurance” that the ready availability of gig opportunities provides to a would-be entrepreneur should be more valuable in situations of economic uncertainty or when uncertainty regarding the viability or longevity of their proposed business is higher.

We specifically focus on incorporated business starts as they are likely driven by different factors than other types of entrepreneurship. While gig economy work may entice some risk-taking entrepreneurs to start new companies, it may also offer a more stable “employment-like” opportunity for individuals engaged in ad hoc self-employment. It’s worth noting that although technically all gig economy workers are self-employed, many classify themselves as “working for Uber (Lyft)” rather than reporting themselves as self-employed in surveys, as shown by Buritch et al. (2018).

The impact of gig economy opportunities on new incorporated business launches, which differ significantly from low-quality self-employment, remains unexplored.

Our empirical analysis utilizes a novel dataset of new business registrations in a local region, provided by the Startup Cartography Project (SCP) (http://www.startupcartography.com). Because a new company must not only incorporate in a state jurisdiction (which may not be the state they operate in), but also register to do business with their local Secretary of State (where the business actually operates), and because such registrations provide an actual operating address for the new company, utilizing business registration data allows us to observe the full universe of newly incorporated businesses. The SCP dataset thus allows us to observe entrepreneurial entry at the micro-level.

Utilizing incorporated business registrations, rather than measures of “self-employment,” allows us to capture the type of entrepreneurial activity.

Table 1: Gig Economy and New Business Registration

<table>
<thead>
<tr>
<th></th>
<th>(1) &gt;2000</th>
<th>(2) &gt;2005</th>
<th>(3) Treat = 1</th>
<th>(4) &gt;2005 &amp; Treat=1</th>
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<tbody>
<tr>
<td>Treat X Post</td>
<td>0.0389***</td>
<td>0.0676***</td>
<td>0.0527***</td>
<td>0.0594***</td>
</tr>
<tr>
<td></td>
<td>(0.0112)</td>
<td>(0.0121)</td>
<td>(0.0105)</td>
<td>(0.0108)</td>
</tr>
<tr>
<td>Log Pop</td>
<td>0.7358</td>
<td>0.3212***</td>
<td>0.1764***</td>
<td>0.1987*</td>
</tr>
<tr>
<td></td>
<td>(0.0928)</td>
<td>(1.087)</td>
<td>(1.189)</td>
<td>(0.194)</td>
</tr>
<tr>
<td>Log Income Per Capita (lag)</td>
<td>0.5212***</td>
<td>0.5094</td>
<td>0.2297***</td>
<td>0.0262</td>
</tr>
<tr>
<td></td>
<td>(0.0572)</td>
<td>(0.0668)</td>
<td>(0.0715)</td>
<td>(0.0728)</td>
</tr>
<tr>
<td>Unemployment Rate (lag)</td>
<td>0.0004</td>
<td>-0.0052**</td>
<td>-0.1125***</td>
<td>-0.0186***</td>
</tr>
<tr>
<td></td>
<td>(0.0018)</td>
<td>(0.0021)</td>
<td>(0.0021)</td>
<td>(0.0023)</td>
</tr>
<tr>
<td>Observations</td>
<td>195,446</td>
<td>139,225</td>
<td>114,384</td>
<td>81,761</td>
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<tr>
<td>R-squared</td>
<td>0.9590</td>
<td>0.9592</td>
<td>0.9665</td>
<td>0.9683</td>
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<tr>
<td>City FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Quarter FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>City Linear Trend</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Notes: This table presents results from generalized difference-in-difference regressions. The dependent variable, Log (1+New Business Registration), is the natural logarithm of one plus the number of new business registrations in a city-quarter. Treat X Post is a dummy variable that equals one if city C adopted at least one ridehailing service (proxy for gig economy arrival) at time t. Control variables in the regressions include the natural logarithm of population, income per capita (lagged one quarter), and unemployment rate (lagged one quarter). Standard errors, adjusted for clustering at the city level, are reported in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively.

Figure 1: Ridehailing Diffusion
This figure shows the diffusion of ridehailing across the U.S. by cities and population. The sample consists of all census incorporated places in the United States. The navy (red) line graphs the percentage of cities (population) that adopted ridehailing in each quarter between the fourth quarter of 2010 and the fourth quarter of 2017.


“Characteristic-based Returns: Alpha or Smart Beta?,” Journal of Investment Management, 2022, 20, 70-89.
This specification allows us to capture macroeconomic changes, such as the Great Recession, technological improvements, as well as city-specific conditions such as city topology, industry mix, and so forth. The location-specific time trend captures location-specific pre-trends in our outcome variables that existed prior to the arrival of ridehailing. To capture potential time-and-city varying confounders, such as population changes or increases in employment or income, we further control for population levels and per capita income. Our results are robust to the inclusion of a variety of additional controls and hold for different pre-period lengths as well as when we restrict the sample solely to ever-treated cities.

A natural concern is that ridehailing platforms did not launch in specific cities randomly. This could bias our results if, for example, ridehailing platforms specifically entered into “entrepreneurial” cities first. This does not appear to be the case. We find that the rollout timing of ridehailing platforms into cities is (as expected) predicted by per-capita income, population size, and unemployment levels, but does not appear to be predicted by the levels of entrepreneurial activity within a city.

Accordingly, our main tests utilize a difference-in-differences (D.D.) specification controlling for location and time (quarter-year) as well as location-specific linear trends. This specification allows us to capture only ever-treated cities, but with the sample post-2005. We estimate four models: column (i) presents estimates from the full sample period, column (ii) shortens the sample pre-period to post-2005, column (iii) restricts to solely ever-treated cities, and column (iv) uses only ever-treated cities, but with the sample post-2005.

The second pair of models are meant to assuage concerns that any results might be driven solely by differences between ever-treated and never-treated cities. Across all four models, we observe a similar pattern. The coefficient on Treat X Post ranges from 0.03 to 0.06, depending on the sample employed, consistent with the arrival of the gig economy being associated with an increase of approximately 3 to 6% in new business registrations. Figure 2 graphs the coefficients at the annual level around the entry point; the graph shows no trend in new business registrations prior to the ridehailing entry, consistent with a causal effect of gig opportunities.

Presumably, if the increase in new business launches is driven by the existence of gig economy income fallbacks, then the intensity of ridehailing adoption in a city should be related to the documented increase in our outcome variables. We proxy for the strength of ridehailing take-up in a city using the intensity of Google searches for terms such as “Uber” and “Lyft” in the treatment cities, a proxy that has been shown to correlate strongly with adoption of the platforms. When we substitute the treatment indicator for post-ridehailing-city with our ridehailing adoption intensity proxy for the city, we find that entrepreneurial entry increases in the intensity of adoption of gig opportunities in the city.

Having established the basic positive relation between the availability of ridehailing platform gig opportunities and new business formation, we next proceed to examine the financing channel for new businesses. As documented by Guzman and Stern (2019), the vast majority of new business launches are “traditional business entrepreneurship” (TBE) of the type described by Knight (1921). In contrast to innovation-driven entrepreneurship (IDE) ventures, which are typically financed via equity by angel and
venture capital investors who bear the primary risk associated with the venture. TBE ventures are typically financed through entrepreneur wealth or through some form of debt, particularly small business lending. Thus, in the right-hand panel of Figure 2 (page 29), we show the effect of ridehailing introduction on SBA loans to newly incorporated firms. Specifically, we match businesses registered in the prior six months to data on SBA loans made under the SBA’s 7(a) programs. Consistent with our findings of a 4%-6% increase in realized business registrations, we document a corresponding increase of similar magnitude in small business lending to newly registered businesses after the arrival of the gig economy.

So far, the measures we have employed measure realized entrepreneurial activity. We next proceed to explore whether the presence of gig economy income opportunities can also be seen in indicators of interest in the possibility of launching a business. We measure entrepreneurial interest (expression of interest in entrepreneurship) using Google searches for terms related to entrepreneurship, such as “how to start a business” or “how to incorporate.” By utilizing searches, as opposed to realized new venture starts, our intent is to capture an alternative measure of changes in expectations regarding the possibility of entering into entrepreneurship. Consistent with the notion that the availability of gig-work as a fallback spurs potential interest in entry into entrepreneurial activity, the D.D. specification in Table 2 (previous page) documents an approximate 7%-12% increase in interest (expression of interest in the possibility of launching a new business) following the arrival of the gig economy, while average weekly wages do not increase significantly altered by the arrival of the gig economy. Finally, while our D.D. specification in Table 3 (previous page) documents an approximate 7-12% increase in realized business registration, we find that the mix of new business types (traditional business versus innovation-driven business) also does not appear to be significantly altered by the arrival of the gig economy.

Finally, we turn to a measure that proxies for the downside risk of launching a new business: the bankruptcy rate in the county in which the city is located.

In Table 3, we interact our post-ridehailing variable with these proxies for uncertainty. Across all four proxies, we observe that the relationship between the arrival of ridehailing platforms (and their associated gig work opportunities) and new business formation is more pronounced in locations where our proxies for uncertainty are higher ex-ante.

Specifically, we find a 3-percentage-point larger effect in cities with a standard deviation of wage growth volatility, a 24-percentage-point-larger effect in areas with a standard deviation of business income volatility, and a 1-percentage-point larger effect in areas with a standard deviation higher business bankruptcy rate.

Importantly, we show that the pattern of where in the city these businesses open (geographic HHIs) does not change post-gig economy arrival, suggesting that we are not merely picking up an increase in business opportunities due to the opening of new neighborhoods to transportation via ridehailing. Moreover, we find that the mix of new business types (traditional business versus innovation-driven business) also does not appear to be significantly altered by the arrival of the gig economy. Finally, while our D.D. specification with city-specific linear trends is designed to explicitly control for growth patterns in the city, we provide further evidence that the effect we document is not simply a manifestation of differential overall economic growth patterns. Specifically, we show that average monthly wages decline in areas following the arrival of the gig economy, while our entrepreneurial activity measures do.

Table 3: Mechanisms for Growth in Entrepreneurial Entry

<table>
<thead>
<tr>
<th>Panel A: New Business Registration</th>
<th>Log (1+New Business Registration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Treat X Post X Wage Growth Volatility</td>
<td>0.0293*** (0.0067)</td>
</tr>
<tr>
<td>Treat X Post X Business Income Volatility (Cross-Sectional)</td>
<td>0.0293*** (0.0067)</td>
</tr>
<tr>
<td>Treat X Post X Business Income Volatility (Time-Series)</td>
<td>0.0293*** (0.0067)</td>
</tr>
<tr>
<td>Treat X Post X Business Bankruptcy Rate</td>
<td>0.0293*** (0.0067)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B: Google Search Share</th>
<th>Log (1+New Business Registration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Treat X Post X Wage Growth Volatility</td>
<td>0.0148** (0.0056)</td>
</tr>
<tr>
<td>Treat X Post X Business Income Volatility (Cross-Sectional)</td>
<td>0.0926*** (0.0126)</td>
</tr>
<tr>
<td>Treat X Post X Business Income Volatility (Time-Series)</td>
<td>0.0926*** (0.0126)</td>
</tr>
<tr>
<td>Treat X Post X Business Bankruptcy Rate</td>
<td>0.0926*** (0.0126)</td>
</tr>
</tbody>
</table>

Notes: This table presents the heterogeneous effects of ridehailing on new business registration (Panel A) and entrepreneurial interest (Panel B) by several measures of uncertainty. The dependent variable in Panel A, Log (1+New Business Registration), is the natural logarithm of one plus the number of new business registrations in a city-quarter. The dependent variable in Panel B, Log (1+Google Search Share), is the natural logarithm of one plus Google search share for entrepreneurship-related phrases, such as “start a business”, “how to incorporate”, and “become an entrepreneur”. Wage growth volatility is the standardized weighted sum of the variances and covariances of wage growth in the sectors of the economy, weighted by the employment share of each individual city as measured up until 2010. Business Income Volatility (Cross-Sectional) is the cross-zip standard deviation of IRS-measured business income in a CBSA in 2010. Business Income Volatility (Time-Series) is the cross-zip, cross-year standard deviation of IRS-measured business income in a CBSA from 2005-2010. Business Bankruptcy Rate is the county-year counts of business bankruptcy cases reported by U.S. Courts divided by the number of business filings reported by IRS, measured in 2013. All interacted variables are standardized to have a mean of 0 and standard deviation of 1. More detailed explanations of the variable constructions can be found in the Data and Sample section of the paper. Control variables in the regressions include the natural logarithm of population income per capita (lagged one quarter), and unemployment rate (lagged one quarter). Standard errors, clustered at the city level, are reported in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively.
We conclude our analysis descriptively in Figure 3 by exploring heterogeneity in our outcomes across the city characteristics of education level, race, and credit constraints. We find that our effects are largest in areas with lower education levels, higher fractions of Hispanic population, lower fractions of African-American population.

When we look at credit constraints at the city level, we find a U-shaped pattern suggesting the effects are larger both when the population of a location is extremely credit-constrained and in locations where they face much lower constraints. This is consistent on the supply side with a loosening of the credit constraint and with increases in demand in less constrained areas.

Our study offers several contributions to the literature. First and foremost, our results speak to a growing literature on the factors that drive entry into entrepreneurship. Recently, there has been a great deal of concern regarding a decline in entrepreneurial entry and business dynamism, given the importance of entrepreneurial activity for economic growth. Manso (2011, 2016) noted that tolerance for failure is a key driver of entrepreneurial entry: here, the gig opportunities provided by the arrival of ridehailing platforms provide the safety net that makes experimentation “safe” to explore. More broadly, our paper relates to a growing literature on entrepreneurial entry barriers, including personal wealth, government regulation, tax policy, and banking systems.

Relatedly, the ridehailing entry events studied in this paper could be considered shocks to the non-pecuniary benefits of alternative employment – notably, work flexibility. We expect there to be an effect on business formation decisions if marginal entrepreneurs value the flexibility directly or as insurance. This contrasts with existing evidence on non-pecuniary benefits in entrepreneurship, which focuses on how these aspects of entrepreneurial jobs motivate or sustain entrepreneurship.

Second, our study further contributes to a growing literature on the spillovers of the gig-economy on traditional business entrepreneurship and employment effects. Our work complements several closely related studies demonstrating that the gig economy can serve as an income fallback in down states of the world such as unemployment or job loss. Our finding complements prior work by showing how gig opportunities for income fallbacks during down states of the world not only spur less reliance on unemployment benefits or lower duration of unemployment spells, but also drive entry into entrepreneurship.

Finally, our study adds to the growing body of research on the economics of the gig economy, particularly on ridehailing. Previous studies have examined the benefits of flexibility provided by gig platforms for direct service providers. Our results go beyond these findings and demonstrate that the benefits of gig economy opportunities extend beyond those who work directly for the platforms. These opportunities may offer a form of insurance against the risk and uncertainty associated with entering entrepreneurship.

References


Figure 2: Heterogeneity by Demographics
This figure displays the regression coefficient estimates in Table 10 and two-tailed 95% confidence intervals based on standard errors clustered at the city level. We break out the effect of rideshare entry by the fraction of population in a city with high school degrees, the fraction of population in a city with bachelor’s degrees, the fraction of Hispanic population in a city, the fraction of black and African American population, average credit score, and the fraction of subprime borrowers, i.e. borrowers with credit scores below 660. The outcome variable for all panels is the natural log of new business registrations.
Corporate bankruptcy can be either a liberating or a traumatic experience for a director. Suppose a quick, pre-packaged bankruptcy allows the firm to shed excess debt, obtain a fresh start, and quickly resume operations. In that case, it can be a liberating experience. On the other hand, if the bankruptcy is prolonged, contentious, and destroys significant value, the experience can be traumatic and confirm a director’s view that corporate bankruptcy is costly.

Either way, bankruptcy is likely to be a significant life experience that affects the director’s views regarding distress costs and the advice that the director provides to other firms. In matters of distress costs, managers and other board members could give greater weight to the guidance of an individual director with firsthand experience. If true, the learning experience of one director might influence an entire board’s (and hence, a firm’s) risk tolerance.

Consistent with this possibility, we find that, on average, firms take on more risk when one of their directors experiences a corporate bankruptcy at another firm.
The increase in risk-taking is still surprising, given past evidence that corporate bankruptcies impose costs on directors in terms of fewer future directorships. To unravel this puzzle, we examine directors’ careers in the years after their bankruptcy experience. Consistent with earlier papers, we find that the average number of directorships declines following a bankruptcy. However, we find little evidence of a decline following less expensive bankruptcies suggesting that such bankruptcies impose fewer costs on directors. The lack of a negative career impact and the possibility that this experience differs from a typical director’s priors can explain why directors seem to lower their expected distress costs following less costly bankruptcies.

Our paper makes several significant contributions. First, the findings show that individuals actively learn from their experiences. Our findings indicate that traits shaped by experience, including those related to risk preferences, can change over time because of additional experiences. Second, our findings contribute to the literature on corporate boards. Rather than analyze the importance of board-level characteristics, like size, we focus on individual directors and provide evidence that even one director can make a difference – i.e., directors, not just CEOs, influence a wide range of corporate outcomes. Third, our findings speak to the literature regarding the dual roles of directors as both monitors and advisors. Prior work on directors primarily focuses on their monitoring role, particularly among independent directors. Our findings, however, suggest that the advisory role of directors, particularly non-independent directors, is also important. Finally, our paper also offers a potential explanation for the long-standing “under-leverage” puzzle in finance. Our paper’s findings suggest that directors without firsthand bankruptcy experience could have an inflated assessment of distress costs.

Figure 1: Change in cash holdings surrounding director bankruptcy experience

where they concurrently serve as a director. Specifically, as shown in Figure 1, such firms begin holding less cash and are less likely to issue equity, resulting in higher net leverage and increased distress-related events. These firms also become more likely to take up riskier projects, as reflected in the variability of cash flows, and less likely to diversify their business through acquisitions. Our findings also concentrate on firms where the affected director likely exerts more influence over the board’s decisions and among non-independent directors, whose primary role is to provide advice.

Overall, our results suggest that, on average, a past corporate bankruptcy experience increases a director’s willingness to take on risk in the future. While surprising at first blush, we find these shifts only present when the original bankruptcy was quick and resulted in a successful restructuring of the firm. These findings show that the type of bankruptcy experience matters and that, on average, directors update their views regarding distress costs downwards following less costly bankruptcy experiences.

A large theoretical literature in economics highlights the importance of organizational design and structure for the behavior and performance of organizations. The extent to which decision-making is delegated in an organization can affect the quality of its decisions and its ability to respond to a changing environment. Despite the vast theoretical literature, empirical evidence on how decision-making delegation affects organizational behavior is limited, likely due to a lack of information on organizations’ internal decision-making processes.

We introduce a novel measure of decision-making delegation in banks based on where branches’ deposit rates are set. We highlight that local delegation of deposit rate pricing can affect the ability of bank branches to react to local shocks. We obtain our data from RateWatch, which conducts a weekly survey of bank branches to collect information on the interest rates they offer on deposit and loan products. Along with providing interest rate quotes, RateWatch also identifies whether a branch sets its own rate or follows rates set by another branch in its organization. We use this information to classify bank branches by whether rates are set locally, i.e., in the county where the branch is located (hereinafter, local rate setters). We then employ natural disasters as shocks to local economies and examine whether bank organizational structure (i.e., the use of local rate setting) affects how branches (and banks) respond to natural disasters.

Natural disasters result in property damage and increase uncertainty about local economic conditions. A natural disaster tends to increase loan demand (Cortés and Strahan 2017) and may also result in increased demand for liquidity from the local population, satisfied through withdrawals of deposits or drawdowns of credit lines. How do banks respond to these (local) liquidity shocks? The first best response would call for a bank to equalize the marginal cost of capital across its branches and seamlessly transfer capital through its internal capital market to

Decision-Making Delegation in Banks

JANIS SKRASTINS, Olin Business School, Washington University in St. Louis
Journal: Management Science, forthcoming
Authors: Jennifer Dlugosz, Yong Kyu Gam, Radhakrishnan Gopalan, Janis Skrastins

A large theoretical literature in economics highlights the importance of organizational design and structure for the behavior and performance of organizations. The extent to which decision-making is delegated in an organization can affect the quality of its decisions and its ability to respond to a changing environment. Despite the vast theoretical literature, empirical evidence on how decision-making delegation affects organizational behavior is limited, likely due to a lack of information on organizations’ internal decision-making processes.

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branches that require more capital. However, if there are information frictions in the operation of bank internal capital markets, local liquidity could affect local lending (e.g., Bolton and Dewatripont, 1994). Aghion and Tirole (1997, Stein (1997, 2002), Scharfstein and Stein (2000). At the same time, natural disasters also likely increase the importance of local rate setting. In summary, local rate setting affects the operation of bank internal capital markets, delegation of deposit rate setting locally also affects lending. We use mortgage lending by a bank in a county as a proxy for local lending and find that banks with more branches setting rates locally have higher mortgage origination volumes roughly two percent higher in affected counties (Panel D of Figure 1). Finally, we examine whether there are real effects on the recovery of the local area. If a sufficient number of bank branches in an area do not set their rates locally and consequently experience liquidity shortfalls, then aggregate credit supply to the area may be affected, which may in turn affect local asset prices. Consistent with this hypothesis, house price declines following natural disasters are mitigated in MSAs where rates are set locally for the majority of branches. In other words, local delegation of deposit rate setting decisions can offset some of the negative impact of natural disasters on local areas.

Local deposit rate setting is not randomly assigned. We employ an instrumental variables strategy that instruments for local rate setting at the branch level using bank mergers. Granja and Paixao (2021) show that branches acquired by banks with strong uniform deposit pricing practices quickly conform to the uniform pricing scheme after the merger, regardless of whether they were offering higher or lower rates beforehand. We find that branches that merge with a bank that employs strong uniform pricing practices are less likely to set their rates locally compared to branches involved in other mergers.

We make a number of important contributions to the literature. Our paper shows that, despite a trend towards increased financial integration in the U.S. in the aftermath of banking deregulation, local banking markets remain less than fully integrated due to frictions in the operation of bank internal capital markets. We are the first to document the effect of delegation on the liability side of the bank balance sheet – namely deposits – on banks’ ability to react to local shocks. Our paper suggests that organizational structure, i.e., whether pricing decisions are made locally within a bank, also matters above and beyond any effect of bank characteristics like size or geographic scope.

References


Corporate Inversions and Governance

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Journal: Journal of Financial Intermediation, 2021
Authors: Felipe Cortes, Armando Gomes, Radhakrishnan Gopalan

Motivation and Research Objectives: In an attempt to reduce their tax burden, many U.S. companies reincorporate overseas (also referred as “corporate inversions”). While such inversions may potentially afford some tax benefits, there may also be some costs (to shareholders) resulting from changes in the firm’s corporate governance. Our objective is to comprehensively study the relationship between an inversion and different aspects of firm governance.

Changes to governance resulting from the reincorporation overseas have attracted the attention of major institutional investors including public pension funds such as Calpers. For example, the controversy regarding Walgreens’ attempt to reincorporate to Switzerland, a country with civil law legal origin, illustrates this point. While a number of activist hedge fund shareholders, including Jana Partners LLC, were attracted to the lower taxes, another Walgreens shareholder, the CtW Investment Group, opposed the move based on concerns that it would weaken the company’s corporate governance.

An expatriation not only alters the tax exposure of the company but it also changes the applicable corporate law – from the relevant U.S. state law to that of the country of reincorporation. Such a change can affect the fiduciary duties of the board, increase the anti-takeover defenses, and reduce the effectiveness of derivative actions to enforce shareholder rights. Yet, after an inversion, most of the U.S. public firms continue to be traded in U.S. exchanges and are classified by the Securities and Exchange Commission (SEC) as “U.S. issuers.” That is, firms that invert continue to receive the same treatment under the U.S. Federal Securities Laws. Moreover, their executive officers are subject to similar personal liability penalties as those of executives in U.S.-incorporated firms and cannot opt-out of corporate governance requirements of U.S. stock exchanges, which regulates governance best practices and board structure.

Our sample consists of 85 firms that invert over the 1996-2017 period – a total of 248 firm-year observations. Our sample includes companies such as Perrigo Plc that incorporated from Michigan to Ireland or Seagate Technologies that incorporated from Delaware to Cayman Islands, and later to Ireland. Importantly, the way U.S. public companies can change their tax domicile varies over time and across firms. In the first wave of inversions in the early 1990’s U.S. companies tended to reincorporate in a new country with no material change in its business and assets. The same existing shareholders owned the shares in the new foreign parent company. These were referred as “pure” or “naked” inversions, with Tyco Intl. or Ingersoll-Rand being the leading examples. Due to changes in U.S. tax code, pure inversions became more difficult to implement, paving the way to the “restructuring inversions.” These were prevalent in the early 2000’s and involved a material change in either the company’s ownership, business, or assets. The most common forms of restructuring inversions were via a merger where the U.S. firm merged with a foreign entity, effectively changing the country of incorporation of the surviving firm. Eaton Corp. or Actavis Plc are some examples of the latter form of inversions.

| Our main results are summarized in the table below: |
|----------------------------------------|--------|--------|
|                                       | Treated Firms | Control Firms |
| Observations                           | (1)     | (2)     | (1)-(2)     |
| Spread                                 | 488     | -0.300  | -0.585      | 0.285       |
|                                           | .0214   | (0.295) | (0.114) **  |
| Analyst Dispersion                     | 488     | 0.044   | 0.014       | 0.031       |
|                                           | (.008) *** | (.006) ** | (0.010) ***  |
| Inst. Ownership                        | 253     | -1.598  | 12.974      | -16.573     |
|                                           | 7.481   | (4.000) *** | (8.483) **  |
|                                           | 9.896   | (3.962) ** | (10.660) *  |
| Blockholder Ownership                  | 253     | -0.699  | 7.267       | -7.966      |
|                                           | 9.815   | (4.330) *  | 10.728      |
| % Equity Based Compensation            | 1,435   | -0.026  | 0.076       | -0.102      |
|                                           | 0.023   | (0.109) *** | (0.029) ***  |
| Log(Delta/Total Comp)                  | 1,315   | -0.580  | -0.139      | -0.440      |
|                                           | (.181) *** | 0.202   | (2.71) ***   |

Our main empirical analysis compares the changes in corporate governance in the firms that invert to the corresponding changes in a matched group of U.S. incorporated multinational control firms with similar characteristics. We look at three different measures of corporate governance. First, we examine changes in stock liquidity after an inversion. The potential for weaker governance can make the stock less attractive to shareholders, reduce disclosure, and translate into investors being reluctant to invest and trade in these shares. Second, we examine changes in institutional ownership. Prior literature highlights the important governance role of institutional

3 The SEC defines a foreign-incorporated firm as an U.S. issuer if more than 50% of the outstanding voting securities are held by U.S. residents and the firm has significant business in the U.S. (see Internet Appendix for more details). Otherwise the firm is classified as a foreign issuer.
In this paper, we shed light on an unexplored aspect of inversions, namely its relationship to firm governance. Our analysis indicates that firms that invert have weaker governance than comparable U.S. firms. Thus, despite enjoying the full protection offered by the U.S. Federal Securities Laws, inverted firms have weaker governance than comparable U.S. firms. Moreover, our results are also relevant for the large number of foreign-incorporated U.S. issuers listed in the U.S. capital markets, as these firms decide on the costs and benefits of continuing to be incorporated overseas.

Numerous American companies are changing their incorporation to countries with a lower corporate tax rate or considering such a move. Firms that invert are large as evidenced by the fact that many of them are included in the S&P 500 index. Just since the beginning of 2014, more than 15 new merger inversions have been announced, prompting legislative action to stop the reincorporation outside the U.S. In particular, the 2017 Tax Cut and Jobs Act has significantly reduced the U.S. corporate tax rate and also shifted the U.S. to a territorial tax system, exempting overseas income of U.S. multinationals from U.S. corporate tax. While this law will go a long way towards reducing the tax benefits from an inversion, U.S. corporations continue to announce overseas reincorporation plans even after the passage of the TCJA.
Author Biographies

John M. Barrios (page 26) is an Assistant Professor at Washington University in St. Louis and a research fellow at the National Bureau of Economic Research. His research interests span the fields of financial accounting, entrepreneurship, labor economics, and antitrust, with publications in the respective leading journals. Dr. Barrios’ research has also been featured in major media outlets, including The Economist and the Wall Street Journal. He holds a Ph.D. from the University of Miami and a B.S. from Cornell University.

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Practicum Projects with CFAR

The Center for Finance & Accounting Research is continuing to expand practicum offerings and the high level of sophistication of the consulting projects conducted by a team of students. We work with the following:

- Investment management companies
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- Quantitative finance companies
- Banks
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- Treasury and accounting departments of corporations
- Fintech operations and Artificial Intelligence (“A.I.”) driven finance companies

I meet with finance officers of corporations and non-profit organizations to design practicum scopes to create projects that meet real business needs. This gives students the opportunity to conduct deep level research over the 14-week semester for fall and spring terms. The masters students are capable of conducting complex projects as we expand into machine learning, coding, deep analytical research on investment metrics or specific asset classes. Topics in recent semesters have included sustainability and financial impact on the Supply Chain; Environmental, Social and Governance (“ESG”) analysis of types of investments; measurements of banking vulnerability to the mortgage market; developing coding and machine learning in financial A.I. systems to optimize Roth IRA conversion; research for investment targets in hard-to-access databases for founder-owned businesses overseas.

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The Corporate Finance and Investment Masters of Finance student practicums focus on all aspects of M&A, takeovers, alternative assets and fundamental analysis. The teams work on investment analysis of metrics for portfolio managers that may focus on unusual aspects of the market, trend analytics, data research or highly relevant topics given market cycles, such as stress testing for recession or economic forecasting.

Results belong to the corporate sponsor:
Intellectual property, including coding and metrics, that are created by the student team belongs to the corporate sponsor at the end of the term. Many corporations are leaping to take advantage of a CFAR practicum as a chance to have a masters level group of students under the guidance of a professor qualified in the topic advise the corporate sponsor for free. The teams are large enough to split into subgroups to analyze several particular issues, for example, one subteam will cover the technical aspects while the other subteam evaluates investment or corporate finance metrics to fully understand another angle of the client’s business objective.

Professor Timothy G. Solberg, CFA
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Recent corporate clients have included:
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Olin Business School is internationally recognized for scholarship and research, Olin faculty members help you turn business problems into practical applications. Their far-reaching research addresses priority issues and emerging business challenges, producing timely and relevant material that functions far beyond the classroom — for sustainable improvement and growth for companies. Through the efforts of Olin’s faculty-led research centers such as WFA-CFAR, an organization’s top priorities and business challenges can drive new areas of study. To discuss offering your organization’s data for a new project with Olin’s world-renowned finance and accounting faculty, contact WFA-CFAR Program Kristen Jones at 314-935-4573 or kristen.jones@wustl.edu.

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Fall 2022 meeting of the WFA-CFAR Advisory Board  
First row from left to right: Kristen Jones, Rick Holton, Jr., Dan Winston, Marcela Manjarrez, Voin Todorovic, Anjan Thakor.  
Second row from left to right: Jim Bullard, Tatiana Vdovina, Timothy Solberg, Spencer Burke.  
Third row from left to right: David Levy, Mark Leary, Chris Varvares, Atul Kamra.  
Not pictured: Ken Cella, Robert Holmes, Wes Jones, Mark Lewis, Joe Nadreau.