Who benefits from the revolving door? Evidence from Japan *

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November 21, 2024

Abstract

A growing literature finds high returns to firms connected to legislative office. Less attention has been paid to benefits from bureaucratic connections and to organizations beyond for-profit firms. Using new data recording the first post-bureaucracy position occupied by all former civil servants in Japan, I reveal a bifurcated job market in which the highest ranking civil servants from the most prestigious ministries retire into for-profit firms while others join non-profit and public organizations. I show that for-profit firms receive larger government loans and stock price boosts following bureaucratic hires, and that these effects are driven by hires from prestigious economic ministries. I also show that non-profits leverage their bureaucratic hires by receiving higher value contracts in periods when former officials are in director positions at the organization. While top civil servants are therefore of value to for-profit firms, others find post-bureaucracy employment in non-profits supported by government funding.

Keywords: Business and government; political connections; bureaucracy; procurement; money in politics; nonmarket strategy

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*I would like to extend a special thank you to Sayumi Miyano, Diana Stanescu, and Hikaru Yamagishi, my partners in constructing a dataset that made this project possible, and to my mentor in all things Japanese politics, Frances Rosenbluth—this paper is dedicated to her memory. I also thank: Ayumi Sudo, Ken Tanaka, and Junyao Zhang for excellent research assistance; P.M. Aronow, In Song Kim, Miriam Golden, Mina Pollmann, Ulrike Schaede, Kenneth Scheve, Tara Slough, Yuhua Wang, and Hye Young You for helpful feedback and suggestions; participants at the Columbia University Horizons in Japanese Politics and Copenhagen Business School Money in Politics Conferences; the University of Tokyo Institute for Social Science and Waseda University Institute of Political Economy for database access; and the Japan Foundation Center for Global Partnership for generous financial support. The human subject protocol of the research was evaluated and approved by an ethics committee at Yale University. Any and all errors are my own.

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Introduction

A growing literature has established the high value of legislative connections to firms. Connections to political office holders are associated with boosts in operating profit margins (Blanes i Vidal, Draca and Fons-Rosen 2012; Truex 2014); size of government loans received (Khwaja and Mian 2005); probability of default (Khwaja and Mian 2005); share prices (Faccio 2006); and likelihood of corporate bailout (Faccio, Masulis and McConnell 2006). However, political office is not the only form of government connection firms can leverage. Firms also regularly hire civil servants—a practice commonly referred to as the revolving door (Dal Bó 2006). Notably absent from the studies above is an examination of returns to office from these bureaucratic connections.

I use newly collected data that records the first non-bureaucracy position occupied by all former civil servants in Japan to shed light on both the descriptive patterns of employment of former civil servants, as well as to examine the impact of revolving door hires on firm-level outcomes such as the size of government loans received, stock price fluctuations, and government contract procurement. The data also reveal a previously overlooked form of revolving door connections—post-government employment in nonprofit public interest organizations (hereafter NPOs). In contrast with the scant attention paid to these connections, I show that almost half (48%) of bureaucrats are re-hired by public corporations or NPOs, and that these firms leverage their bureaucratic connections to increase the size of the government contracts they receive.

Most studies of the bureaucratic revolving door are theoretical models of the leniency of regulatory scrutiny of firms that hire former regulators (Che 1995; Dal Bó 2006; Salant 1995) or the value of bureaucratic connections to firms (Bils and Judd 2020). Fewer studies empirically examine returns to firms from revolving door hiring—and those that do derive evidence from convenience samples or single agencies (Asai, Kawai and Nakabayashi 2021; Cohen 1986; Gormley Jr 1979; Horiuchi and Shimizu 2001; Huntington 1952; Lee and You

2020; Van Rixtel 2002)—despite the higher volume of personnel movements from the civil service to the private sector compared with political officeholders.

By contrast, my approach is empirical and systematic. I combine newly constructed datasets of all initial revolving door hires, all government loans to private firms, stock prices of all firms that make high-level bureaucratic hires, and all government contracts with NPOs in Japan over a period of one decade to test for benefits that accrue to organizations who hire former bureaucrats. To locate potential benefits, I conducted interviews with current and former bureaucrats, business leaders, and NPOs in Japan. These interviews reveal two broad themes regarding the nature of firms that hire former bureaucrats: an ability to foster connections and potentially generate contracts or loans through these connections on the one hand, but lower business acumen and managerial expertise than career businesspeople on the other. Bureaucratic appointments may therefore be vital to otherwise lower performing firms that receive support through government loans or contracts.

I first use new data to descriptively reveal a bifurcated job market for retiring bureaucrats in Japan. I show that hiring of former bureaucrats by NPOs is much more prevalent than previously thought, and that NPOs primarily hire lower-ranked officials from less prestigious ministries. By contrast, among for-profit firms, higher ranking officials are more likely to be hired by large, publicly traded firms and lower ranking officials are more likely to be hired by smaller, private firms. Further, the most prestigious ministries place the highest percentages of total bureaucrats into publicly traded and for-profit firms.

Next, I show how these differential flows of bureaucrats to different sectors of the economy lead to benefits to firms in each respective sector. First, using a differences-in-differences (DiD) approach in which matching techniques are first applied to give treated and matched control observations similar covariate values (Imai, Kim and Wang 2019), I show that the hires of prestigious finance and economy ministry bureaucrats at private firms lead to increased volumes of government loans in the years following their hire. Second, I show that investors value hires of high-ranking economic ministry officials using an interrupted time

series approach. I find that high-profile hires increase stock prices, but through internal connections rather than improved corporate governance and oversight. Third, I examine benefits to NPOs from their hires of primarily lower tier officials. I use new data revealing the number of former officials in director roles at the time an NPO contract was negotiated and DiD approaches that account for the negative weighting issues highlighted in recent literature (e.g., de Chaisemartin and D'Haultfœuille (2020)) to show that NPOs receive higher value contracts in years when former bureaucrats are on staff. In addition, I find that government contracts negotiated while former bureaucrats are on staff exhibit irregularities according to commonly used forensic accounting techniques, while other contracts do not.

Collectively, interviews, descriptive analysis, and causal estimates suggest that Japan possesses a bifurcated job market for former bureaucrats in which only a select few are highly valued by for-profit firms. Top bureaucrats from ministries that control the levers of finance, industrial policy, and regulation are in high demand. These highly valued individuals are in turn able to drive benefits to for-profit firms. However, for those not desired by the private sector, spaces have been created in NPOs (where there are at times direct pipelines from specific ministries to specific NPOs) where former bureaucrats appear able to leverage their connections to help these agencies secure continued government funding.

Related literature and theory

A large literature shows how connections to political office provide tangible benefits to firms. Blanes i Vidal, Draca and Fons-Rosen (2012) show that the lobbying revenue generated by ex-congressional staffers is dependent on their former employer remaining in office. Truex (2014) finds that firms with CEOs in China's National People's Congress have higher stock prices and operating profits. Faccio (2006) shows that companies see stock price boosts when large shareholders or top officers enter politics, and Faccio, Masulis and McConnell (2006) show that politically connected firms are more likely to receive government bailout in a crisis. Boas, Hidalgo and Richardson (2014) find boosts in the number of contracts

awarded to Brazilian firms that donate to winning political campaigns.

In addition, a robust theoretical literature models the impact of bureaucratic revolving door hiring practices on regulatory outcomes. Researchers have argued both that the revolving door harms the objectivity of regulators and leads to regulatory capture, and that the revolving door leads to improved regulatory outcomes as regulators attempt to signal competence to potential future employees.[1]

Few works have attempted to bridge these two literatures to show the impact of bureaucratic connections on firm-level outcomes. Exceptions include Lee and You (2020), who find that firms with connections to the Office of the US Trade Representative decrease their lobbying spending and participation on advisory committees, and Barbosa and Straub (2020), who use the Brazilian labor census to show that medical supply firms that hire former civil servants offer lower prices to the government.

If bureaucratic office leads to similar benefits as legislative office, we should therefore expect to see increased government loans, government contracts, and stock price boosts to firms engaging in revolving door hiring. However, I do not simply assume that the benefits of the bureaucratic revolving door are the same as other types of political connections, or that the cases of other countries extrapolate to Japan. Instead, I corroborate these expected benefits with previous theoretical work specific to Japan, examination of descriptive statistics, and interviews.

Case selection: amakudari in Japan

The revolving door is well-known in the context of the Japanese political economy, where it is referred to as *amakudari*—literally "descent from heaven." *Amakudari* refers to the widespread practice of civil servants "retiring" to the private sector at the end of their careers in the civil service. A subset of *amakudari* in which civil servants retire into public sector firms—*yokosuberi*— has also been discussed in previous literature.[2] Technically these

[1] See Dal Bó (2006) for an excellent overview.

[2] For ease of language, I use the term *amakudari* to refer to both private and public sector revolving door hires throughout the paper.

practices are not "revolving," as retired bureaucrats do not tend to return to the bureaucracy, nor does the bureaucracy hire mid-career private sector employees.[3] Theoretical literature suggests that the longer a revolving door bureaucrat remains in office prior to taking up a position at a firm, the more valuable they become to their new employer due to the number and closeness of connections they develop (Bils and Judd 2020). Given the long tenure of bureaucrats in the civil service prior to taking private sector positions, Japan should therefore represent an extreme case with a high number of valuable connections.

It is well understood why Japanese civil servants wish to enter the private sector. The system provides lucrative post-retirement positions for career bureaucrats, who require the positions for two primary reasons. First, as even elite bureaucrats are not highly paid in Japan, *amakudari* represents a form of deferred compensation (Colignon and Usui 2003). Second, Japan's relatively low levels (in international comparison) of cash transfers to older individuals and high frequency of working in old age (Estévez-Abe 2008) imply that mandated retirement for bureaucrats forces them to look for continued employment in order to maintain their standard of living.

However, what the universe of opportunities available to former bureaucrats looks like and what benefits firms that hire them receive is less understood. Some work posits that the hires give firms direct pipelines to their regulators (Calder 1989; Colignon and Usui 2003; Schaede 1995) or are exchanges for reduced regulatory scrutiny (Grimes 2005). Others discuss aid in securing government loans (Blumenthal 1985). Finally, many scholarly and journalistic works suggest that former bureaucrats help organizations secure lucrative government contracts with their former employer (Colignon and Usui 2003; Jones 2013; Mizoguchi and Van Quyen 2012; The Economist 2010; The Japan Times 2017; Usui and Colignon 1995; Woodall 1997). This is not limited to for-profit firms, with past scandals arising after large subsidies and contracts were received by nonprofit "public interest corporations" with large numbers of *amakudari* employees on staff (Mizoguchi and Van Quyen 2012). I test for increased granting

[3]Despite this semantic discrepancy, I use "revolving door" in order to speak to the literature addressing connections between private and public sector positions.

of government loans to for-profit firms with data on all government loans to private firms in Japan, and increased granting of contracts to public interest corporations with data on all government contracts to NPOs.

Few empirical studies examine correlations between *amakudari* and specific outcomes, and those that do rely on convenience samples. These studies find that: between 2001-2004 firms with former bureaucrats from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) on staff were more likely to win bids for government contracts from MLIT (Asai, Kawai and Nakabayashi 2021), that 125 regional banks that hired 200 officials from the Ministry of Finance (MOF) between 1977 and 1991 tend have reduced capital adequacy levels and more non-performing loans (Horiuchi and Shimizu 2001), and that 266 banks with 204 MOF and Bank of Japan *amakudari* officials on their boards of directors between 1977-1993 had lower profits and engaged in more risky lending (Van Rixtel 2002).

Past empirical analyses therefore suggest that *amakudari* is not a practice regularly undertaken by the highest performing or most dynamic firms—a view shared by many interviewees. A review of the literature on *amakudari* concludes that "despite the longstanding interest and sometimes heated debate of scholars, one of the most striking things about this literature is the lack of serious data analysis" (Grimes 2005). Theoretical benefits of *amakudari* to firms therefore remains a subject of debate, and empirical adjudication is limited.

Pressure to regulate *amakudari*[4] culminated in reforms to the National Public Service Act (NPSA) drafted under the government of Prime Minister Junichiro Koizumi and enacted in 2008 (Kato 2017; Mishima 2013; Terada 2019). This reform requires civil servants to notify the Cabinet Office of their re-appointments (*National Public Service Act* 1947, Article 106-23).[5] All notifications are reported publicly at the end of each year (*National Public*

[4] *Amakudari* has been blamed for multiple regulatory and policy failures in Japan and inability to enact structural economic reforms. For example, scholars and government reports have blamed *amakudari* for crises such as the savings and loan bailout (Carlson and Reed 2018; Mishima 2013), the HIV-contaminated blood scandal (Carlson and Reed 2018; Mishima 2013), and the Fukushima Daiichi nuclear plant disaster (Diet of Japan 2012; Mishima 2013).

[5] Other notable reforms included: forbidding ministries from contacting potential *amakudari* employers

Service Act 1947, Article 106-25), and were utilized to create a dataset of all *amakudari* appointments from 2009 to 2019 (Incerti, Miyano, Stanescu and Yamagishi 2024), offering new opportunities for empirical analysis.

This data reveals that fewer firms appear to view *amakudari* as a vehicle for top talent than expected, and that the market for *amakudari* is bifurcated by rank, ministry, and types of corporations. Top bureaucrats from ministries that control the levers of finance, industrial policy, and regulation are in high demand. The largest, oldest corporations maintain constant flows of former officials in order to maintain their close ties to the government. However, smaller, newer, and more innovative firms have less of an appetite for former officials, and lower ranking officials or officials in less prestigious ministries are less likely to find employment in large private corporations. Instead, these bureaucrats benefit from the close connections between the bureaucracy and Japan's complex web of "public interest corporations," where they both find post-bureaucracy employment and help secure continued government funding.

Identifying outcome variables

Previous research has linked retiring bureaucrats and private-sector firms in the market for jobs. However, the details of the post-bureaucracy job market and the benefits to firms from these exchanges are less clear. In order to identify the outcome measures for our study, I (1) reviewed theoretical literature for hypothesized benefits, (2) conducted interviews to locate the additional benefits and outcome measures; and (3) evaluated each variable in terms of data availability. I arrived at three outcome measures for empirical testing: public contracts, government loans, and boosts to short-term financial returns.

directly (*National Public Service Act* 1947, Article 106-2) and creating a surveillance commission in the cabinet office to monitor breaches of *amakudari* regulations (*National Public Service Act* 1947, Article 106-5).

Interviews

I conducted interviews with nineteen current bureaucrats, former bureaucrats, and directors of firms who hire (or refuse to hire) former bureaucrats to identify benefits believed to accrue to firms by industry insiders and experts in Tokyo between 2019-2022.[6] Interviews revealed that receipt of public contracts, regulatory benefits, and government financial assistance (especially in times of crisis) were viewed as potential benefits by directors of firms and bureaucrats in Japan. For example, an official in one of Japan's ministries stated that while *amakudari* "does not necessarily result explicitly in subsidies or contracts, it is definitely beneficial" (Author Interview D1a). A director in a major consulting firm noted that "*amakudari* is most beneficial in industries where regulations are most strict" (Author Interview D1b). A corporate finance expert stated that *amakudari* tends to increase in the banking sector when banks are in trouble (Author Interview N1a). Finally, a corporate governance expert noted that "investors would definitely notice" high level appointments (Author Interview N1b).[7] However, interviewees also expressed a perception that *amakudari* was more common at lower performing firms, and that the value of former bureaucrats lied in their connections rather than business acumen.

Of the benefits identified in interviews and previous literature, data on government contracts to NPOs is publicly available and has been theoretically linked to revolving door hires by previous researchers. Government financial assistance was also identified as a source of benefit inside and outside of Japan, and data on government loans is available through the Nikkei Economic Electronic Databank System (NEEDS) database. Assistance in regulatory

[6]Subject recruitment and engagement adhered to the APSA Principles and Guidance for Human Subjects Research. Prior to interviews, participants were provided with a document describing the purpose of the research project, potential risks, and efforts taken to ensure anonymity. Voluntary and informed consent was then obtained through verbal consent to participate in the study. The research did not intervene in any political processes, involve any vulnerable participants, nor engage in deception. The interview and informed consent protocols were reviewed by an Institutional Review Board at Yale University.

[7]As noted in Related literature and theory, these perceived benefits comport with those theorized to accrue from revolving door hiring in previous literature. This literature emphasizes stock valuations (past studies have found a reputation boost to politically connected hires, which manifests through higher stock price valuations immediately following appointment (Truex 2014)), revenue, profit margins, number of public contracts granted, speed of regulatory approvals, and percentage of regulatory approvals.

compliance was commonly noted, but such data is not obtainable. If high-ranking hires are expected to result in contracts or loans, we may expect to see stock price boosts following the announcement of hires, and daily stock-price data is readily available to examine fluctuations in valuation at the time of hiring.

In the context of Japan's "lost decades" of economic stagnation, government loans to lower-performing firms are also an important potential mechanism in sustaining unprofitable "zombie" firms that nevertheless survive due to continual access to credit. While tight links to firms' commercial "main banks" have been identified as a source of zombie credit, government lending that may be facilitated by government connections is an under-explored mechanism of potential support.

Data and descriptive statistics

Data collection

The NPSA has required reports of re-employment of civil servants since 2009. This resulted in the creation of over 1,000 pages of PDF reports documenting bureaucratic rehiring, which were digitized to create a dataset of over 13,000 hires of former bureaucrats over the past decade (Incerti et al. 2024). These reports include information on former place of government employment and position title, as well as subsequent firm and position title (see Table A1). Importantly, this data only contains information on a bureaucrat's first post outside of the bureaucracy, and does not include subsequent appointments for which there are no reporting requirements.[8] As regulations prohibit bureaucrats from joining firms or NPOs that they interact with directly for two years following their retirement from the civil service, the data likely does not include the strongest connections that might lead to *quid pro quo* exchanges. Nevertheless, past studies of the revolving door tend to rely on convenience samples or CV collection, while I posses systematic data (i.e. the full population of initial appointments). The resulting dataset is available online under the title *Amakudata*, and an accompanying

[8]Observers of Japanese politics will note that this implies that we do not observe *wataridori* (literally "migratory birds"), the practice of serial reemployment in multiple firms after leaving the civil service.

Table 1: Overview of data sources

Data	Source	Information	Use
Civil servant re-employment	Cabinet Office reports	Bureaucratic rehires	Independent variable
Nikkei NEEDS	Nikkei Inc.	Firm attributes and financials	Matching covariates
Nikkei NEEDS	Nikkei Inc.	Government loans	Outcome variable
Stock prices	Yahoo Finance	Stock performance	Outcome variable
Nonprofit contracts & subsidies	Cabinet Office reports	Nonprofit contracts & subsidies	Outcome variable

online dashboard (*Amakudashboard*) allows users to explore the data and create custom visualizations.

Rehiring data was merged with data on specific outcomes in order to test for benefits of revolving door hiring. I collected data on Japanese government loans to for-profit firms, stock prices in the time periods around high-ranking bureaucratic hires for publicly traded firms, and government contracts to NPOs. Data on government loans are from the NEEDS financial database, the largest and most comprehensive firm-level economic and financial database in Japan. Loan data is merged with firm attribute and financial data for all large Japanese firms (also from NEEDS) and *Amakudata* in order to match *amakudari* firms with non-*amakudari* firms on financial covariates. Stock price data are adjusted closing prices from *Yahoo Finance* for publicly traded firms. For contracts to nonprofit organizations, I compile 93 public reports containing approximately 25,000 records of contracts, public works projects, and subsidies from various ministries or the national government to nonprofit organizations from the Japanese Cabinet Office (Incerti 2024). The data includes the names of the purchasing government entity, the name of the organization that received the contract, the goods or services exchanged, the value of the contract, the date of the contract, and the auction type. For negotiated (i.e., non-competitive-bid) contracts, the data also includes the number of former government employees on staff at the receiving organization at the time the contract was granted. See Table 1 for a tabular depiction of all data sources.

Revolving door hiring in Japan: a bifurcated job market

Descriptive statistics confirm many insights from decades of qualitative work on *amakudari*, but also highlight new patterns. Most notably, the data reveal a job market bifurcated by public interest vs. for-profit corporations, top vs. lower level officials, and ministry prestige.

Public interest corporations

First, I examine where bureaucrats seek reemployment following retirement from the bureaucracy, and demonstrate that the job market for former bureaucrats is bifurcated by destination type and position level. 6314—roughly one-half of—bureaucrats retired into nonprofit "public interest" (5301) or public (1013) corporations, compared with 6126 bureaucrats who retired into for-profit firms (i.e., stock and non-stock corporations) as expected (see Figure 1).[9] Previous scholars discussed cases of this phenomenon (Carlson and Reed 2018; Colignon and Usui 2003; Jones 2013), known as *yokosuberi* or "sliding sideways," but we can now confirm that public[10] and public interest corporation hiring of former bureaucrats is much more common as a percentage of total appointments than previously appreciated, and in fact even represents a slight majority.[11]

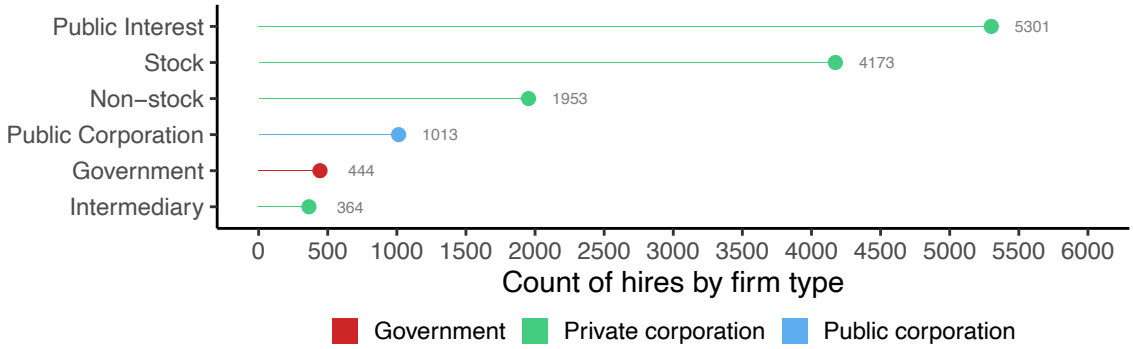


Figure 1: *Amakudari* destinations by firm type

[9]The potential for government waste stemming from high salaries paid to former bureaucrats at "public interest corporations" is a promising area for research, but one which is outside of the scope of this paper.

[10]Japanese: *dokuritsugyōseihōjin*. This includes destinations such as patent offices, courts, notaries, etc.

[11]Previous filings such as those analyzed by Colignon and Usui (2003) did not require reporting of most public interest hires.

Examination of hiring by position level reveals that only the highest ranking officials (i.e., vice ministers and assistant vice ministers) retire predominantly (51%) into large, publicly traded firms, while roughly half (48%) of bureaucrats below the rank of assistant vice-minister move to public interest corporations (see Figure 2). By contrast, only 39% of vice and assistant vice ministers move to public interest corporations, and only 31% of individuals below the level of assistant vice minister move to publicly traded firms. Further, top hirers in the public interest sector draw primarily from a single ministry (see Figure A4), suggesting that there are direct pipelines to public interest corporations for bureaucrats who are unable to secure positions in the private sector. Beyond for-profit firms: benefits to NPOs will demonstrate that these individuals drive contract receipt to their new places of employment, perpetuating a system in which the government drives funds to firms that are used as revolving door placements for its lower ranking employees.

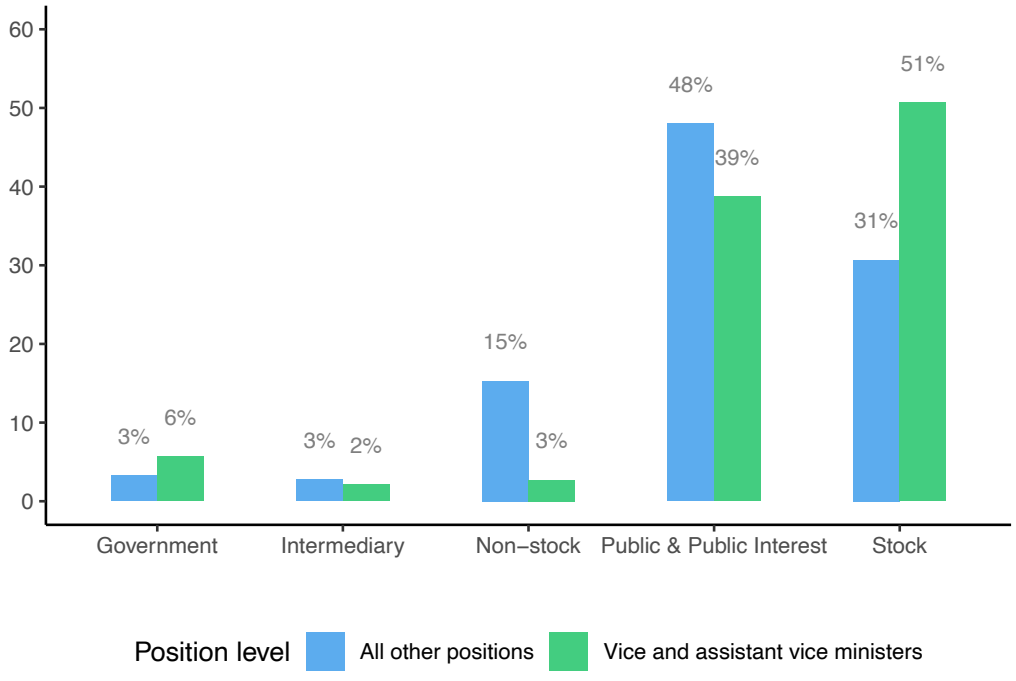


Figure 2: Percentage of officials re-hired by destination type

For-profit and publicly traded firms

Turning to for-profit firms, we again see a market bifurcated by position level. Higher ranking officials are more likely to be hired by large, publicly traded firms, while lower ranking officials are more likely to be hired by smaller, private firms (see Figure 2). Industries reliant on government contracts—such as transportation—and highly regulated industries—such as finance, banking and insurance—are overrepresented in hiring compared to the overall economy (see Figure A2 and Table A2),[12] and the top for-profit hirers belong to highly regulated industries such as insurance, transportation, and finance.[13] The most common posts bureaucrats take in for-profit companies are tax advisors, consultants, auditors, lawyers, board members (internal and external), and executives, with top officials more likely to take board member or executive roles in publicly traded firms.

In contrast with public interest corporations, for-profit hirers draw from multiple ministries (see Figure A5). Some industries, however, draw overwhelmingly from ministries with direct connections. For example, the construction, electric power, transportation, and transport equipment sectors hire predominantly from the MLIT, the majority of banking and finance hires are from the Ministry of Finance (MOF), and the majority of information and communication hires are from the Ministry of Internal Affairs and Communications (MIAC) (see Figure 3).

These patterns exist despite a stipulation banning bureaucrats from taking positions in sectors they used to supervise. For example, 28 MOF officials retired into private sector banks since these regulations were passed. 115 retired into regional credit unions known as *shinkin* banks, including 90 from regional finance bureaus. A further four officials retired into *shinkin* banks from their direct regulator—the Financial Services Agency.[14]

[12]This adds additional evidence to previous theories highlighting the importance of regulatory benefits from *amakudari*, and represents a promising area for future research not addressed in this paper.

[13]This confirms Schaede (1995)'s insight.

[14]Note that the Financial Services Agency is not located with the Ministry of Finance.

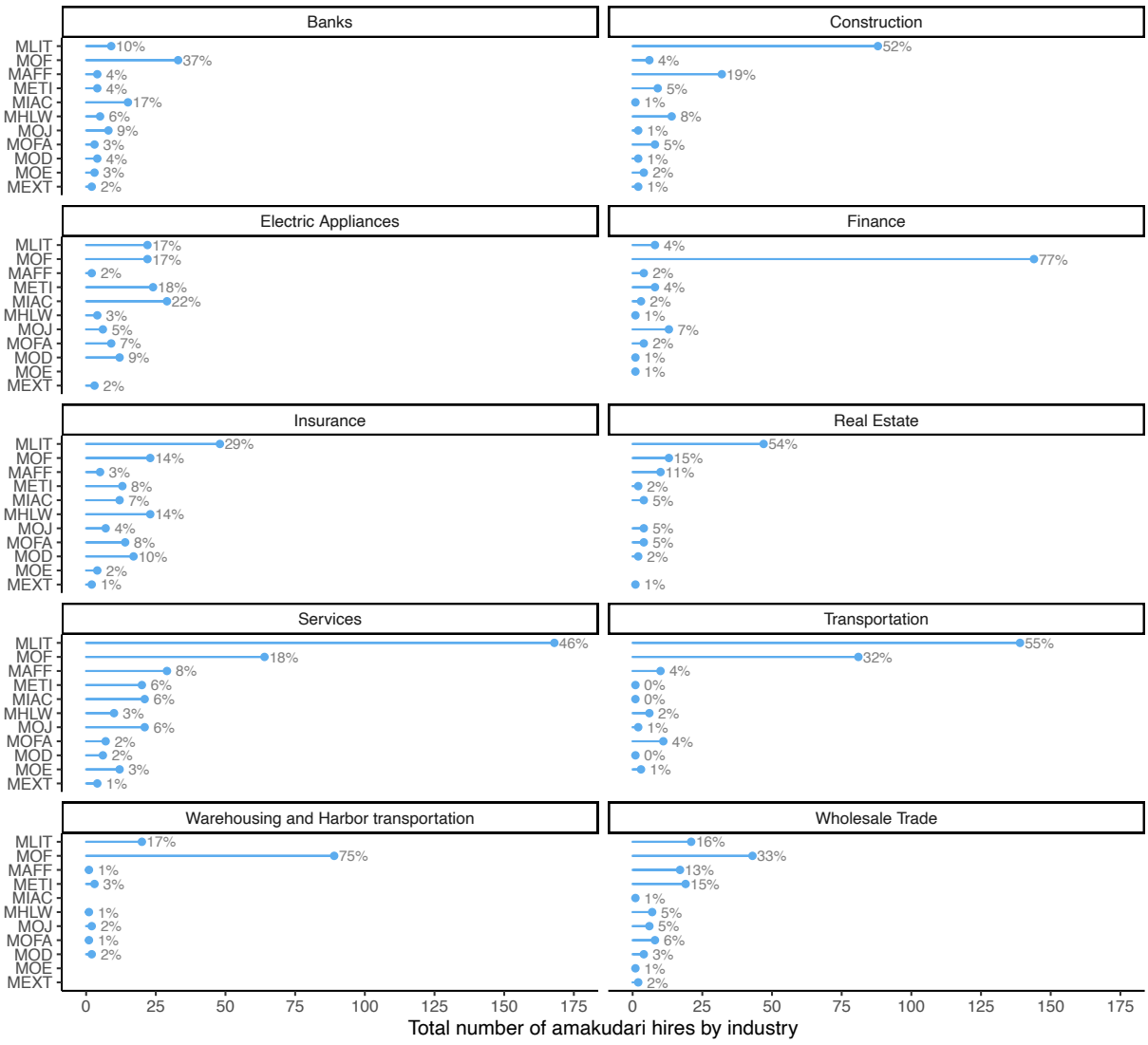


Figure 3: Private sector hires by industry and ministry (2009 - 2019)

Note: Top 10 industries by number of hires. Includes appointments from ministries only. Independent agencies not included.

Bifurcation by ministry

Next, I examine which ministries *amakudari* come from and whether there is variation in placements by ministry. The largest number of hires come from the MLIT, followed by the Ministry of Health, Labour and Welfare (MHLW), the Ministry of Justice (MOJ), the MOF, and the Ministry of Economy, Trade, and Industry (METI) (see Figure A3a). Adjusted for ministry size, METI and the Ministry of Education, Culture, Sports, Science and Technology

(MEXT) are the largest suppliers of former bureaucrats (see Figure A3b).

The most prestigious ministries—the METI and MOF— place the highest percentage of total bureaucrats into for-profit firms. The MOF places the largest percentage of its retirees in publicly traded firms (59%), followed by the Ministry of Defense (MOD), Ministry of Foreign Affairs (MOFA), and MLIT (see Figure A6). By contrast, the MHLW, MEXT, and Ministry of Agriculture, Forestry and Fisheries (MAFF) place the largest percentages of their retirees into public interest corporations (72%, 71%, and 66%, respectively). METI's share of employees in publicly traded firms appears low at first glance. However, this is due to the existence of the METI Patent Office, an external office (*gaikyoku*) of METI with a large number of employees who move to public interest corporations.[15] In fact, the Industrial Property Cooperation Center—a patent advisory firm—is the largest public interest hirer in our dataset (see Figure A4). Excluding the Patent Office, the same percentage of METI bureaucrats retire in to publicly traded firms as MLIT.

Bureaucrats from more prestigious ministries also tend to retire at a younger age. As the mandatory retirement age is 60 for most civil service positions, the mean age at which an individual leaves the civil service is 59 and there is little variation by firm type (see Table A3). However, again there is variation by ministry, with younger bureaucrats more likely to leave more prestigious (e.g., METI and MOF) ministries (see Figure A7).

Corporate financials of amakudari hirers

In order to compare how for-profit firms that hire *amakudari* officials compare with those that do not, I pulled the universe of corporate attribute, financials, and data on government loans from 2009-2019 from the NEEDS financial database. This dataset includes 5809 unique firms across all years, and was merged with the data on bureaucratic rehires (i.e., *Amakudata*).

Firms that hire *amakudari* are different from firms that do not across a number of metrics (see Figure 4). *Amakudari* hirers tend to be larger in terms of number of employees,

[15]Note that there is a distinction within ministries between "career" bureaucrats who passed the most rigorous civil service exam and "noncareer" bureaucrats who passed only lower level exams. As such, this represents another level of job market bifurcation within ministry.

assets, liabilities, and earnings, as well as older. In addition, Table A4 shows that while only 10% of *amakudari* firms matched with the NEEDS financial database are missing financial information, 30% of non-*amakudari* firms are missing the same data.[16] Once again, this implies that *amakudari* firms tend to be larger and more well-known. However, while financial data missingness is highly correlated with bureaucratic hiring, it does not vary highly across industries or years (see Figure A8a and Figure A8b).

Previous empirical research has found that *amakudari* is more-often practiced by lower-performing firms (Horiuchi and Shimizu 2001; Van Rixtel 2002), and this theme was echoed by interviewees in business and finance. There is empirical support for this characterization in the data as well, with *amakudari* firms exhibiting less than half of the return on investment and possessing roughly half of the capital reserves when compared to firms that do not engage in bureaucratic rehiring (see Table A4 for this data in tabular form).

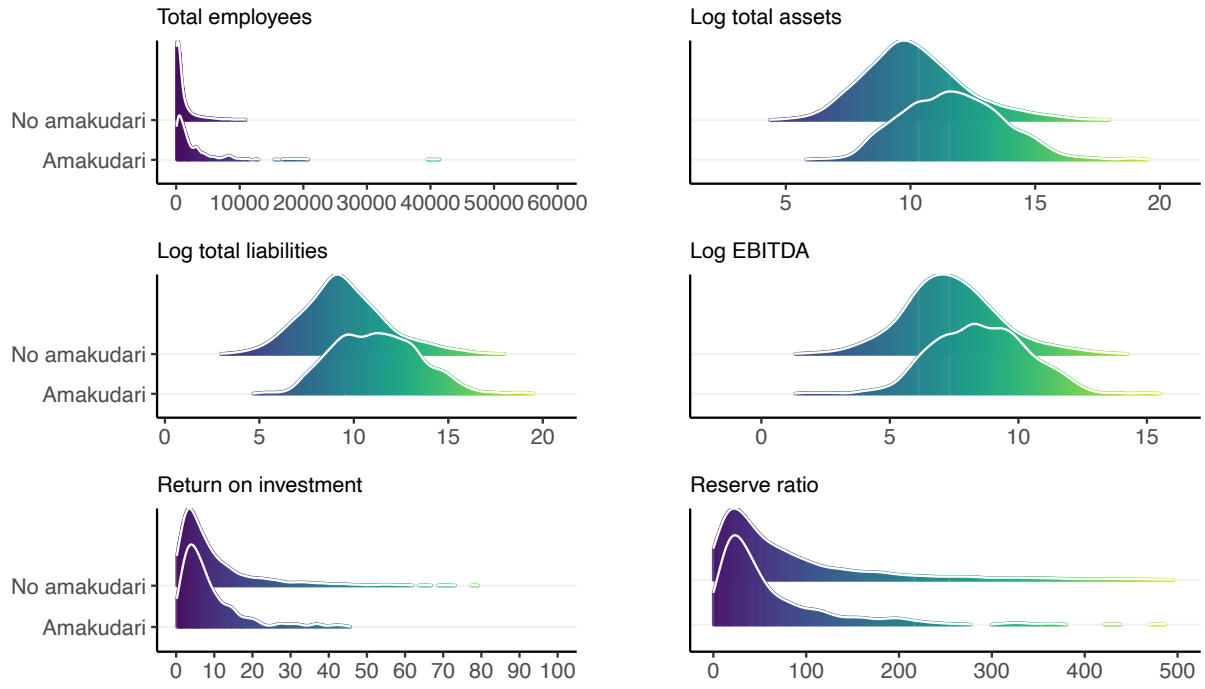


Figure 4: Distributions of financial indicators by *amakudari* status (2009-2019)

Note: Includes all firms for which financial data exists in the NEEDS.

[16]Firms in the NEEDs database also hire more former officials over the observed period than firms that do not appear in the database (see Figure A1).

Government loans

Previous literature has connected the hiring of former officials to the size of government loans received (Blumenthal 1985; Khwaja and Mian 2005), and the practice of "zombie lending" to under-performing firms has been criticized for reducing overall competitiveness among Japanese firms (Ahearne and Shinada 2005). Interviewees revealed similar expectations, noting that *amakudari* could act as a lifeline to firms in need of government assistance or support. I therefore examine the value of government loans granted to firms before and after their first *amakudari* hire observed in our data. The analysis shows that the value of government loans received by firms that make *amakudari* hires increase relative to their matched controls in the years following the hire, and that these effects are driven by hires from prestigious economic ministries.

Data

I acquired time-series-cross-sectional (TSCS) data of all government loans to private firms in Japan between 2009-2019 from the NEEDS financial database. In addition, I collected data on corporate attributes and financials for each firm year. Notably, I posses data on assets, liabilities, revenue, earnings,[17] and number of employees, allowing for comparison of firms of similar size and performance.

Descriptively, firms that make *amakudari* hires possess roughly 12 times the amount of debt from public sources as firms that do not make *amakudari* hires (see Table A5). While this is not surprising given that firms that hire former officials are on average larger, it is notable as *amakudari* hirers possess only 6 times the amount of private sector debt as their counterparts that do not make such hires.

[17] EBITDA, or earnings before interest, taxes, depreciation, and amortization

Empirical strategy

As I posses data on government loans and firm financials for all firm-years present in the NEEDS database, I merge the dataset of *amakudari* appointments with this data of government loans and firm financials. I code all years prior to the first *amakudari* hire observed for each firm as 0 or "control," and the year of hire and all subsequent years as 1 or "treated." Figure A9 depicts the treatment or control status of each firm by year. Note that majority of firms remain in "control" for all time periods (as the majority of firms do not make *amakudari* hires). As firms are considered always treated following their first *amakudari* hire, the percentage of firms treated is a strictly increasing function of time. As we can only observe the year in which an *amakudari* hire was made, not how many former bureaucrats are currently on staff at a firm at a given time, this likely underestimates the actual effect of *amakudari* on size of government loans overall. If a firm already possesses former bureaucrats on staff, the estimates will capture the effect of an additional hire, rather than any hire.

As noted in Corporate financials of amakudari hirers, the baseline financials of firms that make *amakudari* hires differ from those that do not. I therefore combine a DiD approach with matching methods in order to compare similar firms "treated" with former bureaucrats with "control" firms that do not make the same hire. As the data is in TSCS format, I adopt the TSCS matching methods proposed by Imai, Kim and Wang (2019). Given that *amakudari* firms differ from non-*amakudari* firms across their firm fundamentals, I use mahalanobis distance matching rather than a propensity score approach, as this creates pairs that are close on these covariate values.

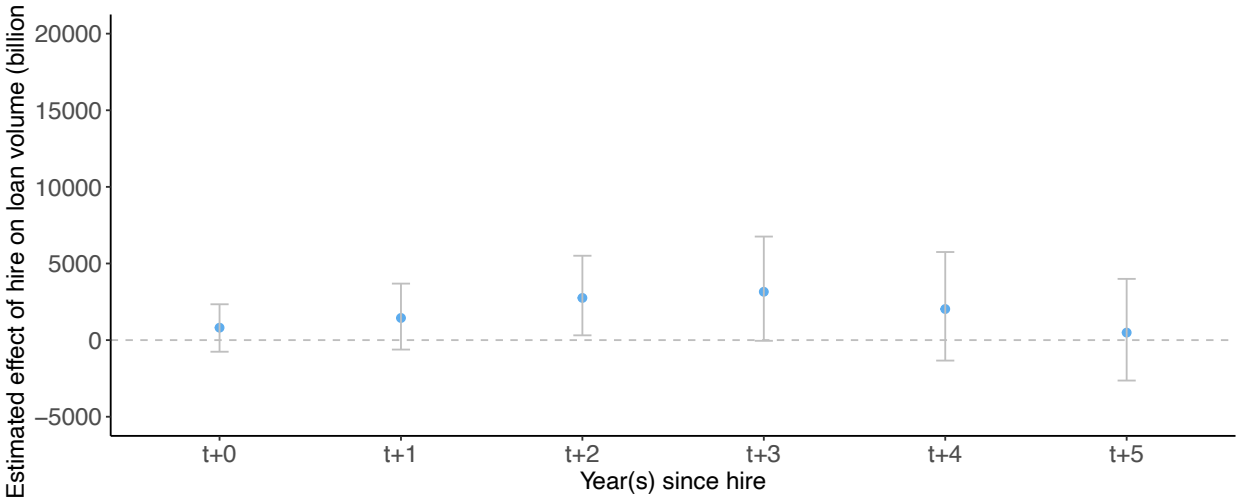
After matching control and treatment firms on covariates from other units with the same treatment status in the year prior to treatment (t_{-1}), I apply a DiD estimator (to account for a time trend). This allows me to estimate a short-term and long-term average treatment effect (ATT) of a bureaucratic hire for the treated firms. I therefore estimate the change in loan volume among firms that switch from no observed hires in the year prior to one or more hires (t_{-1}) vs. the year of the hire (t_{+0}) and the subsequent five years ($t_{+1}...t_{+5}$),

controlling for firm fundamentals via matching. For robustness, I also run the analysis requiring matching on covariates from other units with the same treatment status for two years prior to treatment (t_{-1} and t_{-2}). Note, however, that increasing the required number of lags will necessarily increase uncertainty by reducing the number of matches and effectively decreasing sample size.

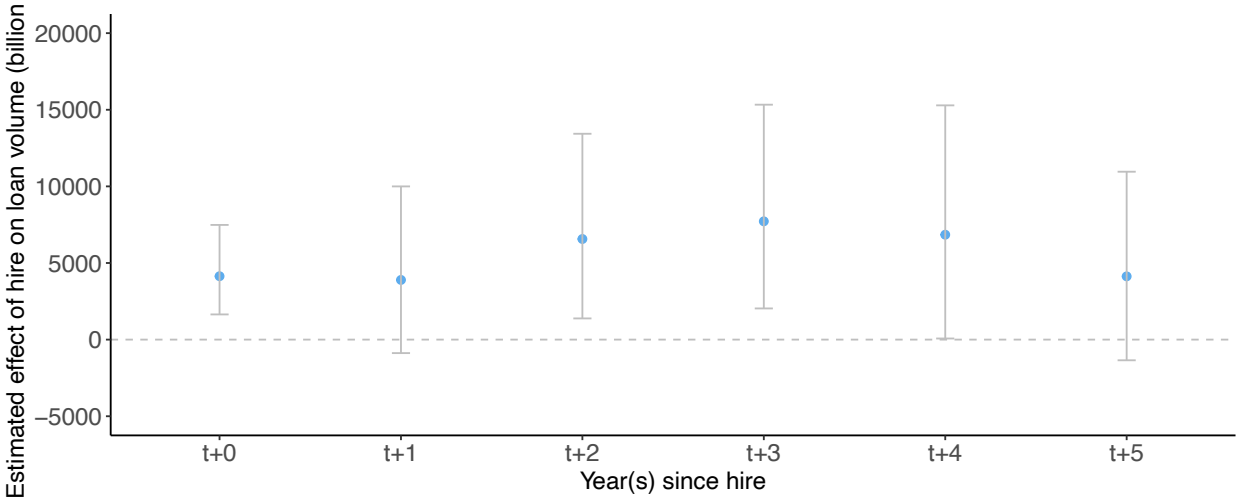
Results

Figure 5 shows that the value of government loans received by firms that make *amakudari* hires begins to increase relative to their matched control pairs until the third year following the hire, then government loan receipts begins to decrease and returns to baseline levels by year 5.[18] This increase is sizable, with the point estimate for years two and three following an *amakudari* hire representing an increase of roughly 3 billion yen in total loans held. Note, however, that the increase is not so large as to be qualitatively unreasonable, translating to 0.16 of a standard deviation of total liabilities among treated firms.

[18] Figure A24 shows the degree to which covariate balance is improved by matching.



(a) All bureaucratic hires



(b) METI and MOF hires only

Figure 5: Estimated effect of bureaucratic hires on size of government loan received, by year after hire.

Note: Tabular results can be found in Table A6 and Table A9.

In keeping with their roles as the purveyors of industrial policy and domestic financing, breaking apart the results by ministry suggests that hires from the METI and MOF are the most valuable in terms of securing government loans (see Figure 5b, Figure A10, Figure A11, Table A9, Table A7, and Table A8). By contrast, hires from other ministries do not appear to have any effect on the amount of government loans received in the years following an

amakudari hire (see Figure A12 and Table A10).

Applying the same analysis to private sector loans reveals a negative—albeit not significant at conventional levels—relationship between hiring former bureaucrats and future receipt of private loans (see Figure A17 and Table A13). This suggests that firms may hire former bureaucrats in order to substitute away from private sector loans and towards public financing. However, it does not appear that government loans are necessarily going to Japan's famous "zombie" firms, as these firms are primarily supported by their private sector main banking partners (Nakamura 2023).[19][20]

Robustness

The results are not highly sensitive to the choice of matching covariates, and remain significant at the 5% level when extending the set of matching covariates to additional variables that are plausibly post treatment (leverage, reserve ratio, roe, and roi) (see Figure A16). Results also remain significant at the 1% level when expanding the lead window (i.e., the number of years after a hire in which the outcome is measured) and at the 6% level when reducing the lead window (see Figure A13). Requiring matches for two years prior to treatment yields a similar pattern of effects, although estimates are no longer significant at conventional levels due to increased uncertainty stemming from fewer matched pairs (see Figure A14 and Table A11). For METI and MOF hires only, the results remain significant at the 5% level in time period t_{+0} when requiring matches for two years prior to treatment, but are not significant at conventional levels for subsequent periods (see Figure A15 and Table A12). Patterns of loan receipt remain constant regardless of choice of matching/refinement method,[21] with increased loan receipt from METI and MOF in time period t_{+0} significant at the 5% level across all specifications, and at either the 5% or 10% level in time period t_{+3} for all specifica-

[19] I thank Jun-ichi Nakamura for providing me with the data to investigate the correlation between zombie firms and *amakudari* hiring.

[20] Note, however, this is somewhat tautological as most existing definitions of zombie firms use low-interest main bank loans as an indicator for zombie status.

[21] Mahalanobis, covariate balancing propensity score, marginal structural model covariate balancing propensity score weighting, or traditional propensity score.

tions that improve covariate balance (see Loan robustness and Diagnostics in the appendix).

Reputation boosts and stock returns

If top former bureaucrats are perceived as beneficial to firms, we may observe boosts in stock prices in response to their hiring as investors reward firms for their recruitment. I therefore conduct an interrupted time series/event study analysis in which I test for abnormal changes in stock prices on the day a high-profile hire is made. However, more prestigious ministries such as METI and MOF may also be perceived as more valuable to firms due to their abilities to secure financing and contracts, and to influence economic and financial regulations.

There may also be variation in returns in terms of the type of position a bureaucrat occupies at their new firm. Interviews revealed differential expectations for the value of *amakudari* hires by the type of role they occupy at a firm. A director at an executive consultancy suggested that outside directors were "probably negatively correlated with the profitability of a company" (Author Interview N1c), an executive at a major consulting firm suggested that "government outside directors have no meaning" as they lack business experience (Author Interview D1c), and analysts from a boutique investment firm claimed that government outside directors lowered return on equity (Author Interview J1a). Top bureaucrats are hired in four primary capacities according to our data: as advisors, executives, managers, and outside directors.[22] I therefore conduct the analysis separately for internal (advisor, manager, and executive) and corporate governance (i.e., directors) related appointments due to these different expectations of the usefulness of these positions.

Data

In order to estimate financial returns to firms that make *amakudari* hires, I first examine the full sample of high-profile hires (i.e., vice minister or assistant vice ministers) into publicly

[22] A 2019 law requires Japanese corporations to have at least one outside director on their executive board. The justification for this law is that outside directors provide more independent management oversight, improving corporate governance and providing more objective feedback on strategic decisions. An increasingly large number of outside directors have been drawn from the public sector—a total of X individuals were appointed outside directors from 2009-2019.

traded firms. I restrict the sample to vice-ministerial and assistant vice-ministerial appointments for two reasons: (1) these individuals are likely to have the largest impact due to their high level of influence, and (2) top appointments are reported in newspapers, and such announcements are necessary to identify an event day for an interrupted time-series estimation strategy. I therefore examine changes in stock returns on the day these hires are announced in Japan's largest business newspaper, the *Nihon Keizai Shimbun*. In total, I identified 47 events made public in newspaper reports. Stock price data are adjusted closing prices from *Yahoo Finance* for publicly traded firms.

Empirical strategy

I estimate cumulative abnormal returns using a market-model event study approach, which measures the stock valuation effects of a corporate event at the time of the event (i.e. a local average treatment effect). This is an interrupted time series model $R_{it} = \alpha_i + \beta_i R_{Mt} + \epsilon_{it}$ where R_{it} captures the returns to firm i at time t, R_{Mt} is the return on the market portfolio (here the Nikkei 225 index) at time t, and ϵ_{it} captures returns to firm i at time t that can be considered "abnormal" (above and beyond changes in the market porfolio R_{Mt}). The key quantities of interests are therefore the cumulated ϵ_{it} time series, conventionally referred to as "cumulative abnormal returns" (CARs), and specifically the CAR on the day of the hiring announcement. I calculate 95% confidence intervals using the bootstrap as it is free from distributional assumptions.

This short time window of one day mitigates endogeneity concerns as confounding events would need to also occur on the same day, and do so for a large portion of all of our independently tested events in order to influence the estimates.[23] I nevertheless also present a number of robustness checks to mitigate these concerns in the appendix.[24]

[23]For example, for the estimates to be driven by the effect of competitor bankruptcies, this would imply that independent competitors would need to go bankrupt *on the day of the hire* for a large enough sample of hires—e.g. 20 times—to influence the aggregate estimate.

[24]Specifically, I implement a time shifted placebo analysis, use a constant mean return model rather than a market model, and test for significance using a classic t-test and Wilcoxon rank test.

Results

Overall, Figure 6 shows a slightly positive impact of top hiring on firm returns (event day CAR = +1.24, 95% CI = [-0.1, 2.6]). However, this aggregate analysis masks important variation by both the ministry that was the source of the hire, as well as the type of position the official was recruited for. In terms of ministries, investors also appear to react positively to recruitment from METI relative to other ministries (CAR = +2.34 , 95% CI = [0.71, 4.01]) see Figure A27 and Table A18).

The event study results corroborate claims that different types of hires may be valued differently. Figure 6—which depicts cumulative abnormal returns on the day a hire appears in Japan's largest financial newspaper—provides suggestive evidence that direct hires are perceived favorably by investors, but that monitoring roles have little effect on stock returns. However, this aggregate analysis masks a near zero and null effect of director appointments, and a larger positive effect of roughly 2.2% for direct internal roles (event day CAR = +2.16, 95% CI = [0.71, 3.5]).[25]

These findings are notable as previous research has found that markets react favorably to the appointment of outside directors, especially those perceived as independent (Nguyen and Nielsen 2010; Rosenstein and Wyatt 1990). Directors from the bureaucracy may therefore not be perceived as offering the same kind of effective independent oversight and industry expertise, but rather as "yes-men" for the corporation. By contrast, internal hires may bring tangible benefits such as regulatory expertise, connections to contract granting agencies, or expertise regarding loan receipt stemming from their ministerial connections.

In short, I find evidence that investors may view high level bureaucratic hires as indicative of positive future financial performance, but through the mechanism of internal connections rather than corporate governance and oversight. In addition, the most prestigious ministries such as METI again appear to be the drivers of value.

[25]The sample size of successful events is 19 for directors (17 outside and 2 internal), and 25 for internal hires (11 consultant, 11 executive, and 3 managerial positions).

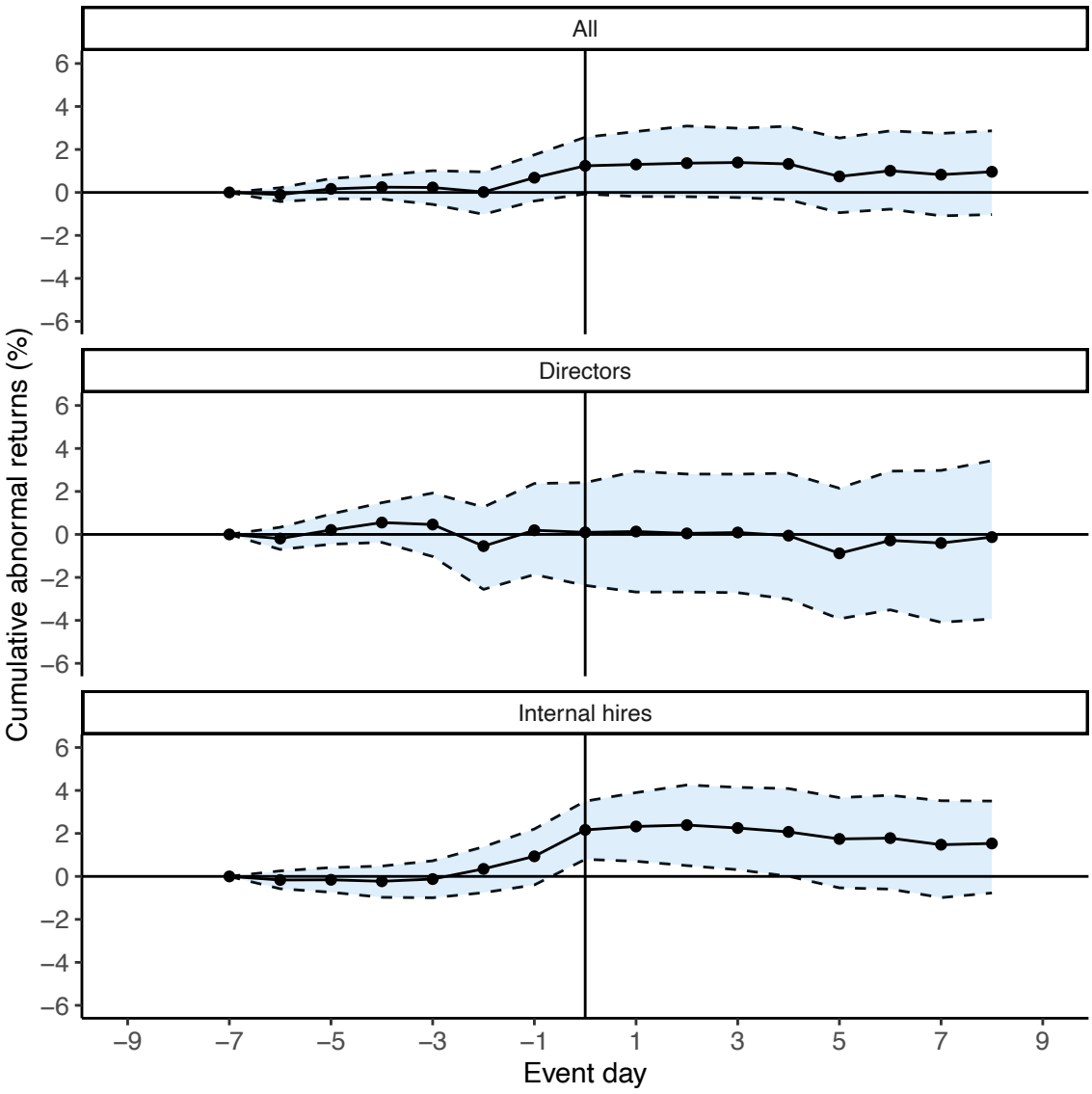


Figure 6: Cumulative abnormal returns from assistant vice-minister and vice-minister appointments

Note: Tabular results can be found in Table A14, Table A15, and Table A16.

Robustness

Three potential inferential threats to the event study estimates are: (1) the CARs are driven by factors unrelated to *amakudari* hires, (2) the effects are underestimated as investors knew about the appointments prior to the news releases, and (3) model misspecification.

To address the first concern, I re-estimate CARs while substituting the real event dates with time-shifted placebo dates. I shift the actual event days forward and backward by the

following daily increments: -200, -100, -50, -25, -10, -5, 5, 10, 25, 50, 100, 200. We should not observe significant abnormal returns when performing an identical test on dates where no hire occurred, as this would raise concerns that the abnormal returns were caused by factors other than the hires. There are no significant CARs on any shifted dates except when shifted backwards by 50 days and forward by five days. The results at -50 days are negative and sensitive to changes in the event window, and results at +5 days are at a time in which abnormal returns are still positive and volatile (see Figure A28 and Figure 6).

There is some evidence that investors may have information about hires prior to the dates identified from newspaper reports given positive trends in the pre-event period. However, while such *a priori* information may call our exact point estimates into question, it would actually cause an underestimation of the magnitude of the effect on the event day.

To gauge the sensitivity of the estimates to changes in model specification, I re-calculate all estimates using a constant mean return model (i.e. with no market index control), calculate confidence intervals using the classic t-test and the Wilcoxon rank-test,[26] and estimate effects using additional event windows. Estimates remain virtually unchanged using the t-test, Wilcoxon rank test, and using different event windows (Figure A30, Figure A31), and significance levels increase using a constant mean return model (Figure A29).

Beyond for-profit firms: benefits to NPOs

Roughly half of civil servants initially take up posts in the nonprofit sector after leaving the bureaucracy (see Figure 1). While civil servants joining NPOs is qualitatively well-documented, the data reveal the scale of the phenomenon, the patterns of employment that take place, and the volume of contracts these organizations receive. Particularly striking are the direct pipelines of civil servants that flow from specific ministries to specific non-profit "public interest corporations" each year (see Figure A4). For example, the Japan

[26]The Wilcoxon rank test is a non-parametric statistical technique that can be used to compare differences between matched samples.

Forest Foundation[27] hired 41 officials from the MAFF from 2009-2019, and in the same period received 305 contracts from MAFF totaling over 2.5 billion yen. Similarly, the Japan Construction Information Center[28] hired 21 officials from MLIT and received 67 contracts totaling over 1.15 billion yen, 48 and 1.07 billion yen of which came from MLIT.

In order to systematically test if the pipelines of revolving door hiring from ministries to NPOs are providing tangible benefits to NPOs, I therefore used new data on all subsidies and contracts granted to NPOs and a two-way-fixed-effects (TWFE) estimation strategy to examine if NPOs receive higher value contracts when former officials are in director positions at their organizations.

Data

The Japanese Cabinet Office (CAO) collects and reports data on all subsidies and contracts granted to NPOs in a given year, which were scraped, cleaned, and compiled into a publicly available dataset of approximately 25,000 contracts and subsidies from ministries to the NPOs (Incerti 2024). For non-competitive-bid (i.e., negotiated) contracts, this data includes the total number of government re-employees from the Ministry that granted the contract at the NPO at the time of the contract.[29] Note that this implies that even the CAO monitors and tacitly acknowledges that the connections former officials bring to nonprofits may aid them in securing contracts, particularly for contracts that are not subject to a competitive bidding process.

This data has additional benefits over the dataset of initial *amakudari* appointments used in the previous loan and stock price analyses. The data of yearly *amakudari* appointments used in the loan and stock price analyses only allows us to observe how many individuals took their first post-bureaucracy appointment in a firm in a given year, not the total number of *amakudari* on staff in a given year. By contrast, the CAO reports allow us to view the

[27] Japanese name: 一般財団法人日本森林林業振興会 (*ippanshadanhōjin nipponshinrinringyōshinkōkai*)

[28] Japanese name: 一般財団法人日本建設情報総合センター (*ippanshadanhōjin nipponkensetsujyōhōsōgōsentā*)

[29] Data on number of re-employees does not exist for subsidies or competitive bid contracts.

total number of former bureaucrats currently at the nonprofit at the time of the contract.

Recall that officials cannot join organizations with which they had a direct working relationship for two-years following their initial retirement from the bureaucracy. NPOs are subject to this same two-year cooling off period, during which time they cannot hire former bureaucrats who were directly involved in the disbursement of government contracts or subsidies. Knowing the total number of bureaucrats on staff at any given time therefore allows us to view the value of contracts granted both when nonprofits have no government re-employees on staff, as well as when they do. Importantly, this includes bureaucrats whose initial appointment was not with the NPO, but instead joined the NPO after their two year cooling off period ended.

Empirical strategy

The NPO contract data takes the form of an unbalanced panel in which NPO-contract dates are observed at unevenly spaced intervals. In other words, I only posses data for months in which a contract was granted, and contracts are not granted to all NPOs in all months. In addition, units are "treated" with former bureaucrats on staff at different points in time, and units can switch from control to treatment *and* from treatment to control.

As I have no covariates to rely on for NPOs,[30] I cannot employ the same matching-adjusted DiD design that was used for government loans. This places us in the realm of traditional TWFE estimators. However, a flurry of recent findings have shown that coefficients from TWFE models traditionally used in these cases may not represent an average of unit-level treatment effects when treatment effects are heterogeneous across time or units (as in this case). In particular, an influential paper by de Chaisemartin and D'Haultfœuille (2020) shows that TWFE models can even lead to the coefficients having the opposite sign of each of the unit-level treatment effects, as TWFE estimates are a weighted average of unit-level treatment effects and these weights can sometimes be negative due to differences

[30]NPOs are not listed in NEEDS, and no central database of NPO attributes exists according to nonprofit experts (Author Interview J2b).

in the timing of treatment or heterogeneity amongst units.

I therefore adjust my estimation strategy and use the DID_M[31] estimator proposed by de Chaisemartin and D'Haultfœuille (2020) in order to estimate the ATT. The DID_M estimator compares outcomes among groups whose treatment status switches between time $t-1$ and t, and control groups whose treatment status remains constant in time $t-1$ and t. The DID_M estimator therefore accounts for our data structure as it relies on first differences only. Formally, the DID_M estimator can be described as $\text{ATT} = \mathbb{E}[Y_{it}(1) - Y_{it}(0)|(D_{i,t-1} = 0, D_{i,t} = 1 \text{ or } D_{i,t} = 1, D_{i,t+1} = 0)]$, where Y are potential outcomes and D is the treatment status of unit i in time t. The DID_M estimator is then equivalent to the average of the DIDs across all pairs of consecutive time periods and across all values of the treatment. The DID_M estimator also accommodates both binary and continuous treatments, allowing us to estimate the effect of any *amakudari* appointments on contract value, as well as the marginal effect of an additional *amakudari* appointment on contract value.

For robustness, I include "placebo" estimates of the ATT for -3, -2, and -1 periods before treatment as a check of whether outcomes for the treated and comparison groups move in parallel prior to the staggered treatment periods. I also apply a number of other recently developed TWFE estimators that (like the DID_M esimator) account for negative weighting and allow treatment status to switch back and forth. Specifically, I use the estimators referred to by Liu, Wang and Xu (2021) as: the fixed effects counterfactual estimator (FEct), the interactive fixed effects counterfactual estimator (IFEct), and the matrix completion (MC) estimator.[32] In addition, I provide estimates using a traditional two-way (i.e., unit and time) fixed effects estimator.

Finally, I apply Benford's Law to the value of contracts with *amakudari* bureaucrats as well as those without.[33] Benford's Law is a commonly used tool in forensic accounting, which

[31] M here stands for "multiple."

[32] I do not go into detail regarding these estimators here. However, FEct was proposed by Liu, Wang and Xu (2021), Borusyak, Jaravel and Spiess (2021), and Butts and Gardner (2021); IFEct was proposed by Gobillon and Magnac (2016) and Xu (2017); and MC methods were proposed by Athey, Bayati, Doudchenko, Imbens and Khosravi (2021) and Kidzinski and Hastie (2018).

[33] I thank Yusaku Horiuchi for this suggestion.

examines discrepancies in the natural probability of leading digits appearing in data—i.e. numbers beginning with 1, 2, 3, etc. If contracts negotiated without former bureaucrats on staff conform with Benford's Law while contracts negotiated with former bureaucrats on staff do not, this would suggest a more competitive negotiation process for non-connected NPOs on the one hand, and evidence of contract price fixing for connected NPOs on the other. To investigate this possibility, I examine the mean absolute deviation (MAD) of leading digits in contract values compared to the predicted frequency according to Benford's Law, for which Nigrini (2012) has proposed critical scores for conformity and nonconformity with Benford's Law.

Results

When examining initial appointments immediately following retirement from the bureaucracy only, I find a near zero and null effect of bureaucratic rehires on government contract value for both all subsidies and contracts as well as negotiated contracts only. However, when using the total number of bureaucratic employees at the time of the contract as the dependent variable, I find a positive and statistically significant increase in the value of negotiated contracts granted to nonprofits with *amakudari* appointees (see Figure 7). Estimates using yearly aggregated data, as well as using the FEct, IFEct, MC, or traditional TWFE estimators corroborate these estimates in terms of sign, magnitude, and pre-trends, and can be found in Figure A32 and Figure A33.

These results suggest that bureaucrats may be waiting until after the end of their two-year cooling off period to join nonprofits, at which time they can use their connections to exhibit influence on contract negotiation. As the Cabinet Office NPO data only includes director level appointments, it is also possible that only these high-level appointees posses the connections needed to negotiate higher contract values.

Additional evidence of the potential influence of former bureaucrats on contract value can be found through the application of Benford's Law. Based on Nigrini (2012)'s critical

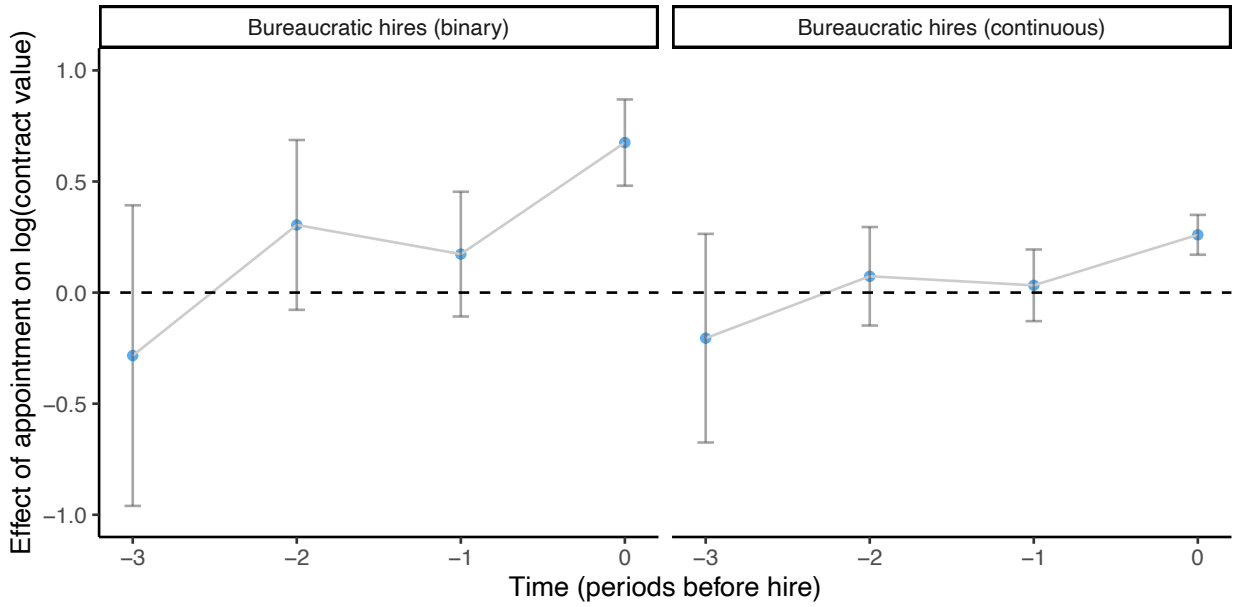


Figure 7: Effect of *amakudari* appointments on NPO negotiated contract value
Note: Tabular results can be found in Table A20 and Table A21.

MAD scores, competitive bid contracts exhibit "close conformity" with Benford's Law, while negotiated contracts exhibit "marginally acceptable conformity," and negotiated contracts with former bureaucrats on staff exhibit "nonconformity." This suggests that negotiated contracts between former officials in particular may not be subject to hard bargaining. Visual depictions of the leading digit of contract values as predicted by Benford's Law and as observed in the NPO contract data can be found in Figure A34.

Conclusion

Using the first comprehensive database of all initial bureaucratic revolving door hires in any country, I descriptively reveal the patterns of post-bureaucracy employment of Japanese civil servants, and empirically investigate the consequences of revolving door hiring in Japan.

I show that roughly one half of hires of former bureaucrats take place in the non-profit or public sectors, and that the majority of these placements are from lower ranking officials and/or officials from less prestigious ministries. This analysis reveals that there are direct pipelines from specific ministries to specific nonprofits, many of which receive substantial

sums of government funding and/or contracts. By contrast, for-profit firms and publicly traded firms in particular draw primarily from higher ranking officials and more prestigious ministries.

Difference-in-differences analysis shows that non-profits receive larger value government contracts when former bureaucrats are on staff. Additionally, forensic accounting techniques show irregulatories in the contract values negotiated by non-profits when former bureaucrats are on staff, suggesting that non-connected NPOs are subjected to a more competitive negotiation process than connected NPOs. This in turn suggests that ministries may place their employees in government-adjacent organizations, then fund these agencies through government contracts, thereby creating jobs for bureaucrats less desired by the private sector.

In for-profit firms, matching techniques combined with differences-in-differences analysis show that revolving door hiring is associated with an increase in the volume of government loans received in the years following bureaucratic hires, and that these effects are driven by placements from prestigious economic ministries such as the METI and MOF. In addition, I use interviews and an interrupted time-series analysis to show that investors appear aware of potential benefits from hiring high-ranking METI bureaucrats, as firms that hire high-ranking METI officials receive stock price boosts on the day of the announcements.

From a regulatory policy perspective, this paper also highlights the need for accessible and consistent digital reporting requirements in order to uncover the influence of money and connections in governmental processes and outcomes (and *vice versa*). While the data used in this paper is technically made public by governmental agencies, it is published across thousands of PDFs and hundreds of data files with inconsistent formatting. The data structures therefore highlight how agencies can technically comply with regulatory requirements while simultaneously failing to be fully transparent.

There are a number of possible directions for future research. First, I only examine the effects of revolving door hiring on domestic contracts and loans, and therefore cannot speak to the value of revolving door hiring to firms in international markets. Second, I do

not directly examine the regulatory advantages that may accrue from hiring civil servants. While I do not address these questions here, I hope that the data made publicly available in this paper will facilitate future research into these and other questions.

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Part II
Supporting Information

Who benefits from the revolving door? Evidence from Japan

by

Trevor Incerti

Table of Contents

Examples of data sources

Table A1: Amakudari dataset example

date_ret	agency	ministry_short	firm_dest_en	firm_type1_en	tse_code
2012-11-01	Aeronautical Safety College	MLIT	AIRCRAFT SAFE OPERATIONS SUPPORT CENTER	Foundation	-99
2013-10-01	Securities and Exchange Surveillance Commission	MOF	JAPAN SECURITIES DEALERS ASSOCIATION	Other association	-99
2015-06-23	Fisheries Agency	MAFF	KENKO MAYONNAISE	Stock company	2915
2016-06-23	National Tax Agency	-99	JAPAN BANK FOR INTERNATIONAL C	Stock company	-99
2015-11-01	Minister's Secretariat	MLIT	ADVANCED CONSTRUCTION TECHNOLOGY CENTER	Foundation	-99
2018-07-01	Japan Coast Guard	MLIT	NARITA INT.AIRPORT	Stock company	-99
2016-10-01	Minister's Secretariat	METI	DAIDO STEEL	Stock company	5471
2013-07-01	Minister's Secretariat	MLIT	NARITA INT.AIRPORT	Stock company	-99
2013-05-01	Public Employment Security Office	MHLW	OKAZAKI SHINKIN BANK	Shinkin bank	-99
2018-07-01	Japan Coast Guard	MLIT	JAPAN MARINE RECREATION ASSOCIATION	Foundation	-99
2015-10-01	Minister's Secretariat	MOF	SMBC CONSULTING	Stock company	-99
2017-10-01	Japan Customs	MOF	CANON	Stock company	7751
2015-04-01	Nature Conservation Bureau	MOE	REGIONAL COEXISTENCE AND SOCIETAL COOPERATION ASSOCIATION	Incorporated association	-99
2017-08-01	General	MAFF	MSandAD INSURANCE GROUP HOLDINGS	Stock company	8725
2016-06-22	Statistics Bureau	MIAC	INFOCOM RESEARCH	Stock company	-99
2015-12-01	Administrative Evaluation Bureau	MIAC	NEC	Stock company	6701
2016-07-01	Regional Development Bureau	MLIT	COASTAL DEVELOPMENT INSTITUTE OF TECHNOLOGY	Foundation	-99
2012-01-01	Civil Aviation Bureau	MLIT	RELIABILITY ENGINEERING FOUNDATION FOR AIR NAVIGATION FACILITIES	Foundation	-99
2011-06-01	Japan Coast Guard	MLIT	SANKYU	Stock company	9065
2011-09-01	National Tax Agency	-99	TEIKYO UNIVERSITY	Educational institution	-99
2015-06-26	Minister's Secretariat	METI	SHIMADZU	Stock company	7701
2012-01-01	Japan Coast Guard	MLIT	COMPUTER INSTITUTE OF JAPAN	Stock company	4826
2018-01-01	National Tax Agency	-99	MITSUI FUDOSAN	Stock company	8801
2015-01-01	Vice-Minister for Policy Coordination	MIAC	AKTIO	Stock company	-99
2012-10-01	Japan Customs	MOF	ALL NIPPON AIRWAYS	Stock company	-99
2011-07-01	Maritime Affairs Bureau	MLIT	MARITIME HUMAN RESOURCE INSTITUTE	Foundation	-99
2011-06-01	Regional Legal Affairs Bureau	MOJ	JAPAN ASSOCIATION FOR PUBLIC HUMAN RESOURCES DEVELOPMENT	Foundation	-99
2018-07-01	Japan Coast Guard	MLIT	WAKACHIKU CONSTRUCTION	Stock company	1888
2013-07-01	Regional Development Bureau	MLIT	JAPAN FEDERATION OF CONSTRUCTION CONTRACTORS	Incorporated association	-99
2013-11-01	Rural Development Bureau	MAFF	MAEDA	Stock company	1824
2014-06-01	Industrial Science and Technology Policy and Environment Bureau	METI	TOKYO UNIVERSITY OF SCIENCE	Educational institution	-99
2016-04-01	Industrial Safety Supervisory Bureau	METI	MITSUBISHI MATERIALS	Stock company	5711
2014-09-01	Small and Medium Enterprise Agency	METI	OSAKA UNIVERSITY	Educational institution	-99
2013-11-01	Science and Technology Policy Research Institute	MEXT	NATIONAL GRADUATE INSTITUTE FOR POLICY STUDIES	Educational institution	-99
2016-06-22	National Tax Agency	-99	JMS	Stock company	7702
2018-07-01	National Research Institute of Fire and Disaster	MIAC	ENEOS HOLDINGS	Stock company	5020
2010-10-01	Manufacturing Industries Bureau	METI	INTERNATIONAL BUSINESS MACHINE	Stock company	-99
2014-07-01	Japan Coast Guard	MLIT	TOKYO GAS	Stock company	9531
2013-07-15	Kyushu Regional Agricultural Administration Office	MAFF	MIRAI GROUP	Stock company	-99
2017-06-01	Minister's Secretariat	-99	J-OIL MILLS	Stock company	2613
2018-05-24	Public Prosecutors Office	MOJ	FAMILYMART	Stock company	-99
2017-11-01	Japan Customs	MOF	SOJITZ	Stock company	2768
2015-10-01	Japan Fair Trade Comission	-99	NIPPON TELEGRAPH AND TELEPHONE	Stock company	-99
2017-05-01	Japan Meteorological Agency	MLIT	JAPAN METEOROLOGICAL BUSINESS SUPPORT CENTER	Foundation	-99
2015-11-01	Labor Standard Bureau	MHLW	HEALTH AND SAFETY TECHNOLOGY EXAMINATION ASSOCIATION	Foundation	-99
2017-12-01	General	MHLW	TORAY INDUSTRIES	Stock company	3402
2018-09-01	Japan Customs	MOF	SANKYU	Stock company	9065
2011-04-01	Japan Meteorological Agency	MLIT	JAPAN METEOROLOGICAL BUSINESS SUPPORT CENTER	Foundation	-99
2018-06-01	Minister's Secretariat	MLIT	NATIONAL GRADUATE INSTITUTE FOR POLICY STUDIES	Educational institution	-99
2017-10-30	National Tax Agency	-99	TKC	Stock company	9746

Additional descriptive statistics

Retirements by firm and firm type

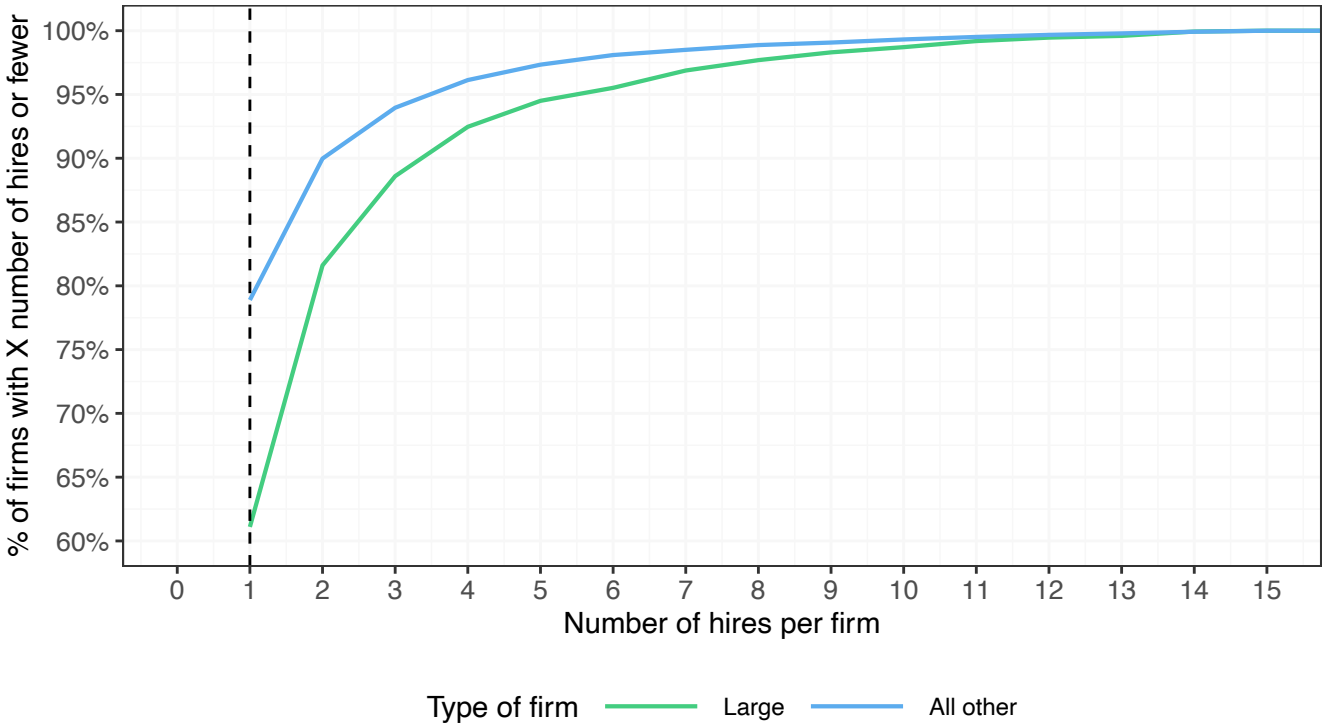


Figure A1: Empirical cumulative distribution function of number of hires per firm

Note: Large firms are those listed in the Nikkei NEEDS financial database.

Retirements by industry

Industry	Count amakudari	Percent of firms	Percent of amakudari	Difference
Services	474	15.9	14.6	-1.3
Finance	262	3.7	8.5	4.8
Construction	259	9.7	8.5	-1.2
Banks	255	0.6	7.8	7.2
Insurance	248	0.3	3.7	3.4
Land Transportation	243	2.8	5.8	3.0
Electric Appliances	196	4.1	5.1	1.0
Wholesale Trade	167	16.3	5.2	-11.1
Warehousing and Harbor transportation	128	1.6	4.5	2.9
Real Estate	125	4.9	4.0	-0.9

Figure A2: Top 10 *amakudari* destinations vs. overall economy

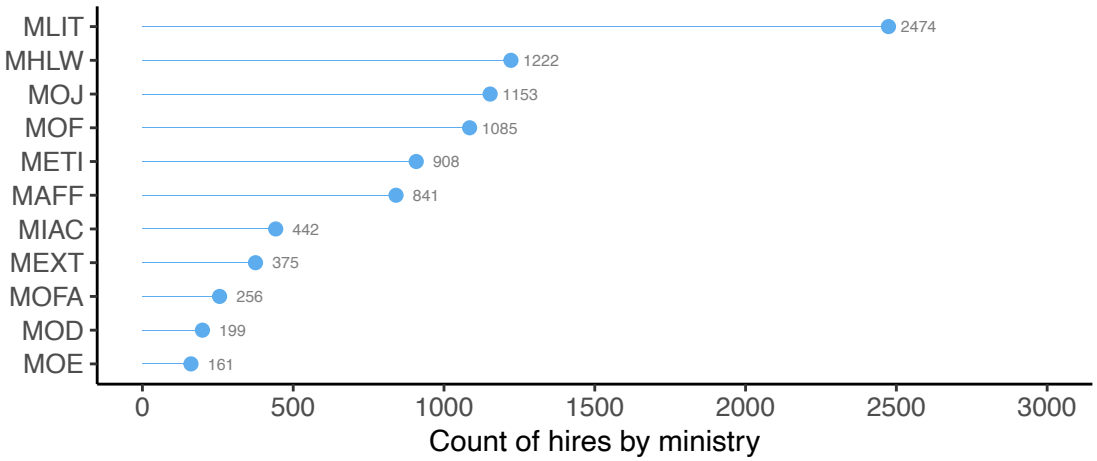
Note: "Percent of firms" only includes firms with financial information in the NEEDS database.

Table A2: Amakudari industry destinations vs. overall economy

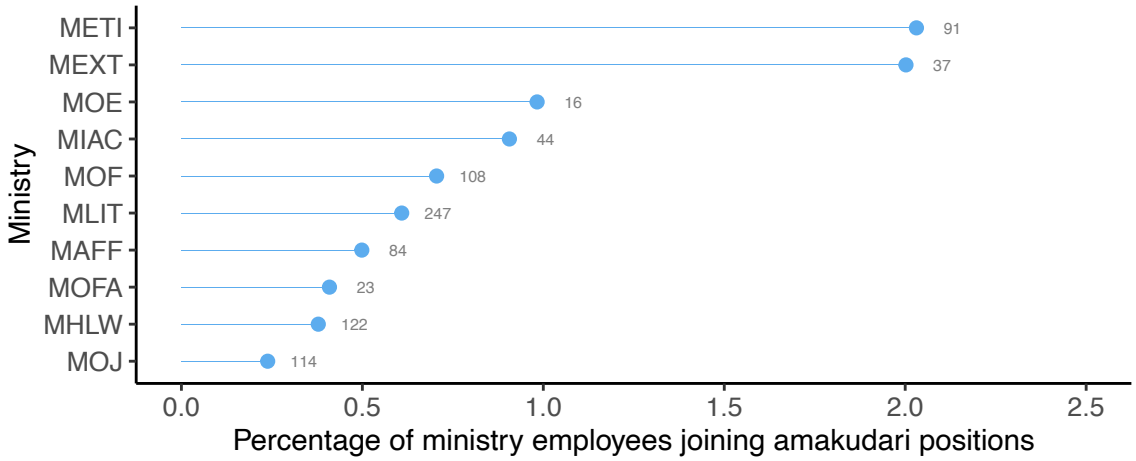
Industry	Count amakudari	Percent of firms	Percent of amakudari	Difference
Services	474	15.9	14.6	-1.3
Finance	262	3.7	8.5	4.8
Construction	259	9.7	8.5	-1.2
Banks	255	0.6	7.8	7.2
Insurance	248	0.3	3.7	3.4
Land Transportation	243	2.8	5.8	3.0
Electric Appliances	196	4.1	5.1	1.0
Wholesale Trade	167	16.3	5.2	-11.1
Warehousing and Harbor transportation	128	1.6	4.5	2.9
Real Estate	125	4.9	4.0	-0.9
Electric Power & Gas	118	0.6	3.2	2.6
Information & Communication	109	2.5	3.5	1.0
Machinery	101	4.1	3.1	-1.0
Transport Equipment	88	1.9	3.2	1.3
Retail Trade	83	5.7	3.1	-2.6
Chemicals	72	3.0	2.5	-0.5
Air Transportation	70	0.2	2.0	1.8
Foods	62	3.3	2.2	-1.1
Marine Transportation	49	0.8	1.7	0.9
Iron & Steel	38	1.1	0.9	-0.2
Other Products	34	3.9	1.2	-2.7
Nonferrous Metals	25	0.8	0.9	0.1
Pharmaceutical	23	0.7	0.8	0.1
Glass & Ceramics Products	22	1.9	0.7	-1.2
Textile & Apparels	22	4.2	0.8	-3.4
Metal Products	21	2.4	0.8	-1.6
Precision Instruments	18	1.0	0.7	-0.3
Oil & Coal Products	17	0.2	0.6	0.4
Mining	5	0.3	0.2	-0.1
Rubber Products	4	0.4	0.2	-0.2
Pulp & Paper	2	0.9	0.1	-0.8
Fishery, Agriculture & Forestry	1	0.3	0.0	-0.3

Note: "Percent economy" calculation is the total number of firms in each industry divided by all firms in the Nikkei NEEDS database.

Retirements by ministry



(a) Total *amakudari* appointments by former ministry (all years)



(b) Mean *amakudari* appointments as a percentage of ministry employees (all years)

Figure A3: Amakudari appointments by ministry

Note: Ministry of Defense (MOD) excluded from adjusted figures. Data on total MOD employees is unavailable as Japan Statistical Yearbook data only includes only regular (8 hours per day) employees, and excludes members of the Japan Self Defense Forces (JSDF). Official numbers therefore exclude JSDF members and civilian MOD employees without 8-hour workdays. I thank Samuel Leiter and an anonymous MOD official for this insight.

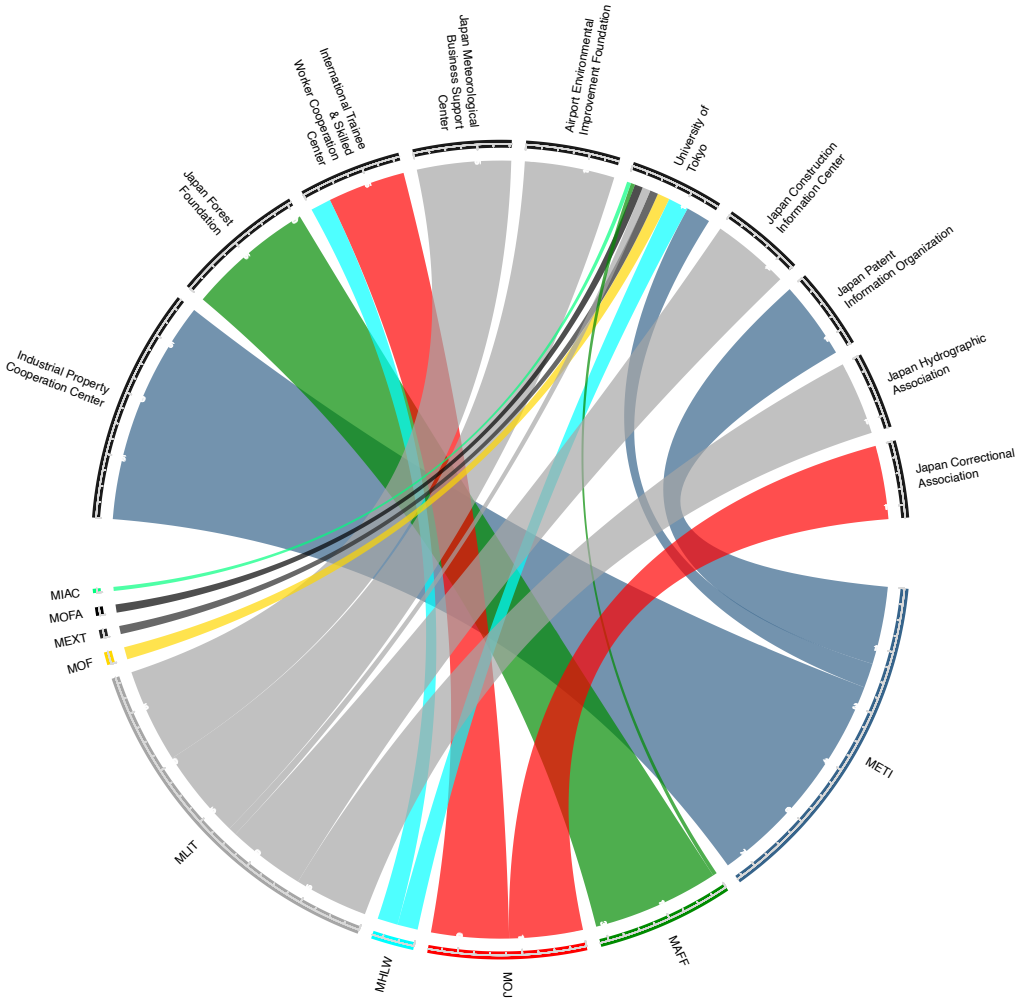


Figure A4: Flows from ministries to top ten public interest corporations (all years)

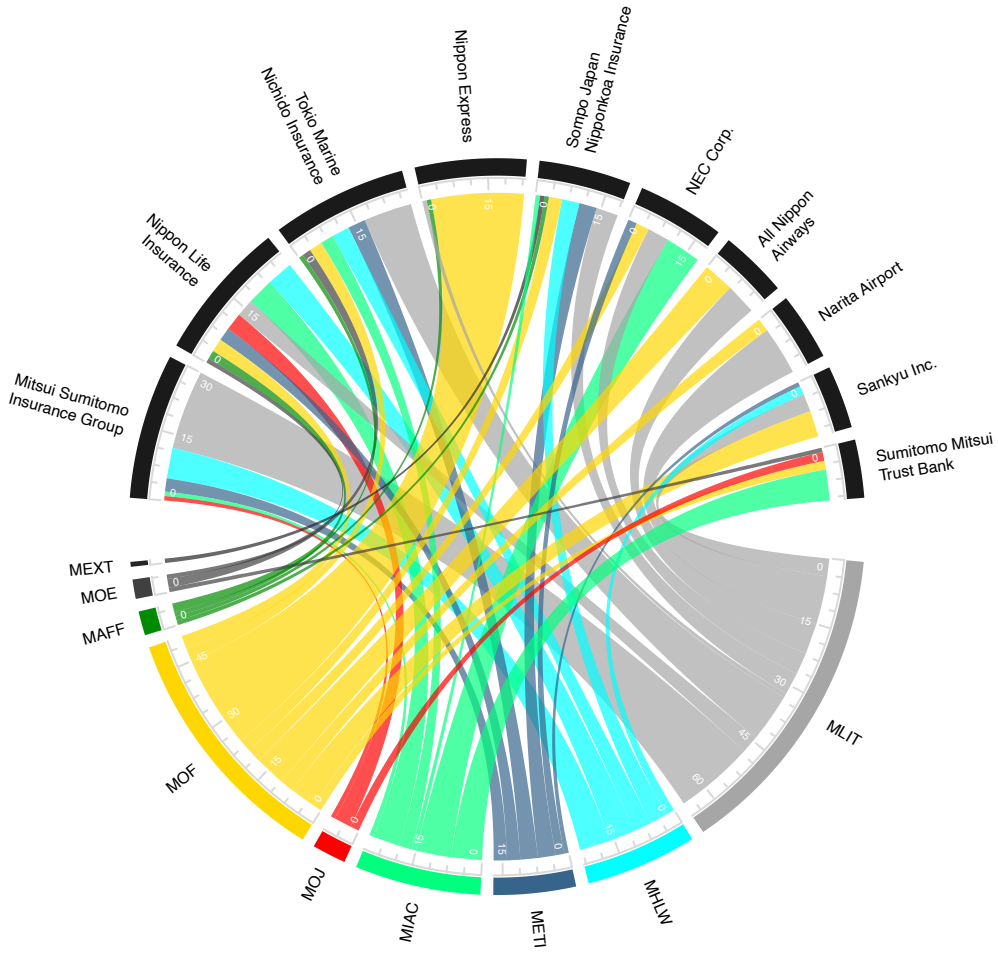
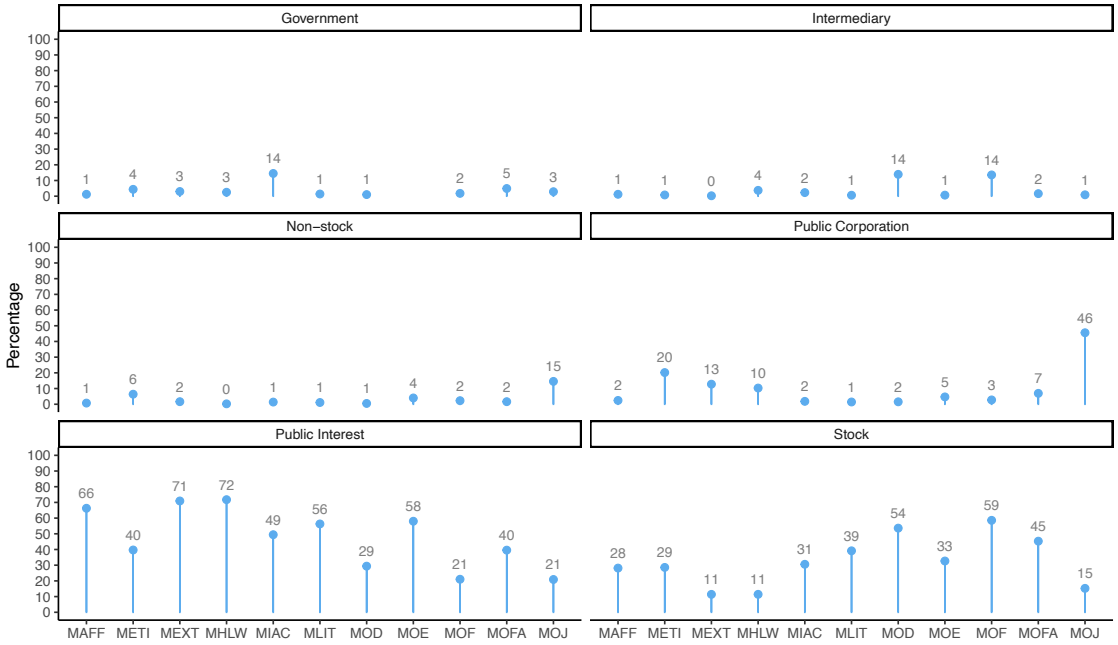
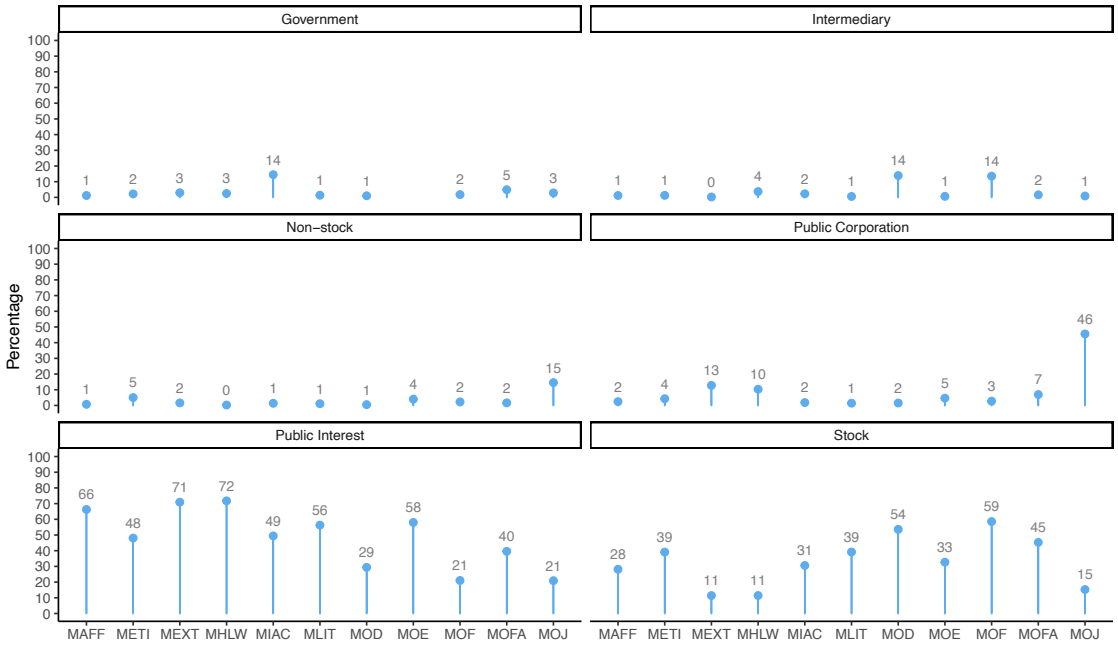


Figure A5: Flows from ministries to top ten private corporations (all years)

The top corporations by number of *amakudari* hires tend to draw from a diverse array of ministries.



(a) Percentage of retirees in each firm type by ministry



(b) Percentage of retirees in each firm type by ministry, excluding METI Patent Office

Figure A6: Percentage of retirees in each firm type by ministry

Table A3: Age of retirement: mean and quantiles (all years)

Firm type	Firm sub-type	Mean	5	25	Median	75	95
Unclassified		59	53	59	60	61	63
Government		58	47	58	60	60	62
Private corporation	Intermediary	59	56	57	59	60	60
Private corporation	Non-stock	59	46	60	60	60	61
Private corporation	Public Interest	59	55	58	60	60	61
Private corporation	Stock	59	54	58	59	60	61
Public corporation		59	54	58	59	60	62

Age of retirement

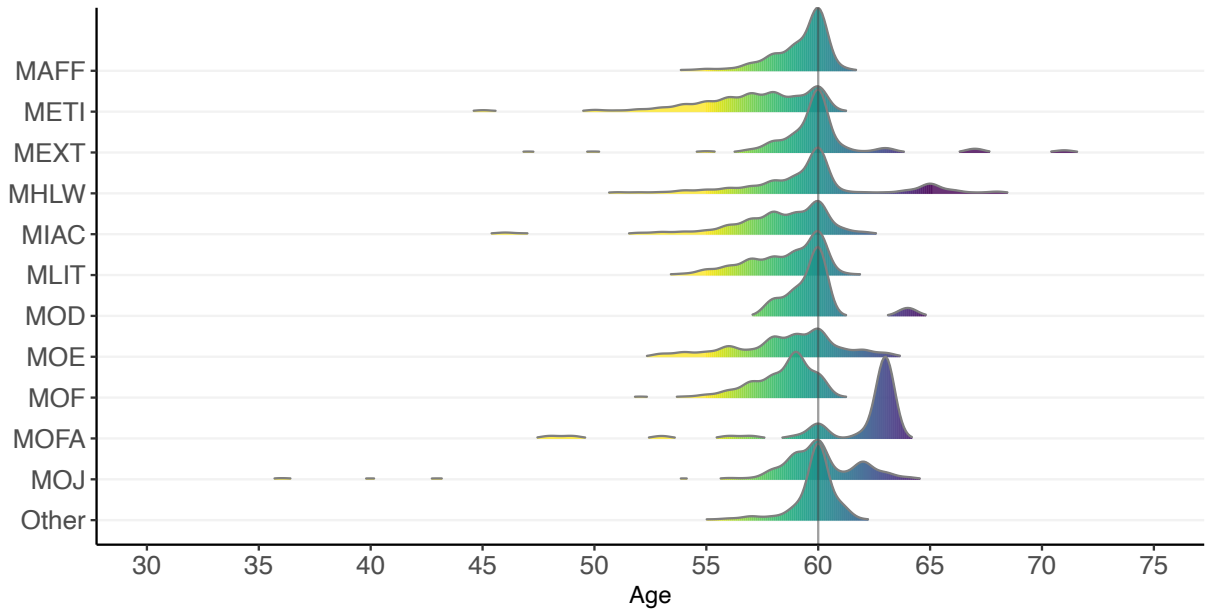


Figure A7: Age of exit from ministry, by ministry

Note: Vertical line at "mandatory" retirement age of 60.

Firm financials

	Amakudari (N=711)		No amakudari (N=5100)			
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Diff. in Means**	**p**
Number of amakudari	3.02	4.73	0.00	0.00	-3.02	<0.01
Total government loans	4.29	18.88	0.39	6.20	-3.89	<0.01
Total private loans	28.84	92.20	5.61	28.31	-23.23	<0.01
Total assets	4024.22	21618.16	152.45	910.75	-3871.77	<0.01
Total liabilities	3542.80	20529.55	111.66	828.90	-3431.14	<0.01
Operating revenue	763.15	1903.71	78.04	269.44	-685.11	<0.01
Gross profit	169.36	469.07	19.40	78.94	-149.96	<0.01
EBITDA	85.05	246.94	7.02	39.40	-78.03	<0.01
Leverage	3.24	4.84	3.03	4.44	-0.22	0.30
Employees	14729.80	35799.86	1698.24	4498.09	-13031.55	<0.01
Temporary employees	4748.39	14918.97	893.74	2931.38	-3854.66	<0.01
Return on investment	4.94	60.37	11.45	113.39	6.51	0.03
Return on equity	4.05	20.44	-0.05	89.58	-4.10	0.01
Reserve ratio	65.02	92.79	126.69	261.07	61.67	<0.01
Missing	0.04	0.18	0.19	0.39	0.15	<0.01

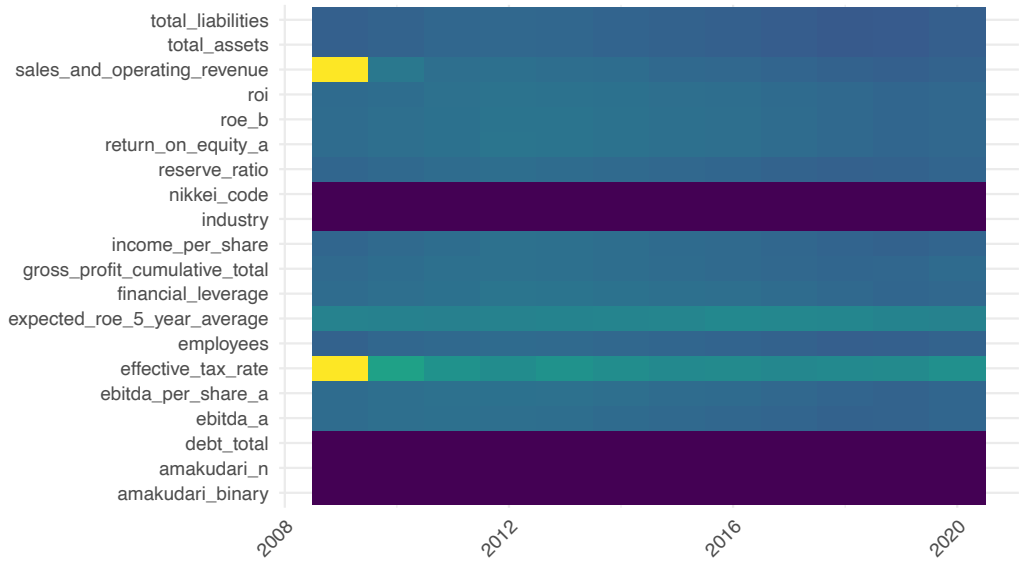
Table A4: For-profit firm financial data by *amakudari* status

Notes: Firm-level means across all years 2009-2019. Includes all firms for which government loan data exists in the NEEDS financial database. Loans, assets, liabilities, revenue, profit, and EBITDA in billion yen.

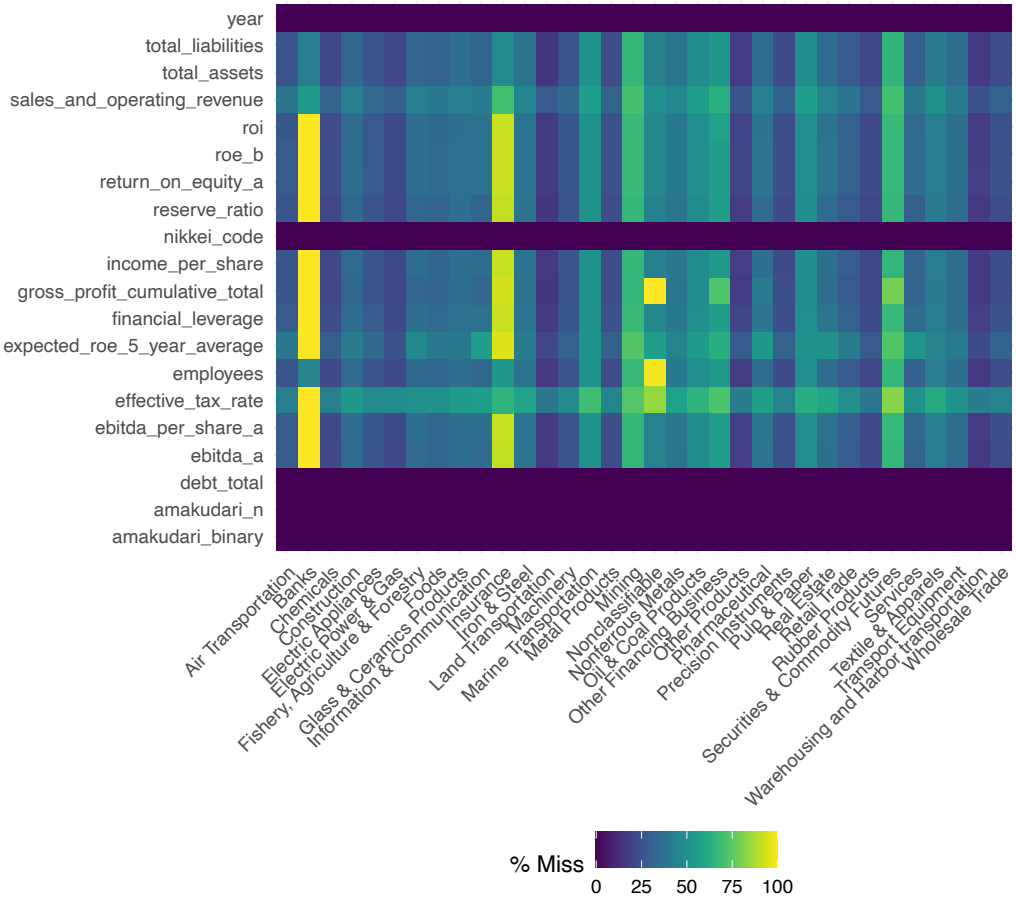
	No public loans (N=4820)		Public loans (N=991)			
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Diff. in Means**	**p**
Number of amakudari	0.29	1.77	0.77	2.52	0.48	<0.01
Total assets	735.96	8449.58	391.20	1219.81	-344.76	<0.01
Total liabilities	655.80	8036.91	272.00	950.07	-383.80	<0.01
Operating revenue	124.20	645.87	306.06	1037.25	181.86	<0.01
Gross profit	28.42	168.80	61.34	190.15	32.92	<0.01
Return on investment	14.84	322.74	18.38	220.85	3.53	0.68
EBITDA	11.83	88.03	29.63	93.25	17.80	<0.01
Return on equity	-12.79	1424.56	-2.33	155.09	10.46	0.64
Leverage	4.32	37.71	4.28	6.42	-0.04	0.95
Reserve ratio	126.27	611.64	59.78	89.62	-66.49	<0.01
Employees	2542.09	11590.18	5749.02	18528.88	3206.93	<0.01
Temporary employees	1204.17	5115.74	2447.99	10078.88	1243.81	<0.01
Total government loans	0.00	0.00	5.10	21.02	5.10	<0.01
Total private loans	3.23	23.58	33.84	84.16	30.61	<0.01

Table A5: For-profit firm financial data by government loan status

Notes: Firm-level means across all years 2009-2019. Includes all firms for which government loan data exists in the NEEDS financial database. Loans, assets, liabilities, revenue, profit, and EBITDA in billion yen.



(a) Financial data missingness by year



(b) Financial data missingness by industry

Loan analysis

Descriptive statistics

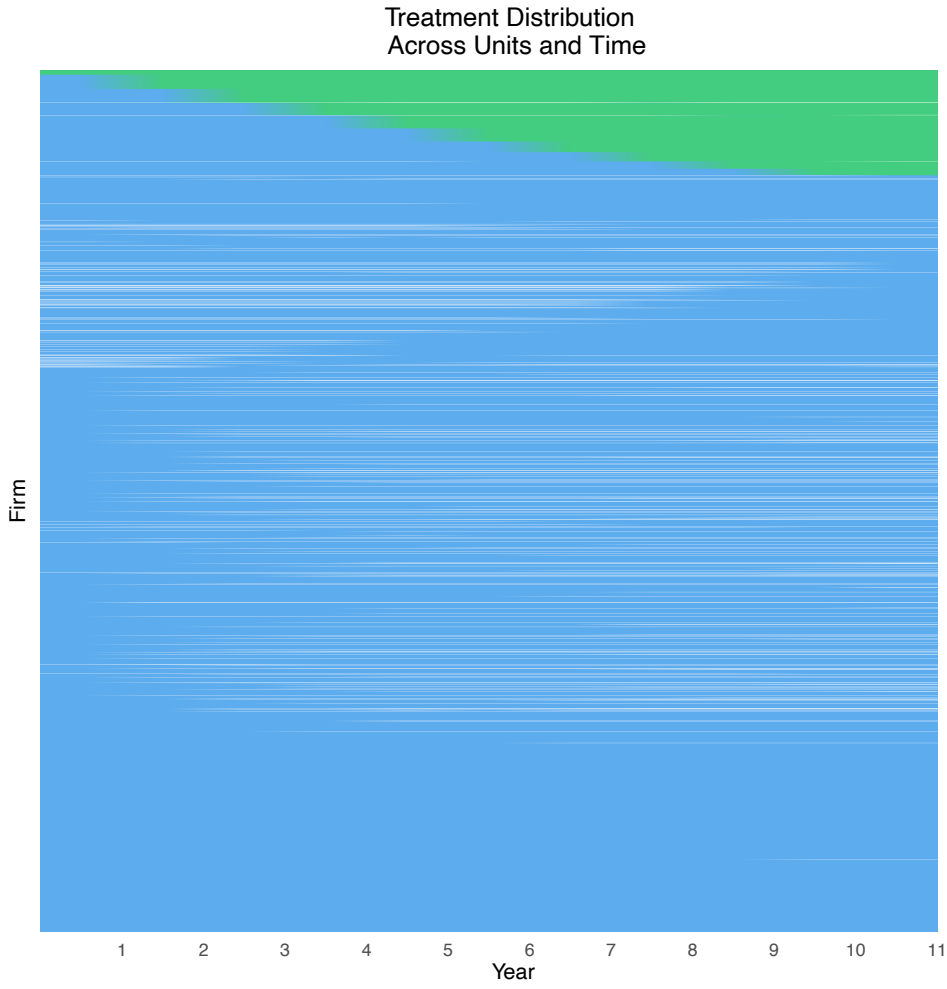


Figure A9: Distribution of treatment and control status of all firms in loan analysis

Note: Treated firms in green and control firms in blue. White areas depict missing data.

Effects by ministry

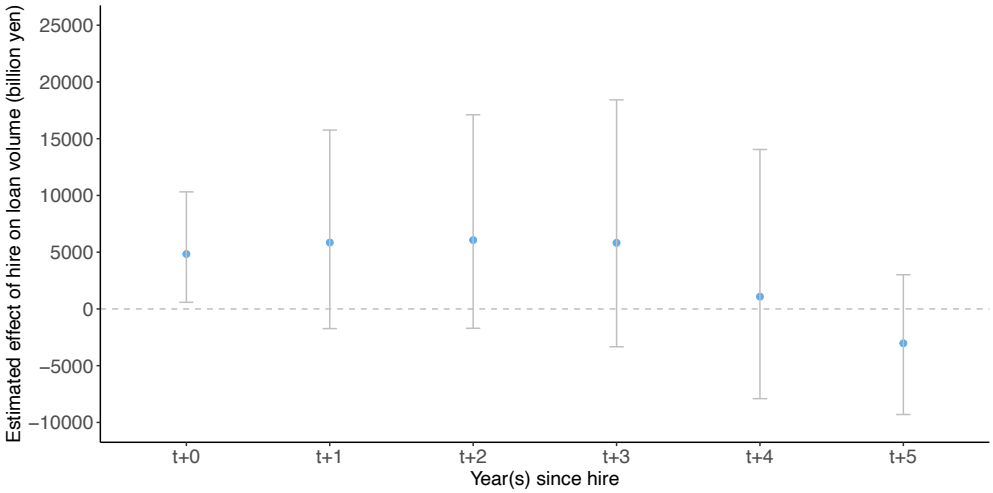


Figure A10: Estimated effect of bureaucratic hires on size of government loan received, METI re-hires only

Note: Tabular results can be found in Table A7.

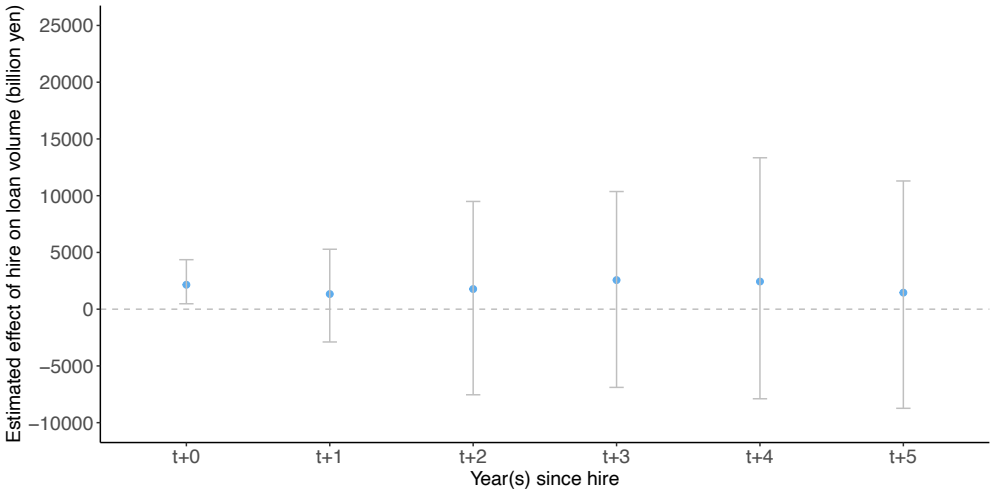


Figure A11: Estimated effect of bureaucratic hires on size of government loan received, MOF re-hires only

Note: Tabular results can be found in Table A8.

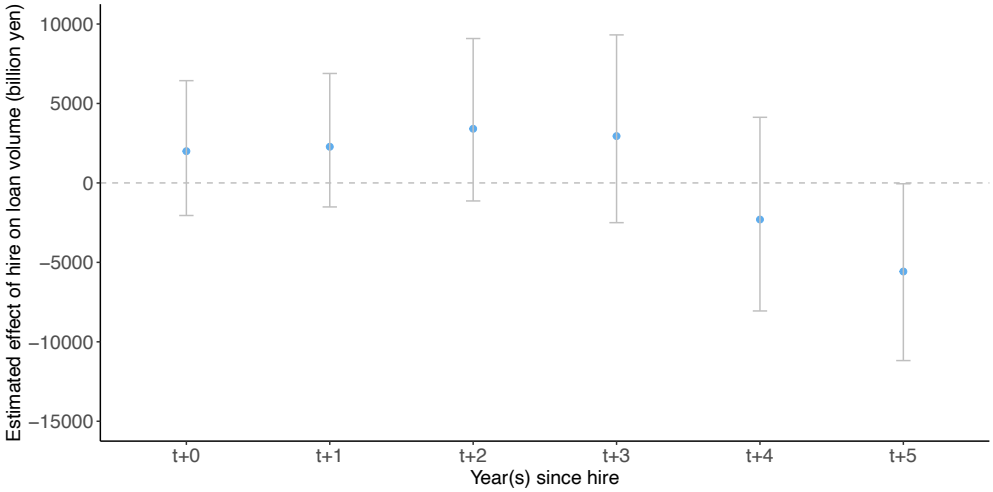


Figure A12: Estimated effect of bureaucratic hires on size of government loan received, all ministries other than METI and MOF

Note: Tabular results can be found in Table A10.

Tabular results

Table A6: Estimated effect of bureaucratic hires on size of government loans received, by year afer hire

Time window	Estimate	SE	95% CI lower	95% CI upper
t+0	810.22	813.98	-758.69	2,340.21
t+1	1,444.96	1,088.45	-617.01	3,686.78
t+2	2,753.18	1,326.34	312.63	5,506.05
t+3	3,153.69	1,710.44	-46.38	6,757.87
t+4	2,028.75	1,805.32	-1,335.91	5,748.67
t+5	489.80	1,641.46	-2,639.04	3,995.84

Note: Matched sets = 444

Table A7: Estimated effect of bureaucratic hires on size of government loans received, METI re-hires only

Time window	Estimate	SE	95% CI lower	95% CI upper
t+0	4,839.34	2,526.42	582.92	10,315.10
t+1	5,850.87	4,584.92	-1,732.86	15,761.23
t+2	6,065.97	4,848.95	-1,705.76	17,107.01
t+3	5,824	5,677.01	-3,333.77	18,423
t+4	1,082.36	5,669.50	-7,906.57	14,050.62
t+5	-3,024.54	3,198.90	-9,303.84	3,010.77

Note: Matched sets = 67

Table A8: Estimated effect of bureaucratic hires on size of government loans received, MOF re-hires only

Time window	Estimate	SE	95% CI lower	95% CI upper
t+0	2,151.10	988.31	477.10	4,361.63
t+1	1,333.66	2,062.18	-2,888.21	5,282.42
t+2	1,775.08	4,101.66	-7,542.83	9,493.07
t+3	2,563.39	4,281.40	-6,891.22	10,366.60
t+4	2,435.80	5,093.48	-7,893.75	13,341.59
t+5	1,456.66	4,976.09	-8,734.25	11,296.23

Note: Matched sets = 91

Table A9: Estimated effect of bureaucratic hires on size of government loans received, METI and MOF re-hires only

Time window	Estimate	SE	95% CI lower	95% CI upper
t+0	4,137.73	1,457.14	1,644.35	7,484.99
t+1	3,894.44	2,743.28	-879.56	9,998.44
t+2	6,565.70	3,094.20	1,383.07	13,432.94
t+3	7,719.78	3,396.88	2,034.02	15,331.04
t+4	6,845.47	3,823.15	73.34	15,286.93
t+5	4,128.65	3,102.98	-1,348.69	10,956.64

Note: Matched sets = 142

Table A10: Estimated effect of bureaucratic hires on size of government loans received, all ministries other than METI and MOF

Time window	Estimate	SE	95% CI lower	95% CI upper
t+0	1,996.94	2,180.07	-2,050.40	6,435.91
t+1	2,274.63	2,207.79	-1,511.89	6,888.23
t+2	3,407.35	2,694.68	-1,135.04	9,087.35
t+3	2,947.01	3,104.04	-2,501.55	9,316.04
t+4	-2,303.94	3,086.54	-8,058.49	4,130.70
t+5	-5,575.68	2,802.31	-11,181.27	-53.91

Note: Matched sets = 225

Table A11: Estimated effect of bureaucratic hires on size of government loans received, requiring 2 lag periods

Time window	Estimate	SE	95% CI lower	95% CI upper
t+0	-639.83	827.68	-2,343.11	837.51
t+1	-533.29	930.44	-2,442.88	1,160.96
t+2	1,327.78	1,304.65	-1,199.34	3,933.31
t+3	1,409.77	1,832.70	-1,879.36	5,325.40
t+4	535.33	1,982.26	-3,001.40	4,727.60
t+5	-116.82	1,882.88	-3,486.48	3,683.78

Note: Matched sets = 349

Table A12: Estimated effect of bureaucratic hires on size of government loans received, METI and MOF re-hires only, requiring 2 lag periods

Time window	Estimate	SE	95% CI lower	95% CI upper
t+0	2,433.57	1,032.06	585	4,644.45
t+1	331.53	2,072.43	-3,374.64	4,556.62
t+2	3,489.13	2,627.73	-1,076.92	9,368.39
t+3	4,206.09	2,819.80	-672.19	10,334.71
t+4	5,054.28	3,606.21	-785.86	13,376.25
t+5	3,093.22	3,329.61	-2,785.24	10,434.72

Note: Matched sets = 118

Table A13: Estimated effect of bureaucratic hires on size of private loans received

Time window	Estimate	SE	95% CI lower	95% CI upper
t+0	-3,328.28	4,328.68	-12,998.45	4,325.57
t+1	-5,470.80	5,206.24	-16,754.42	3,932.10
t+2	-7,131.97	5,585.83	-18,519.22	2,768.17
t+3	1,790.87	6,612.90	-10,056.12	15,683.24
t+4	-12,494.41	8,889.79	-29,776.99	4,813.61
t+5	-13,167.75	8,269.36	-28,668.40	3,532.50

Note: Matched sets = 444

Loan robustness

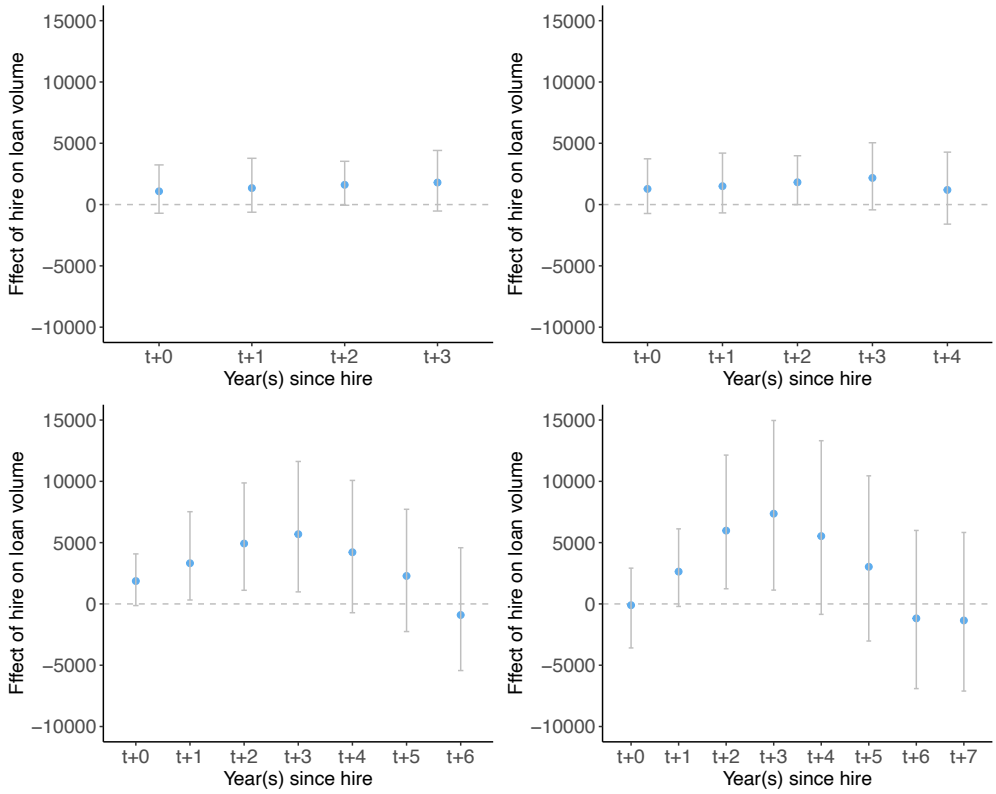


Figure A13: Estimated effect of bureaucratic hires on size of government loan received, by year after hire and lead window

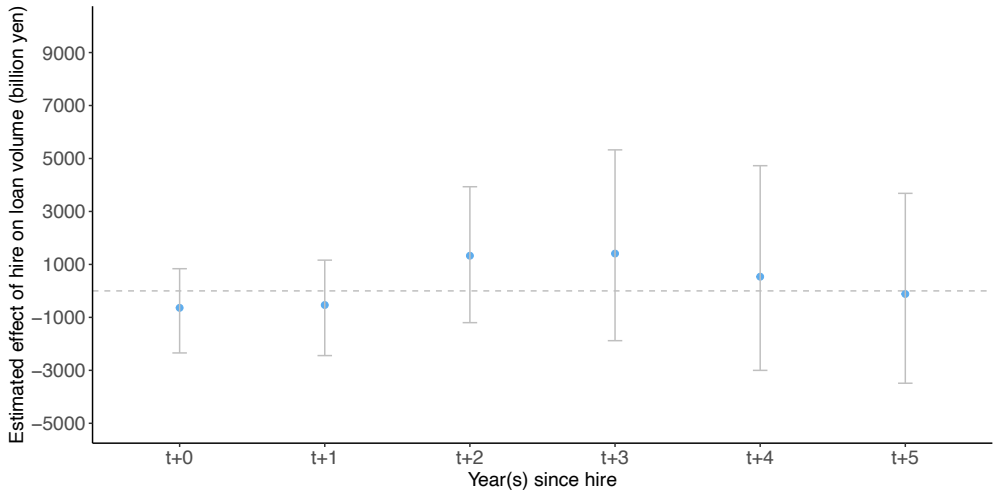


Figure A14: Estimated effect of bureaucratic hires on size of government loan received, by year after hire (restricted to matches in two periods prior to treatment)

Note: Tabular results can be found in Table A11.

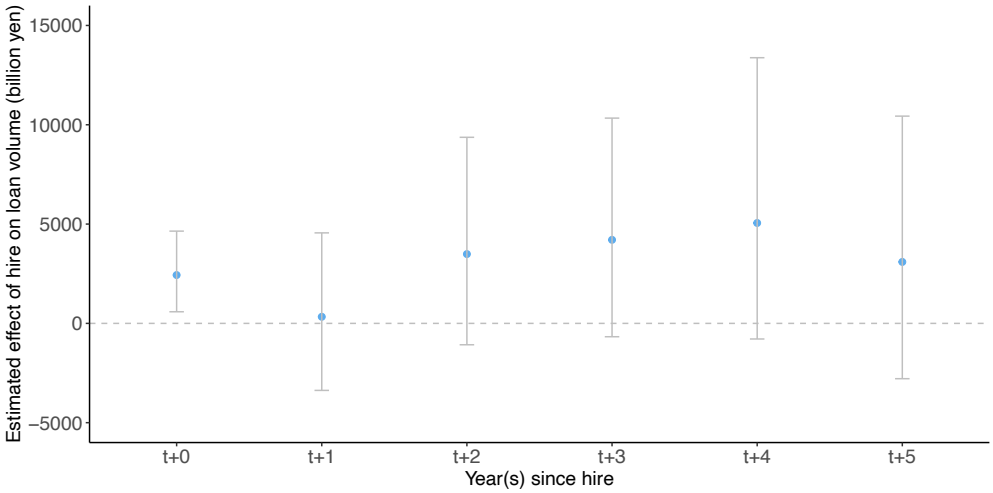


Figure A15: Estimated effect of hires from METI and MOF on size of government loan received, by year after hire (restricted to matches in two periods prior to treatment)

Note: Tabular results can be found in Table A12.

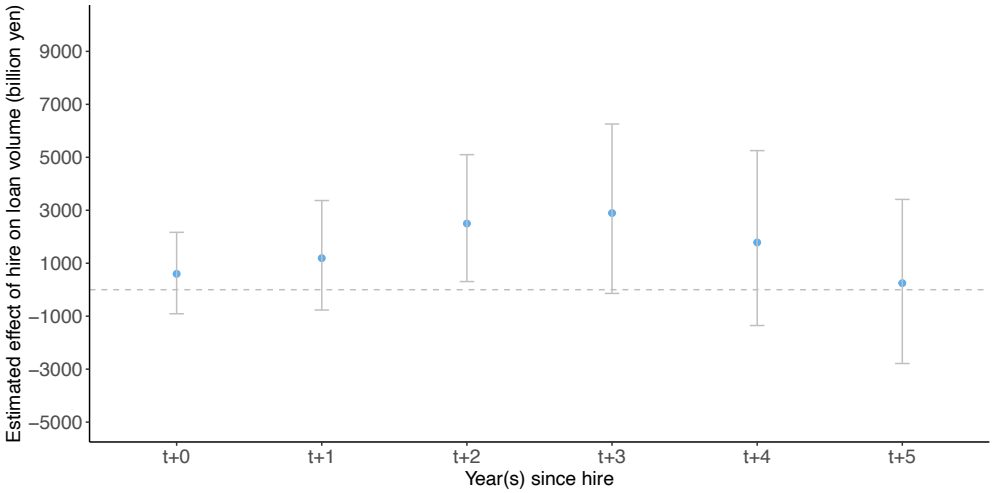


Figure A16: Estimated effect of bureaucratic hires on size of government loan received, by year after hire, including additional plausibly post-treatment covariates (leverage, reserve ratio, roe, roi)

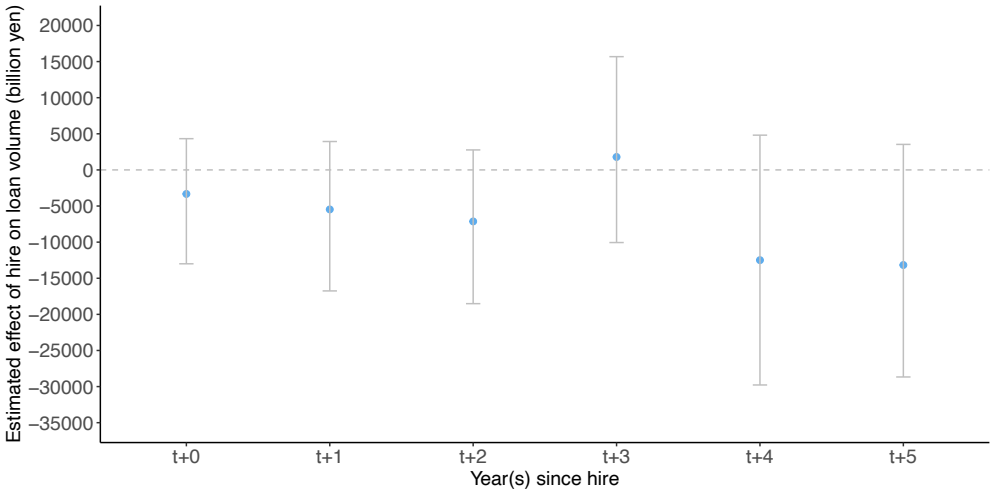


Figure A17: Estimated effect of bureaucratic hires on size of private loans received, by year after hire

Note: Tabular results can be found in Table A13.

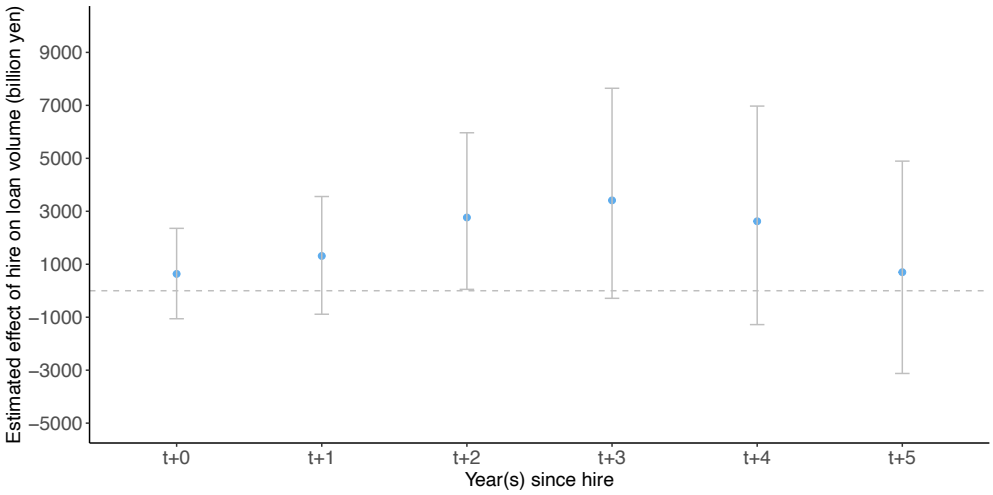


Figure A18: Estimated effect of bureaucratic hires on size of government loan received, by year after hire (using covariate balanced propensity score matching)

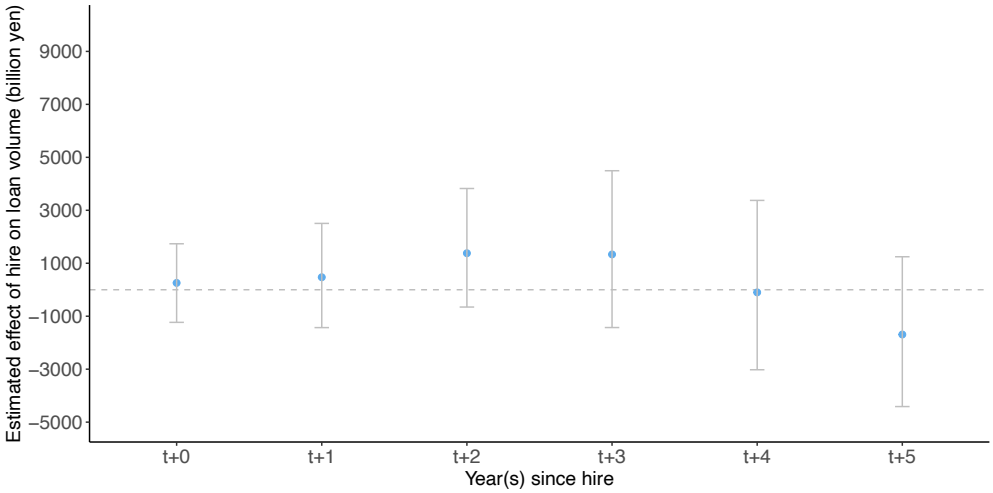


Figure A19: Estimated effect of bureaucratic hires on size of government loan received, by year after hire (using marginal structural model covariate balanced propensity score matching)

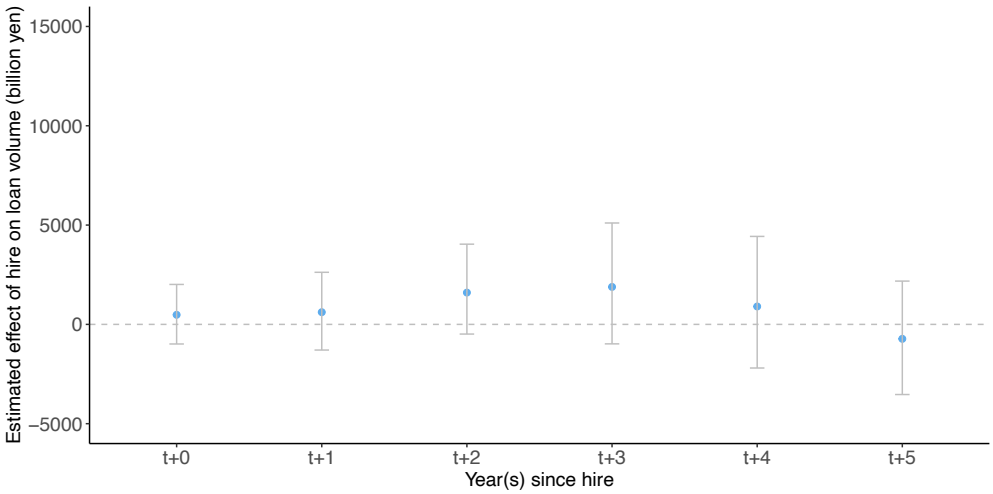


Figure A20: Estimated effect of bureaucratic hires on size of government loan received, by year after hire (using propensity score matching)

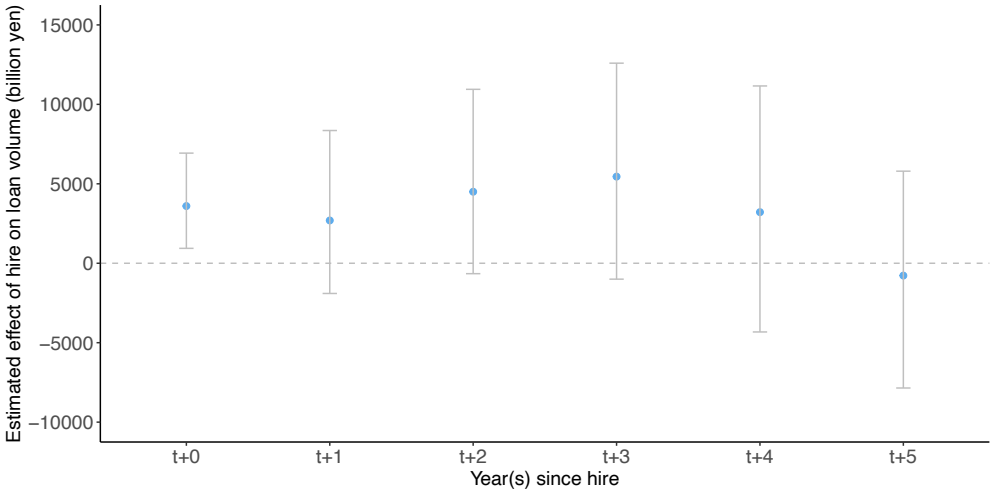


Figure A21: Estimated effect of METI and MOF hires on size of government loan received, by year after hire (using covariate balanced propensity score matching)

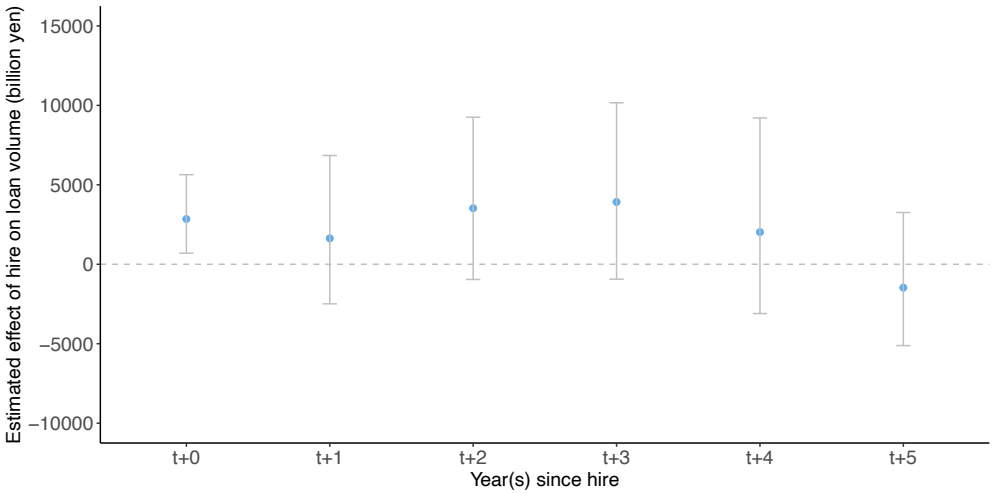


Figure A22: Estimated effect of METI and MOF hires on size of government loan received, by year after hire (using marginal structural model covariate balanced propensity score matching)

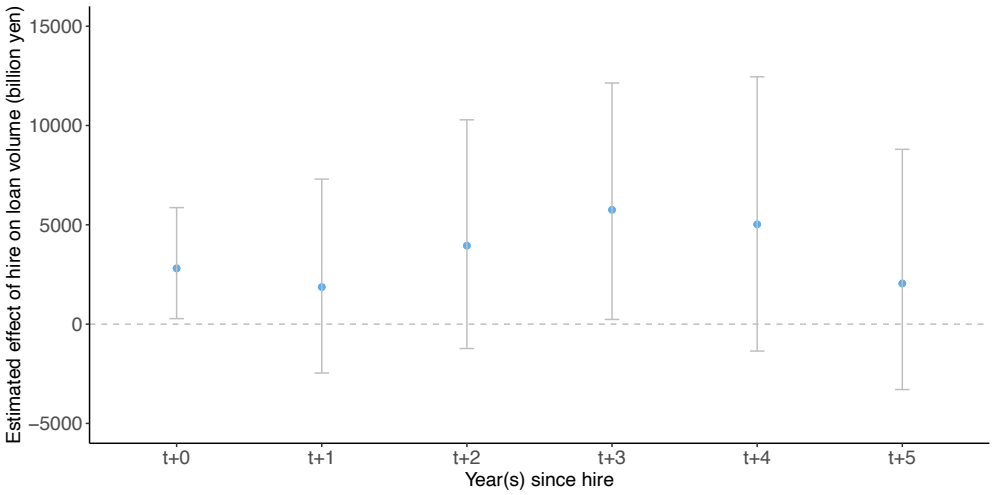


Figure A23: Estimated effect of METI and MOF hires on size of government loan received, by year after hire (using propensity score matching)

Diagnostics

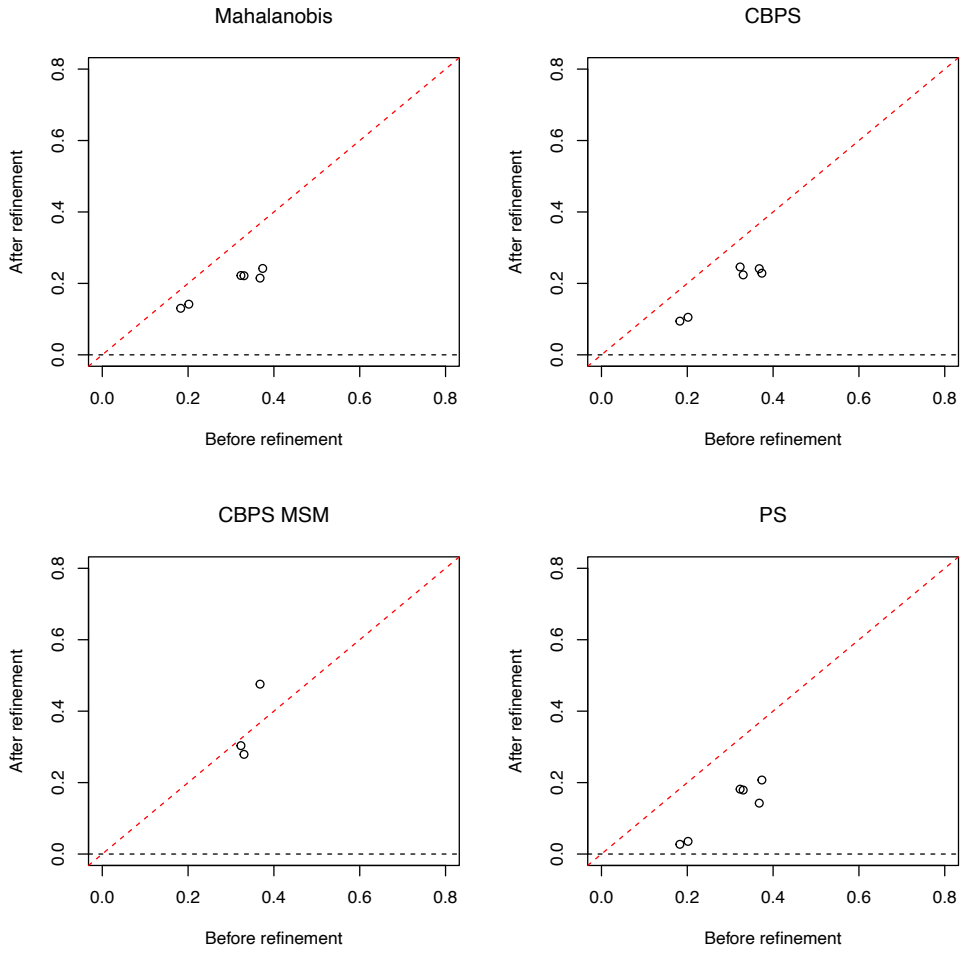


Figure A24: Balance of firm financials before and after matching

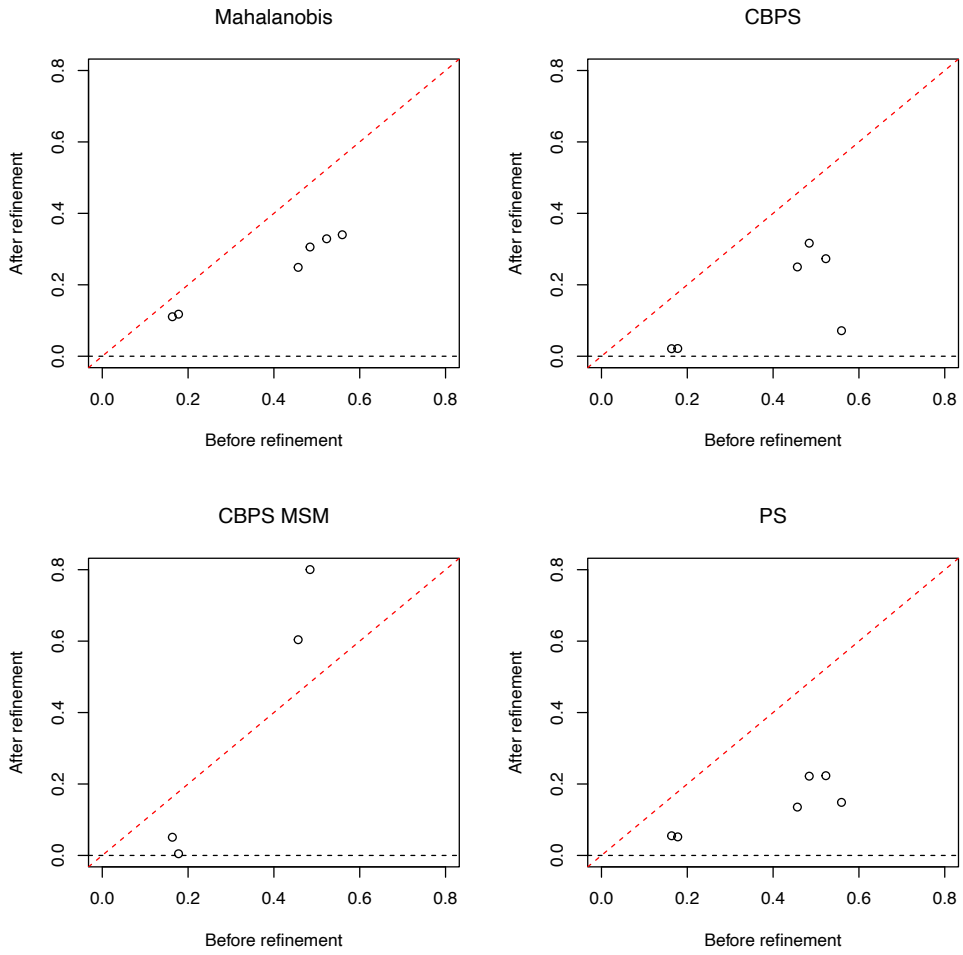


Figure A25: Balance of firm financials before and after matching (METI and MOF hires only)

Event studies

Tabular results

Table A14: Cumulative abnormal returns from assistant vice-minister and vice-minister appointments

Event Day	Estimate	95% CI lower	95% CI upper
-7	0	0	0
-6	-0.1	-0.42	0.22
-5	0.16	-0.29	0.65
-4	0.25	-0.31	0.81
-3	0.23	-0.55	1.01
-2	0.02	-1.02	0.95
-1	0.69	-0.4	1.75
0	1.24	-0.07	2.57
1	1.3	-0.19	2.83
2	1.36	-0.2	3.09
3	1.39	-0.23	2.99
4	1.33	-0.34	3.07
5	0.74	-0.94	2.53
6	1.01	-0.77	2.86
7	0.83	-1.09	2.74
8	0.96	-1.03	2.86

Note: Total events = 47

Table A15: Cumulative abnormal returns from assistant vice-minister and vice-minister appointments, outside director appointments

Event Day	Estimate	95% CI lower	95% CI upper
-7	0	0	0
-6	-0.19	-0.7	0.33
-5	0.21	-0.45	0.95
-4	0.55	-0.37	1.47
-3	0.46	-1.03	1.92
-2	-0.54	-2.56	1.27
-1	0.19	-1.87	2.37
0	0.1	-2.37	2.41
1	0.13	-2.68	2.93
2	0.05	-2.68	2.81
3	0.09	-2.71	2.8
4	-0.06	-3.01	2.85
5	-0.88	-3.93	2.15
6	-0.28	-3.51	2.94
7	-0.4	-4.09	2.97
8	-0.12	-3.93	3.43

Note: Total events = 19

Table A16: Cumulative abnormal returns from assistant vice-minister and vice-minister appointments, internal appointments

Event Day	Estimate	95% CI lower	95% CI upper
-7	0	0	0
-6	-0.17	-0.57	0.25
-5	-0.16	-0.73	0.41
-4	-0.23	-0.97	0.48
-3	-0.12	-0.99	0.72
-2	0.35	-0.75	1.37
-1	0.93	-0.39	2.2
0	2.16	0.8	3.5
1	2.32	0.71	3.9
2	2.39	0.51	4.25
3	2.25	0.31	4.14
4	2.07	0.01	4.09
5	1.74	-0.53	3.66
6	1.78	-0.59	3.77
7	1.47	-0.98	3.52
8	1.53	-0.77	3.5

Note: Total events = 25

Table A17: Cumulative abnormal returns after hiring former vice-ministers as consultants

Event Day	Estimate	95% CI lower	95% CI upper
-7	0	0	0
-6	-0.41	-1.07	0.21
-5	-0.5	-1.9	0.66
-4	-0.37	-2	1.06
-3	-0.05	-1.88	1.56
-2	-0.36	-2.53	1.8
-1	1.12	-1.55	3.77
0	2.14	-0.18	4.7
1	3.21	0.32	5.95
2	3.47	-0.16	6.73
3	3.07	-0.62	6.36
4	2.76	-1.07	5.92
5	2.51	-1.38	5.54
6	1.58	-2.87	5.1
7	0.73	-3.86	3.75
8	0.7	-3.72	3.74

Note: Total events = 9

Table A18: Cumulative abnormal returns from assistant vice-minister and vice-minister appointments, METI appointments

Event Day	Estimate	95% CI lower	95% CI upper
-7	0	0	0
-6	0.05	-0.34	0.47
-5	0.26	-0.21	0.76
-4	0.35	-0.29	1.04
-3	0.69	-0.22	1.69
-2	0.71	-0.29	1.82
-1	1.25	-0.16	2.71
0	2.34	0.71	4.01
1	2.41	0.48	4.51
2	2.23	0.31	4.42
3	2.08	0.22	4.19
4	1.84	-0.11	4.05
5	1.21	-0.74	3.38
6	1.91	-0.11	4.24
7	2.13	0.08	4.62
8	2.46	0.4	4.75

Note: Total events = 27

Table A19: Cumulative abnormal returns from assistant vice-minister and vice-minister appointments, appointments from ministries other than METI

Event Day	Estimate	95% CI lower	95% CI upper
-7	0	0	0
-6	-0.3	-0.81	0.22
-5	0.04	-0.78	0.91
-4	0.1	-0.79	1.05
-3	-0.4	-1.64	0.67
-2	-0.92	-2.66	0.6
-1	-0.07	-1.72	1.39
0	-0.25	-2.18	1.43
1	-0.2	-2.42	1.74
2	0.2	-2.17	2.25
3	0.46	-2.13	2.86
4	0.63	-2.01	3.25
5	0.11	-2.83	2.69
6	-0.21	-3.23	2.42
7	-0.93	-4.26	1.89
8	-1.05	-4.51	1.92

Note: Total events = 20

Subgroup effects

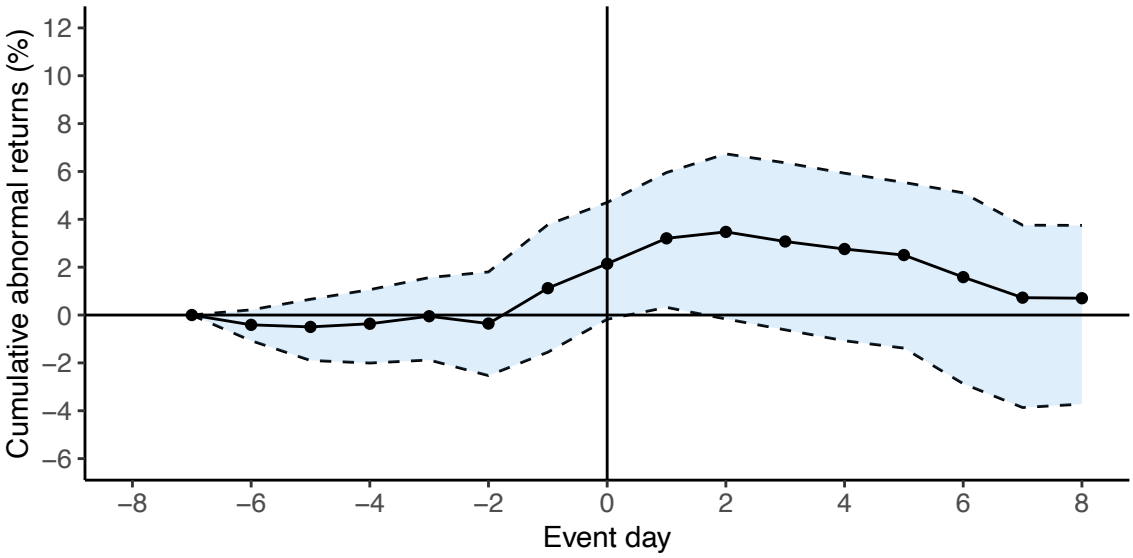


Figure A26: Cumulative abnormal returns after hiring former vice-ministers as consultants

Note: Tabular results can be found in Table A17.

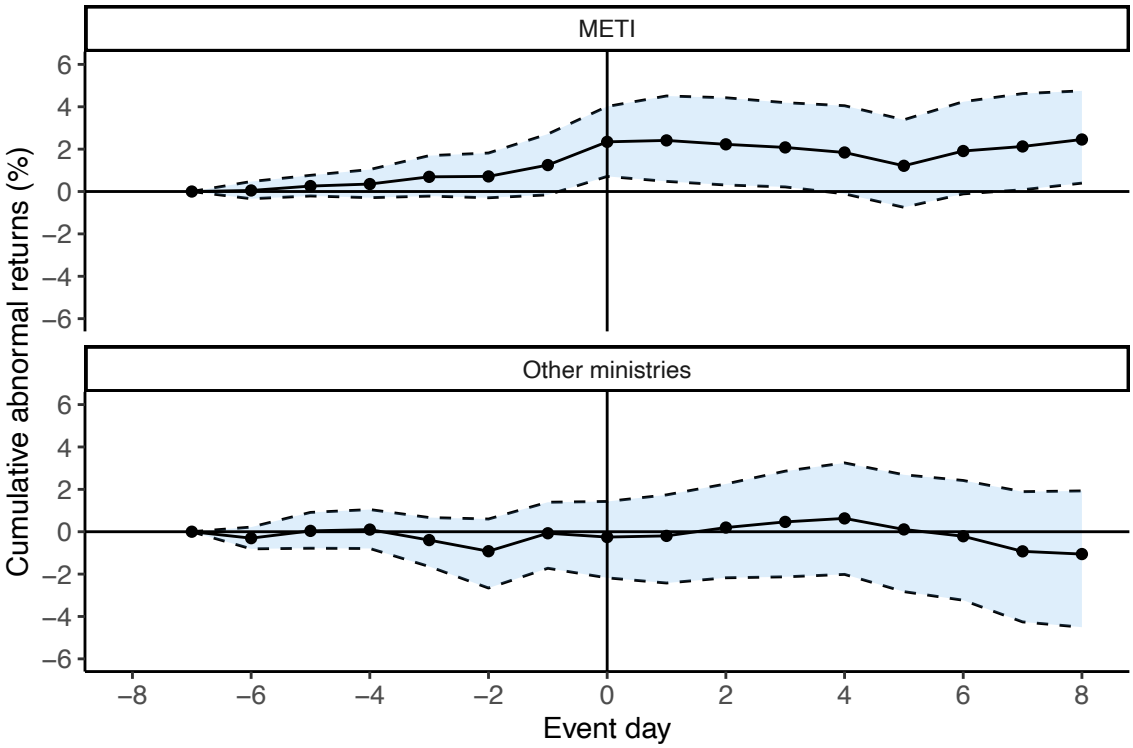


Figure A27: Cumulative abnormal returns from assistant vice-minister and vice-minister appointments from METI vs. other ministries

Note: Tabular results can be found in Table A18 and Table A19.

Stock robustness

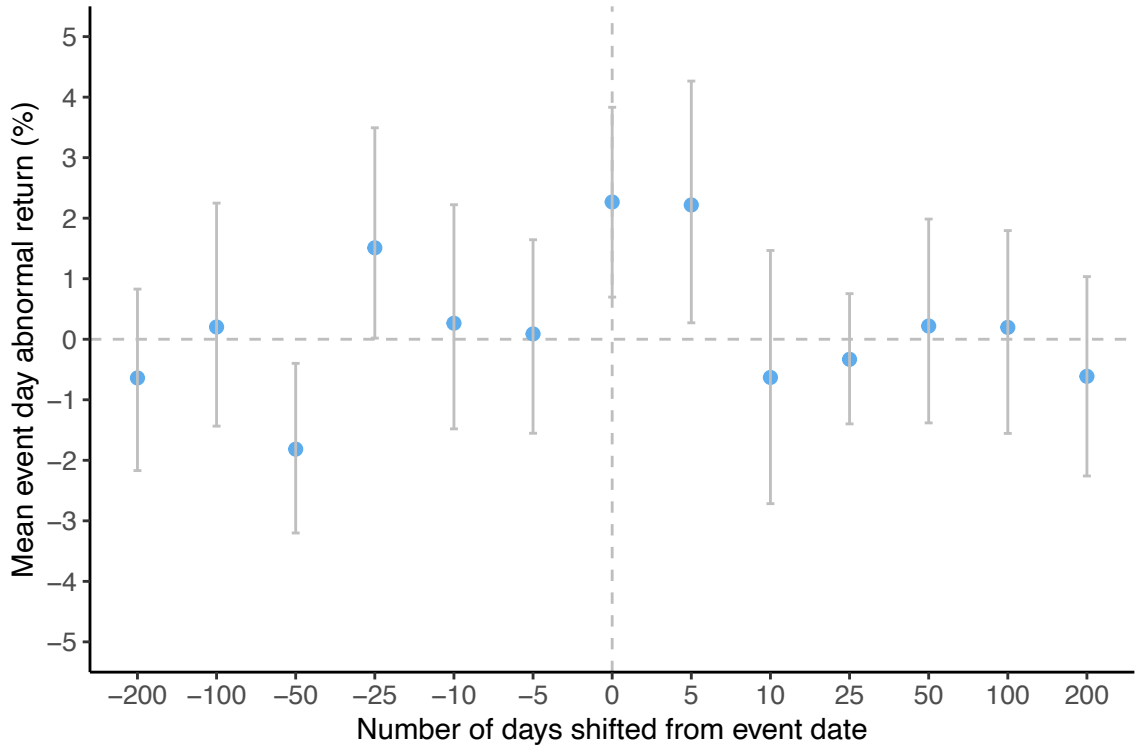


Figure A28: Time-shifted placebo sensitivity analysis of mean event day abnormal return for internal hires

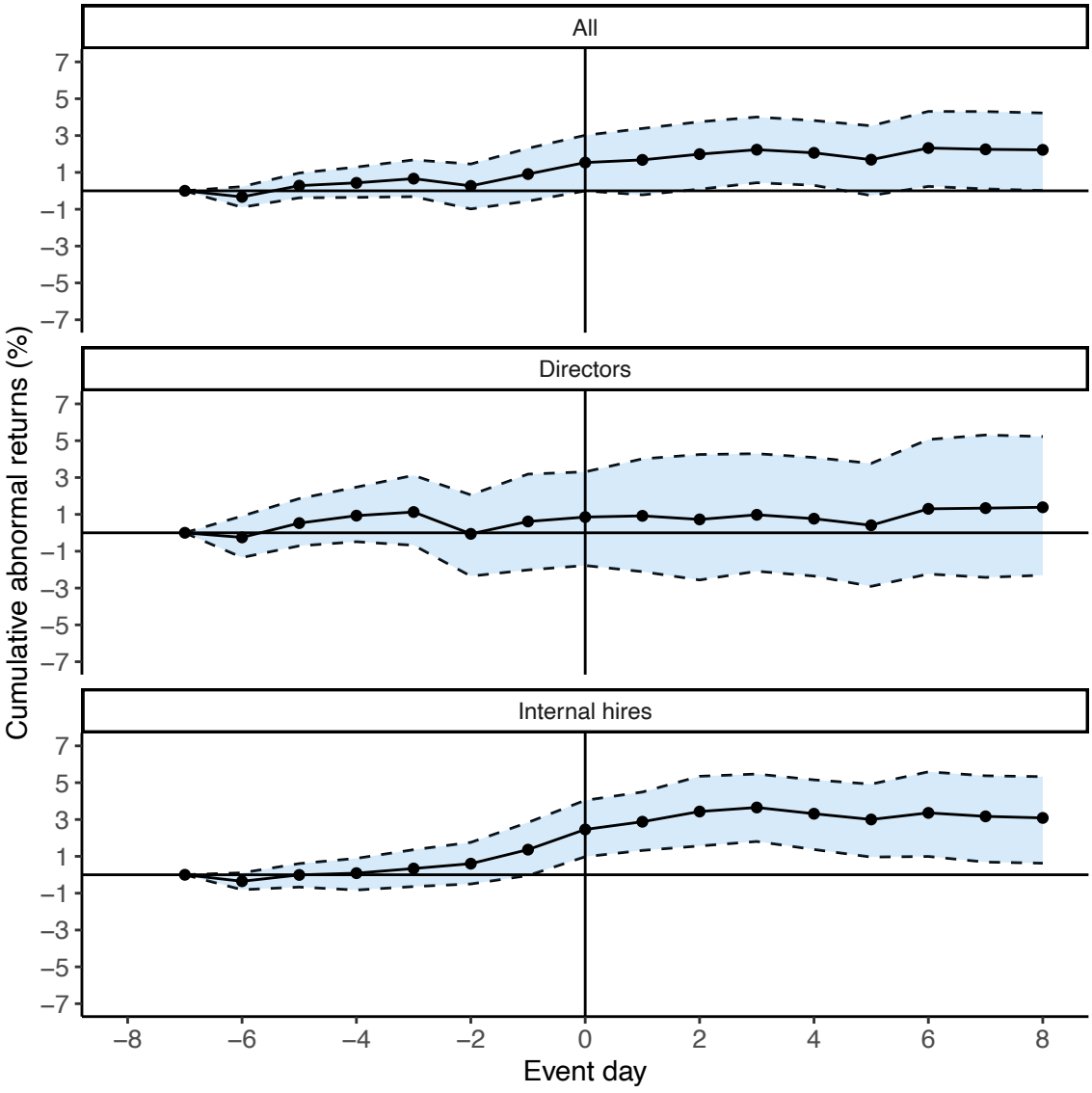


Figure A29: Cumulative abnormal returns from assistant vice-minister and vice-minister appointments (constant mean return model)

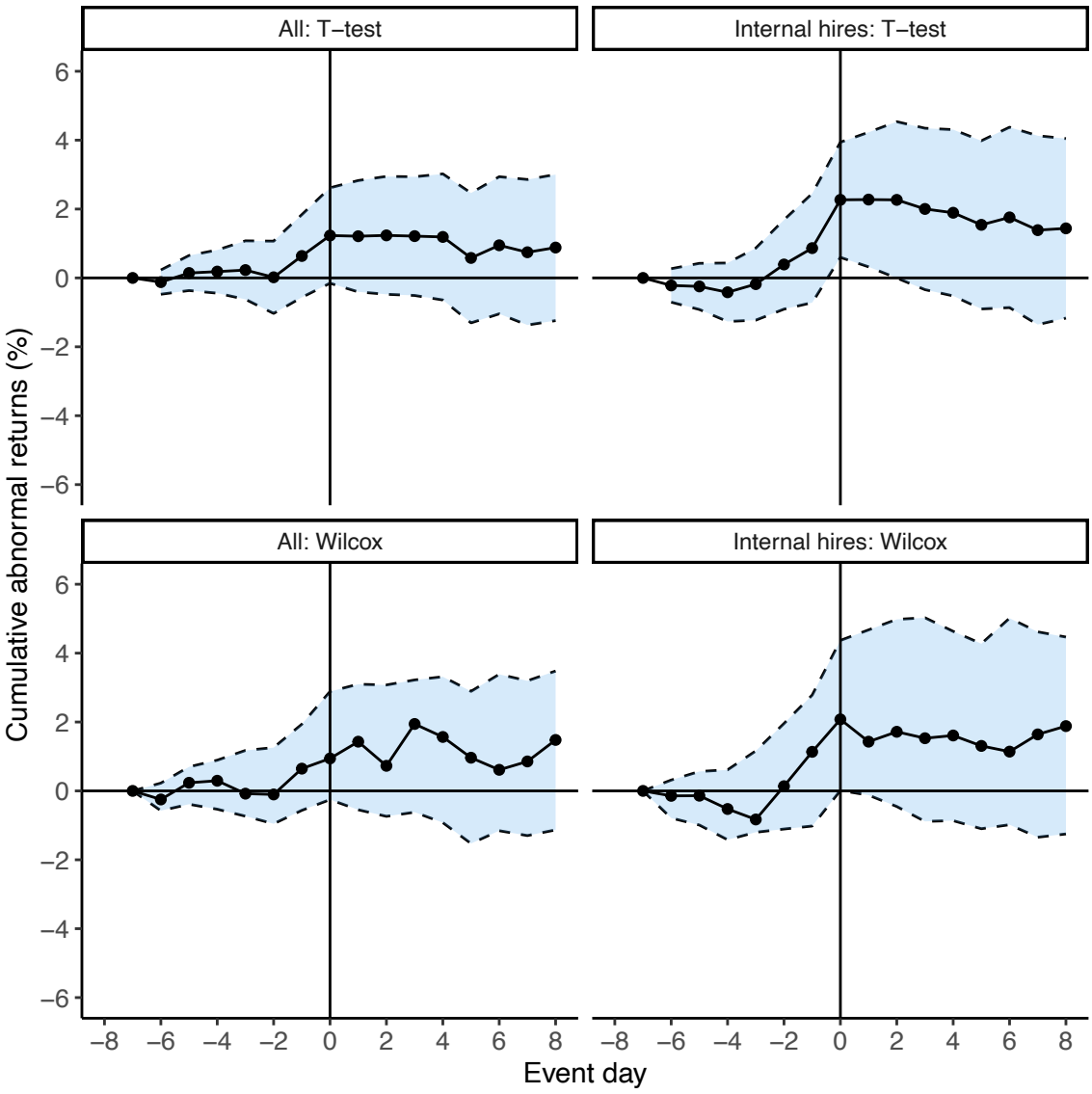


Figure A30: Cumulative abnormal returns from assistant vice-minister and vice-minister appointments (95% CIs from t-test and Wilcoxon rank test)

Note: Wilcoxon rank test charts plot median CARs rather than mean.

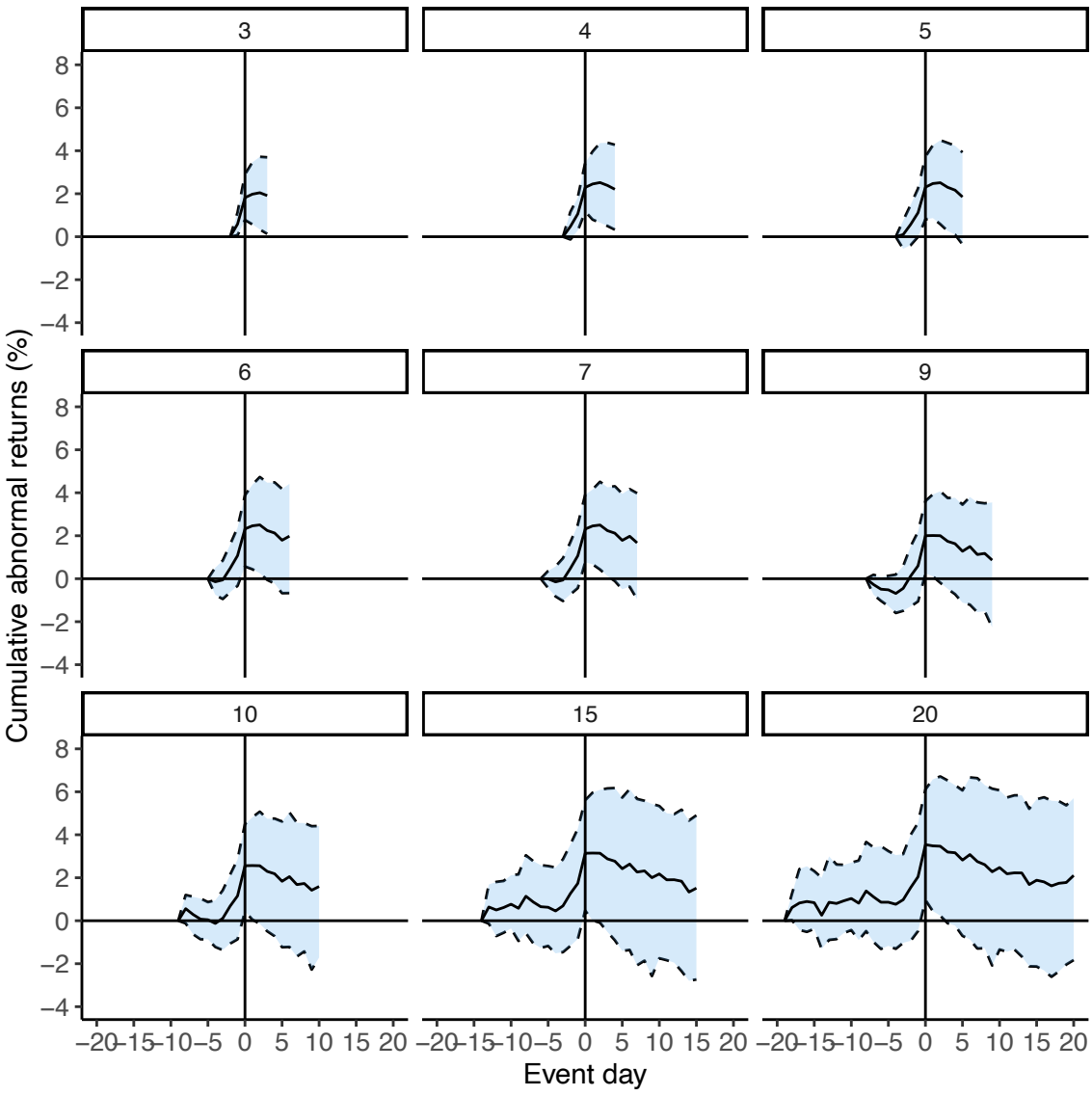


Figure A31: Cumulative abnormal returns from internal assistant vice-minister and vice-minister appointments, by event window

Nonprofit contract value

Tabular results

Table A20: Effect of amakudari appointments on NPO negotiated contract value (binary outcome)

time	Effect	SE	N
3	-0.28	0.35	728
2	0.3	0.2	1150
1	0.17	0.14	1723
0	0.68	0.1	2865

Table A21: Effect of amakudari appointments on NPO negotiated contract value (continuous outcome)

time	Effect	SE	N
3	-0.21	0.24	590
2	0.07	0.11	988
1	0.03	0.08	1508
0	0.26	0.05	2711

NPO robustness

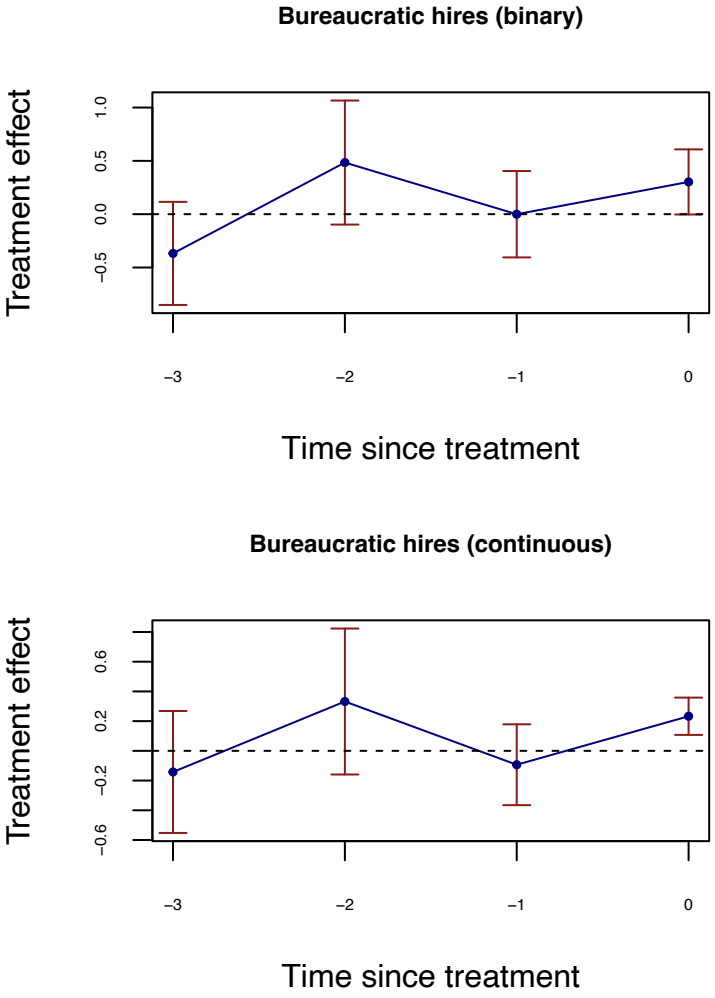


Figure A32: DID_M **estimator effect of *amakudari* appointments on log(NPO negotiated contract value), yearly aggregated data**

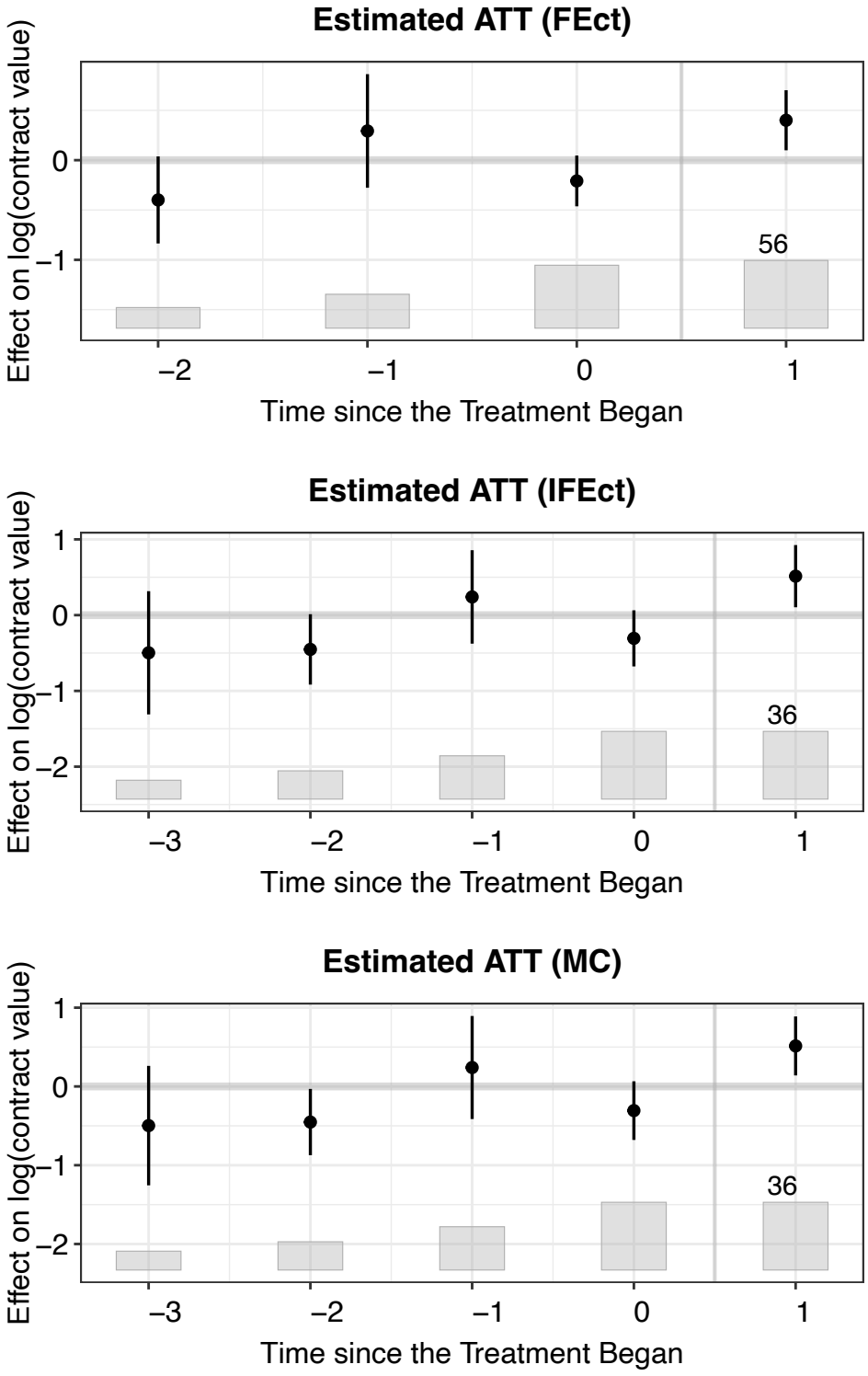


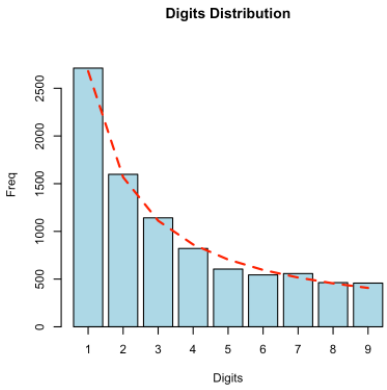
Figure A33: FEct, IFEct, and MC estimators: effect of *amakudari* appointments on log(NPO negotiated contract value), yearly aggregated data

	Dependent variable:	
	log(contract value)	
	(1)	(2)
Hires (binary)	0.416***	
	(0.071)	
Hires (continuous)		0.092***
		(0.019)
Observations	6,577	6,577
Note:	*p<0.1; **p<0.05; ***p<0.01	

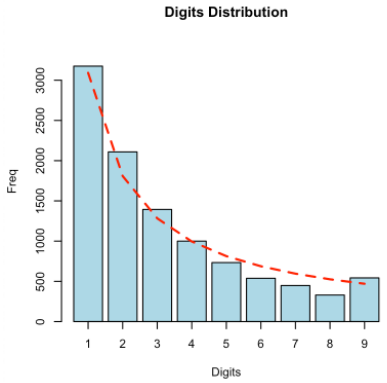
Table A22: Two-way fixed effects estimates of *amakudari* appointments on log(NPO negotiated contract value), monthly aggregation

	Dependent variable:	
	log(contract value)	
	(1)	(2)
Hires (binary)	0.274***	
	(0.085)	
Hires (continuous)		0.082***
		(0.019)
Observations	3,480	3,480
Note:	*p<0.1; **p<0.05; ***p<0.01	

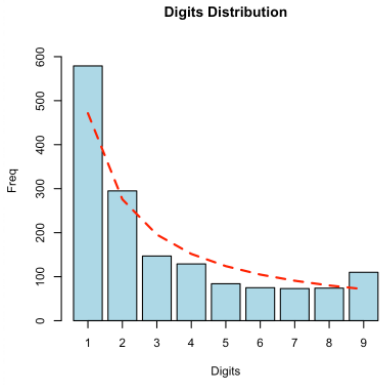
Table A23: Two-way fixed effects estimates of *amakudari* appointments on log(NPO negotiated contract value), yearly aggregation



(a) Competitive bid contracts



(b) Negotiated contracts



(c) Negotiated contracts when former bureaucrat in director position

Figure A34: Distribution of first digits: actual distribution in blue and predicted distribution according to Benford's Law in red