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A FIELD EXPERIMENT IN CHINA

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### **ABSTRACT**

We study the demand for government participation in China's venture capital and private equity market. We conduct a large-scale, non-deceptive field experiment in collaboration with the leading industry service provider, through which we survey both sides of the market: the capital investors and the private firms managing the invested capital by deploying it to high-growth entrepreneurs. Our respondents together account for nearly \$1 trillion in assets under management. Each respondent evaluates synthetic profiles of potential investment partners, whose characteristics we randomize, under the real-stakes incentive that they will be introduced to real partners matching their preferences. Our main result is that the average firm dislikes investors with government ties, indicating that the benefits of political connections are small compared to the cons of having the government as an investor. We show that such dislike is not present with government-owned firms, and this dislike is highest with best-performing firms. Additional results and follow-up surveys suggest political interference in decision-making is the leading mechanism why government capital is unattractive to private firms. We feed our experimental estimates and administrative data into a simple model of two-sided search to discuss the distributional effects of government participation. Overall, our findings point to a "grabbing hand" interpretation of state-firm relationships reflecting a desire by the government to keep control over the private sector.

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An appendix is available at <http://www.nber.org/data-appendix/w30161>

## 1. INTRODUCTION

Government participation in the economy via direct or indirect ownership of private sector firms remains pervasive around the world (La Porta, Lopez-de Silanes, and Shleifer, 1999; Bortolotti and Faccio, 2009; Aminadav and Papaioannou, 2020).<sup>1</sup> The political and academic debate around this issue is typically framed through the lens of the model of government which best represents the relationship between state and firms (Shleifer and Vishny, 1998). Under the “grabbing hand” model—commonly used to describe Russia and Eastern Europe in the 1990s—government interference by bureaucrats and politicians represents a key friction to the growth of private businesses. In contrast, under the “helping hand” model the government helps private sector firms overcome market failures (Musgrave, 1959; Stiglitz, 1989).

Understanding what model of state-firm relationships is at play has especially important implications in China, a massive high-growth economy where the state represents a leading investor in and minority owner of private firms (Allen, Cai, Gu, Qian, Zhao, and Zhu, 2021). Given China’s economic success, one narrative is that firms wish to get connected to the state to grow faster: indeed, many of the most successful Chinese corporations, including publicly traded ones, have the government as an early investor, as documented by Bai, Hsieh, Song, and Wang (2020). An alternative view is that what we observe reflects a desire by the state to keep control over the private sector, suggesting that firms would grow more absent government interference.

However, understanding the nature of state-firm relationships remains challenging due to the fundamental difficulty of measuring the private sector demand for government participation. That is, do market participants view the government as the grabbing or helping hand? In this paper, we tackle this question directly by combining a field experiment with new administrative and survey data to ask whether—all else equal—firms prefer to receive capital from the government vis-à-vis private investors. Our context is that of venture capital and private equity (VCPE) in China, representing the second largest market for innovative and high-growth firms in the world (after the U.S.) and a multi-trillion dollar market—comparable to the entire GDP of Italy or Brazil, depending on the estimates—where the government plays a central role in the allocation of capital. Specifically, we focus on the matching between capital investors, i.e., the Limited Partners (LPs), and profit-seeking firms, i.e., the fund managers or General Partners (GPs), that manage the invested capital by deploying it to high-growth entrepreneurs.<sup>2</sup>

<sup>1</sup>See, for example, [The Visible Hand \(The Economist, 2012\)](#).

<sup>2</sup>In the paper, for brevity, we will primarily use the standard VCPE terminology of LPs and GPs, even though we will at times also refer to them as “investors” and “firms,” respectively.

In the first part of the paper, we characterize the role of government in the Chinese VCPE market by matching data on VCPE investments over the 2015–2019 period with administrative business registration records, through which we can observe the ownership structure of all firms (GPs) and investors (LPs) in the data. We establish four main descriptive facts. First, the government—represented by central, provincial, and local government agencies as well as state-owned enterprises (SOEs)—is the leading investor, with the government as a majority owner of about half of LPs, and government LPs significantly larger investors than private LPs. Second, the government is also a minority owner of a significant share (about a third) of GPs. Third, government-owned GPs perform worse than private GPs. Fourth, there is a pattern of assortative matching, with government LPs investing disproportionately more in government-owned GPs. These findings are interesting on their own, but the inability to disentangle demand and supply of government capital means they could support many different interpretations, thus motivating our experimental approach.<sup>3</sup>

In the second and central part of this paper, we therefore aim to estimate the firm demand for government capital. As mentioned, the main challenge with administrative data is that we typically observe only equilibrium outcomes. Additionally, conditional on observing certain GPs obtaining capital from government LPs, what we observe might not be reflective of a preference for government LPs, but rather for certain characteristics of those LPs that are correlated with being connected to the government (e.g., government investors are deep-pocketed). We circumvent these empirical challenges by conducting a field experiment in 2019 in collaboration with the leading VCPE industry service provider in China, Zero2IPO. Our collaboration led to a new experimental survey of 688 leading GPs in the market, which together manage nearly \$1 trillion. Thanks to the deep industry connections of our partner, we were able to obtain a response rate of more than 43%, which is extremely high for the setting. The survey launched as part of a new service by Zero2IPO that aims to experimentally measure GP preferences so as to help GPs connect to investors. The experiment has real-world implications as Zero2IPO regularly facilitates the match-making process between GPs and LPs, and because informal and industry networks and referrals are the primary way through which investment relationships are formed in VCPE (Hochberg, Ljungqvist, and Lu, 2007). The surveys were conducted within Zero2IPO’s internal system, with Zero2IPO also calling each respondent to explain the details of the project and the incentive structure.

The experiment is inspired by the literature in labor economics and discrimination on correspondence audit studies (Bertrand and Mullainathan, 2004), and more specifically by

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<sup>3</sup>For example, these results might be driven by common narratives of the government favoring underperforming politically connected firms, or they might be driven by the government interfering in firms’ operations in a way that lowers performance. Further considering the equilibrium implications of these various mechanisms, as well as the broader efficiency goals of the government, makes a clean identification of the pros and cons of receiving government capital from the firms’ perspective quite challenging.

its recent refinement without deception by Kessler, Low, and Sullivan (2019). Akin to the discrimination literature, the motivation for the experiment is straightforward, as simply asking respondents about their perceptions of government investors would hardly lead to accurate measurement, both because the issue is sensitive and because respondents would not account for other characteristics correlated with being a government investor. As part of the experiment, GPs are asked to rate 20 profiles of LPs (on a 10-point Likert scale) along two main dimensions: (i) how interested they would be in establishing an investment relationship with the LP (under the assumption the LP is interested); and (ii) the likelihood that the LP would be interested in entering an investment relationship with them if they had the chance. There is no deception because GPs know the LP profiles are hypothetical. The profiles are pieces of text that are created to look exactly like those typically available on the Zero2IPO platform that both GPs and LPs use to research the industry. Additionally, the incentives to report truthfully are strong because within this high-stakes real context, Zero2IPO promises to use the ratings of each GP to introduce them to real LPs that match their preferred characteristics. Importantly, Zero2IPO ensures that our respondents are exclusively high-level investment managers and partners of leading VCPE firms. The fact that these respondents are willing to spend 45 minutes on the survey suggests they find the incentive valuable.

An attractive feature of this setting is that we have full control over the creation of the LP profiles, which allows us to estimate GP preferences for several randomized characteristics of LPs, while holding other characteristics fixed. We create the profiles together with the Zero2IPO research team by decomposing real profiles into “components” that profiles typically consist of, closely following the distribution of profiles on the Zero2IPO platform. For example, almost all profiles list the headquarters of a given LP, or the amount of capital they are looking to invest. Importantly, many profiles also list the relationship of the LP to the government, perhaps because they are SOEs or because they received endorsement by, say, a provincial government. For each component, e.g., whether an LP has government ties, we create multiple pieces of text that allow us to signal the LP type in a realistic manner.<sup>4</sup> We randomize components to generate the synthetic profiles we use to elicit preferences, make a few basic changes to the text to ensure language accuracy and realism of the profiles, and pick a random set to generate the surveys we invite GPs to respond to.

Our main finding is that, on average, GPs dislike LPs with government ties. We also find that GPs prefer deep-pocketed investors, those headquartered in Beijing, and those that are

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<sup>4</sup>A natural limitation of the approach is that we can only have a finite number of different signals, and thus we cannot measure, say, GPs’ preferences for all possible government entities. Together with Zero2IPO, we chose the most representative options that signal relevant characteristics of an LP in our context. For instance, the sentences indicating a tie to the government include references to SOEs as well as central, provincial, or local government ownership or supervision of the LP.

not focused on specific industries and stages of investment. Several other components, such as how long the LP has been investing in the VCPE market, whether they are foreign, and whether they provide more details about their investment philosophy or corporate governance practices do not seem to matter. All results are robust to the inclusion of respondent fixed effects.<sup>5</sup>

The average effects we uncover indicate that the negatives of receiving capital that is tied to the government outweigh the positive value GPs may obtain from establishing a link to a government-related politically connected investor. Our findings are consistent with a “grabbing hand” interpretation of the government’s involvement in the market. Anecdotally, consistent with several anonymous discussions with a number of active VCPE firms, a leading explanation is that government connections of the investors lead to interference in decision-making that is due to political, rather than profit-maximizing, incentives.

To investigate mechanisms, we first explore the heterogeneity of our findings across different types of GPs. In particular, we are interested in whether the average dislike for government capital is driven by the ownership structure of the GP itself. If the presence of interference in decision-making is seen as unattractive, this should be especially so for nongovernment-owned GPs that operate according to market principles. On the other hand, we expect the incentives of government-owned GPs to be more aligned with those of government investors, which should result in a more favorable view of government LPs as investment partners. In our regression of GP interest on LP characteristics, we find that the negative coefficient on the indicator for the LP having government ties can be fully accounted for by nongovernment-owned, private GPs. Instead, we find that government ties of the LP do not matter for the preferences of government-owned GPs. Moreover, the dislike for government capital is especially pronounced for the best performing private GPs. We find that no other component of the LP profiles displays a meaningful difference depending on whether the GP is owned by the government or not. These findings are especially informative considering that private GPs should be those who would benefit the most from connecting with a government investor under the “helping hand” view of government participation. Additional results point to a largest dislike for central government agencies, followed by provincial government agencies, and a lower or null dislike by GPs focused on state-dominated industries, where the helping hand of the government is arguably more valuable. Moreover, we find that our findings hold independently of whether the respondent GP already has government LPs as investors at the time of the survey.

We provide additional, largely qualitative evidence on the mechanisms behind the dislike of private GPs for LPs with government ties using results from a new round of surveys

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<sup>5</sup>Notice that a main worry of a survey like ours in China is that respondents might be wary of rating poorly entities that appear linked to the government. However, our main finding suggests that such a worry would only imply we are underestimating the dislike for government capital.

we conducted jointly with Zero2IPO. Designed to obfuscate their specific purpose, these additional surveys ask respondents to evaluate a list of pros and cons of establishing a relationship with an investor linked to the government. By and large, GPs lament the presence of political interference in decision-making by LPs with government ties. To a lesser extent, GPs also consider the presence of increased policy uncertainty and the lack of professionalization of teams working for LPs tied to the government to be unattractive features of government LPs.

We expand on our experimental analysis of the role of government participation in the matching between GPs and LPs by conducting a contemporaneous analogous survey of the other side of the market, namely of high-level managers of LPs that are responsible for selecting the GPs to provide capital to. We are able to survey 312 LPs, with a response rate of 39%. The survey and the creation of synthetic profiles follow a structure similar to the GP survey, and the incentive is identical. The profile components are slightly different to reflect the different type of market participants. Some of the key findings are that LPs prefer high-performing, foreign, recently established GPs that have a specialized focus in specific industries. What stands out, however, is that the strongest determinant of LP interest in a GP is whether that GP already has entities with government ties among its investors. We also find that LPs value positively GPs whose team members have direct experience in the government, while industry experience does not matter. Unlike the GP-level analysis, we do not find much heterogeneity depending on whether the LP is government-owned or not.

In summary, our experimental surveys reveal substantial heterogeneity in preferences for government participation from both the firm and investor sides of China's VCPE market. Given the two-sided nature of the market, changing the extent of government participation has potentially rich, equilibrium implications on all market participants. To study these distributional consequences of government participation, based on the elicited preferences, we build a simple two-sided search and matching model of government and nongovernment GPs and LPs, discussed in the third and final part of the paper. We calibrate the model using both our experimental surveys and the administrative data, and we conduct several policy counterfactuals. First, our model finds and quantifies that increasing government LP participation will reduce the surplus of nongovernment GPs, while strongly improving the surplus of government GPs, and in particular that of low-performing government GPs. Second, we show that counterfactual policies which channel government capital exclusively to private or well-performing GPs can substantially reduce the average surplus on both sides of the market, consistent with the dominant role played by government entities as both investors and firms. One implication of this result is that the empirical regularity that government investors tend to invest in low-performing firms does not necessarily reflect capital misallocation by government investors, but may be driven, at least in part, by the fact

that the best-performing firms prefer private capital in the first place. All together, these findings point to important distributional effects of government participation and highlight the crucial importance of government entities in driving the allocation of capital in China's VCPE market.

Our study is related to a well-established body of work on the role of government participation in the economy. Shleifer (1998) reviews the arguments supporting and against state ownership in a number of economic sectors, and Megginson and Netter (2001) give an overview of a large literature on privatization. Several studies emphasize the many inefficiencies that arise when the government participates in economic activity and financial markets (Shleifer and Vishny, 1994; La Porta and Lopez-de Silanes, 1999; La Porta, Lopez-de Silanes, and Shleifer, 2002; Sapienza, 2004; Dinç, 2005; Bai, Lu, and Tao, 2006), with a related and large literature on the benefits of political connections (Fisman, 2001; Khwaja and Mian, 2005; Faccio, Masulis, and McConnell, 2006) and the costs of corruption (Shleifer and Vishny, 1993; Fisman and Golden, 2017; Colonnelli and Prem, 2022).<sup>6</sup> Our approach differs from the existing literature which, by predominantly studying the *effects* of government intervention, leads to findings that typically reflect the combination of the state's active involvement in the economy with the selection of firms willing to do business with the state in the first place. Our key insight and contribution is the estimation of demand for government participation, by means of a novel field experiment, which puts the spotlight on the pros (e.g., political connections) and cons (e.g., political interference in decision-making) as seen directly from the perspective of the private sector. Our results show that the cons outweigh the pros, thus supporting a "grabbing hand" model of government participation, where government investors are unattractive to private firms, and especially so to high-performing firms. While our study does not speak to the broader goals of the state and their overall efficiency implications, we provide evidence suggesting a desire by the government to keep control over a specific but rather important part of the private sector.

A related contribution of our work is to provide a comprehensive account of the VCPE market in China. In particular, despite its size and importance for both innovation and growth, extremely little is known about preferences of private and government-owned fund managers and investors, and the role of government participation more broadly (Huang, Tian, Amstad, Sun, and Xiong, 2020; Cong, Lee, Qu, Shen et al., 2020). This is in stark contrast with the growing body of evidence regarding the Chinese government's impact on

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<sup>6</sup>Relatively little is known in the context of high-growth firms. Lerner (2009) provides a critical account of government policies aimed at spurring innovation, and Bai, Bernstein, Dev, and Lerner (2021) collect new data to study the characteristics of public entrepreneurial finance programs around the world. Related papers include Lerner (2000), Howell (2017), Fang, Lerner, Wu, and Zhang (2018), and Babina, He, Howell, Perlman, and Staudt (2020). Recent work has also looked at the direct provision of venture capital funding through specific government vehicles in China and around the world (Brander, Du, and Hellmann, 2015; Cumming, Grilli, and Murtinu, 2017; Fei, 2018).

other sectors of the economy (Young, 2000; Song, Storesletten, and Zilibotti, 2012; Hsieh and Song, 2015; Xiong, 2018; Liu, 2019; Beraja, Yang, and Yuchtman, 2020; Jia, Lan, and i Miquel, 2021) and the financial system (Brunnermeier, Sockin, and Xiong, 2020).<sup>7</sup> Bai et al. (2020) and Allen et al. (2021) describe the ownership structure of private firms in China, uncovering an increasingly blurry distinction between state-owned and privately owned firms and emphasizing the important implications of disentangling the reasons behind this new form of state-firm relationships. Our paper provides a novel finding to inform this debate—that government capital is unattractive to private firms—which has implications for understanding the nature of China’s economic growth. Given the tight link between government participation and development, our paper also naturally relates to earlier work on financial development and economic growth more broadly (King and Levine, 1993; Rajan and Zingales, 1998; Levine, 1999; Wurgler, 2000; Levine, 2002).

Finally, we directly contribute to the literature on venture capital and private equity (see Da Rin, Hellmann, and Puri, 2013 for a review). Bernstein, Lerner, and Schoar (2013) and Andonov, Hochberg, and Rauh (2018) discuss the role of political investors in the contexts of sovereign wealth funds and U.S. public pension funds, respectively. Survey evidence on high-level decision makers in VCPE include Gompers, Kaplan, and Mukharlyamov (2016), Da Rin and Phalippou (2017), and Gompers, Gornall, Kaplan, and Strebulaev (2020). Few experiments have been conducted in this area, and they largely focus on early stage investments in the U.S. (Bernstein, Korteweg, and Laws, 2017; Gornall and Strebulaev, 2020; Zhang, 2020). To our knowledge, ours is the first field experiment that identifies preferences of both GPs and LPs. We do so in a novel match-making setting, with strong real incentives and a high response rate, and by targeting a large sample of high-profile managers of leading entities in the market. In particular, we contribute to the understanding of both the search and matching process in the VCPE market—with a specific focus on GP-LP matches (Lerner, Mao, Schoar, and Zhang, 2022) rather than those between GPs and the target investments (Sørensen, 2007; Ewens, Gorbenko, and Korteweg, 2022)—and of VCPE in emerging markets, more broadly (Lerner and Schoar, 2005; Kaplan, Martel, and Strömberg, 2007; Lerner, Schoar, Sokolinski, and Wilson, 2018).

The paper is organized as follows. Section 2 briefly describes the context of VCPE in China. Section 3 describes the main sources of administrative data and establishes a few key facts. Section 4 illustrates the details of the experimental design. Section 5 reports the main results. Section 6 discusses the model and equilibrium impact of government participation. Section 7 concludes.

<sup>7</sup>See Amstad, Sun, and Xiong (2020) for an extensive review of the literature.

## 2. INSTITUTIONAL CONTEXT

We study the venture capital and private equity (VCPE) market, which refers to capital investments in firms that are not publicly listed or traded. While venture capital—which specifically refers to the funding of high-growth, high-risk companies, typically innovative entrepreneurial startups—is seen as largely distinct from private equity more broadly in the U.S. and most other developed economies, such distinctions are quite blurry in China (Huang et al., 2020). We therefore refer to the general “VCPE” market and investors therein, noting that the market is characterized primarily by early stage and growth equity investors, which will be our focus throughout the whole paper. The VCPE market in China is second in size only to the U.S..

The main players in the VCPE market are the capital providers, which are typically referred to as Limited Partners (LPs), and the firms that manage the capital invested, namely the General Partners (GPs), that subsequently deploy the capital by acquiring ownership, or equity, in other typically high-growth firms. Such investments generate returns to the investors once the firms’ shares are sold, either publicly through an IPO or privately to other investors or firms. GPs also capture a share of the profits, in addition to their asset management fee. Specifically, one or more LPs generally invest capital into a “fund,” which is the pool of capital raised by a given GP. LPs can invest into more than one fund, and a GP can raise multiple funds over time. This structure, typical of the U.S. market, is known as “limited partnership,” and it also became the dominant structure in China with the Partnership Enterprise Law of 2007. In this context, LPs are considered “passive” investors, to the extent that their limited liability comes at the cost of not interfering with the investment allocation decisions of the GP. In practice, however, examples abound about how LPs can exert a certain degree of influence over how the capital is ultimately allocated.<sup>8</sup>

As we will show in the next section, a distinctive feature of VCPE in China is the predominant role played by the government in the allocation of capital. Central government agencies, local governments, and State-Owned Enterprises (SOEs) supervise or own (partially or wholly) a large share of the LPs actively operating in the market, thus playing a primary role in driving high-growth entrepreneurship and private sector development. For instance, the LP may be a SOE funded by the Provincial People’s Government. Similarly, a local government may formally approve the establishment of an LP and guide its capital allocation

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<sup>8</sup>While the two-sided nature of the market is the most common in the U.S., China, and around the world, there are a myriad other nuanced variations of the VCPE model, such as GPs and LPs playing both the role of investor and fund manager at the same time. For brevity, we abstract away from these details in the paper, except when clarifications are important for our empirical analysis and arguments. For comprehensive descriptions of all the details and nuances of the VCPE model, from compensation and management structures to distribution of profits and legal restrictions, see Lerner, Leamon, and Hardyman (2012), among others.

process. The role of government as an LP is at times made operational by the existence of so-called “government guided funds,” namely mixed private-public funds created and partially contributed to by government entities (usually local governments), to which nongovernment LPs are also expected to contribute. In our paper, for brevity, we will consider LPs as having government ties if the government is involved in any role in providing capital to any fund managed by a given GP.

We focus on the matching between GPs and LPs. Within this setting, learning to deal with government-related entities is often considered a “required course” for VCPE fund managers.<sup>9</sup> Many argue that having the government as an investment partner introduces inefficiencies in the investment process and can distort the allocation of capital away from their most productive uses. There are several reasons for why this is the case, as illustrated through large qualitative evidence gathered in the recent reviews by [Malkin \(2021\)](#) and [Luong, Arnold, and Murphy \(2021\)](#). First, the government is seen as a more “active” investor compared to other (commonly passive) LPs as, after the capital is disbursed, it often introduces restrictions on the specific types of investment the GPs can undertake, for example by trying to favor specific firms, locations, or sectors. Due to political incentives, government LPs might also want to prioritize projects that are less risky or that can generate returns within a short time frame. These are all potentially severe forms of interference for GPs, who tend to look for risky projects with high upsides that often require a long investment horizon and a high degree of flexibility in decision-making. Moreover, such distortions are emphasized by the fact that relying on the government as an investor can lead to extra exposure to policy uncertainty, for example because changing government objectives may lead to unexpected interference in investment decisions. Another source of inefficiency argued by opponents of government participation in the market is the presence of bureaucrats or political actors, rather than investment professionals, in investment and managerial committees.

There are, on the other hand, several reasons why—from the perspective of fund managers and entrepreneurs alike—having the government as an investor may confer a number of advantages. Typically, such benefits range from faster regulatory approvals and tax reductions to better access to information and other favors occurring thanks to political connections, especially in state-dominated sectors such as construction, mining, or manufacturing. In particular, government’s support is often seen as necessary to “open doors” for target firms to grow. For these same reasons, having the government as an investor might be seen as a positive signal by other investors who are looking for GPs to manage their capital, and having government-connected individuals in the investment team may prove valuable.<sup>10</sup>

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<sup>9</sup>See [The Chinese state is pumping funds into private equity \(The Economist, June 2021\)](#).

<sup>10</sup>From a social perspective, which remains beyond the scope of our paper, the main argument is about externalities, as the government may allow for capital to flow to projects that would otherwise remain underfunded (see [Lerner \(2000\)](#) for a discussion). In China, this is reflected in a push by the government for

### 3. VENTURE CAPITAL AND PRIVATE EQUITY IN CHINA: DATA AND DESCRIPTIVE ANALYSIS

In this section, we describe the main sources of administrative data we use throughout the paper. First, we describe the administrative data from Zero2IPO on General Partners (GPs), Limited Partners (LPs), and Venture Capital (VC) and Private Equity (PE) investments (Section 3.1). We then illustrate the data on the ownership structure of GPs and LPs and related measures of government connections (Section 3.2). Finally, in Section 3.3, we discuss basic summary statistics of our sample and establish a few descriptive facts.

**3.1. Administrative Data on Venture Capital and Private Equity.** Our primary source of administrative data is the full database created and maintained by our research partner Zero2IPO, which collects data on VCPE firms and their investments in a number of ways. First, they continuously aggregate multiple sources of data, from administrative registries such as those of the Asset Management Association of China (AMAC) and the National Enterprise Credit Information Publicity System (NECIPS), and those of stock exchanges and regional equity markets, as well as from several industry associations and competing data platforms, and including information announcements from government agencies and news press releases in VCPE-focused publications.

These data cover GPs and LPs actively operating in the market, but the lack of formal reporting requirements makes them imperfect with respect to coverage of deals and their performance, a typical issue in markets for private capital around the world. To alleviate this issue, Zero2IPO collects its own data through a range of quarterly and annual online surveys, which are regularly validated through in-person meetings and follow-ups with respondents via phone and at leading conferences, workshops, and similar events throughout the year. Finally, Zero2IPO has a dedicated research team to cross-check and standardize the information, not only across data sources but also by verifying the information reported by multiple parties (e.g., GP and LPs in a given deal). Overall, despite some limitations that are standard given the context, the data collection and validation process of Zero2IPO is largely similar to that of leading and widely trusted data providers in the VCPE space in the U.S., such as PitchBook and Preqin.

Because of the nature of the data collection, the database provides accurate information about the identity of GPs, LPs, and the funds they are associated with, together with registry information such as company name, founding date, headquarters location, and registered capital. We match GPs and LPs using the fund-level data, which indicates the GP managing the fund and the LPs that committed capital to the fund. For each of the entities in the data, the Zero2IPO data platform also provides a text-based profile description of the entity.

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capital flows to strategic sectors and locations that private LPs, such as wealthy families and individuals or large corporations, are not targeting.

We design the synthetic profiles used for the experimental surveys to mimic these real-world textual profile descriptions, a point we return to in detail in Section 4. Finally, for a subset of the sample we have access to data at the deal level, which includes information on the target company, deal’s size and date, and round of fundraising, among others.

3.1.1. *Measuring Performance.* A common issue with VCPE data is that observing performance measures is difficult, because the data often remain confidential and because there are several weaknesses associated with various measurement approaches, not least due to the dependence on data from unrealized private investments (see Phalippou (2008), Cole, Melecky, Mölders, and Reed (2020), and Jeffers, Lyu, and Posenau (2021) for discussions of these issues).

Similarly to most standard U.S.-focused datasets, our data also lack the universe (and respective timing) of cash-flows between GPs, LPs, and funds that is ideally needed to compute returns. However, our close collaboration with Zero2IPO allows us to construct a measure of returns, which they label “comprehensive return” (henceforth, CR), and that is typically unavailable to researchers. The CR is a weighted average of various measures Zero2IPO collects, such as funds raised, investments, and exits, among others that are obtained directly from the entities and that remain confidential. Because the magnitude of this measure is not directly interpretable, in our analysis we use each GP’s corresponding quantile of CR as a performance measure between 0 and 1. While also subject to many of the common concerns, the CR is relevant to the extent that it is used by Zero2IPO to compile its yearly rankings of GPs in China, which are the most authoritative in the market and relied upon by many investment professionals. Whenever we split GPs in terms of high versus low quality in the paper, we do so by cutting the sample at the median of CR, and considering a GP as high quality if it has above-median CR or if it was ever ranked as a top GP by Zero2IPO.

Finally, despite the fact that they are sensitive to the timing of cash flows, whenever using performance data, we further report robustness results that use the simpler measure of internal rates of return (IRRs), which are reported by the GPs directly to Zero2IPO for a subset of the data.

3.2. **Measuring Government Ownership.** We measure whether GPs and LPs are partially or wholly owned by the government using business registration data from NECIPS, as in Bai et al. (2020). We access the database through a dedicated API provided by the commercial company Tianyancha. The database contains the ownership structure of each legal business entity in China. That is, for each entity, we can observe its shareholders, and the shareholders of each shareholder, until we reach the ultimate owners and their respective shares in the given entity.

To define government ownership, we search for ultimate owners that are either state-owned enterprises (SOEs) or (central, provincial, or local) government agencies. We obtain the most comprehensive list of SOEs from the State-owned Assets Supervision and Administration Commission (SASAC), which we match to the business registration data. To identify government agencies, we proceed in two steps. First, we create a list of agencies from the State Council and from each provincial government’s website, respectively. Second, starting from these lists, we extract the primary keywords in their names that are indicative of a government agency, such as “department,” “administration,” “bureau,” and “government,” and search for these keywords in the business registry data. We do a similar search for the list of city names in the data, as many local governments are city administrations. We then manually go over the results from the searches to screen out false positives, and to categorize government agencies into central, provincial, and city (hereafter, local) level agencies, for a total of 124 central, 220 provincial, and 1,110 local government agencies in the business registration data. We complement these data with data collected by Zero2IPO itself through their regular surveys regarding the ownership and government relation of LPs and funds.

Our main analyses consider GPs and LPs as government-owned if they have a positive share of government ownership: that is, if any of their ultimate owners are a government entity, we consider a GP or LP as government-owned.<sup>11</sup>

**3.3. Descriptive Analysis.** The main starting administrative data sample we rely on throughout the paper consists of all GPs that are labeled as “active” by our partner and data provider, Zero2IPO, as of December 2019. This includes all GPs that have made at least an investment or managed a VCPE fund in the 5-year period 2015–2019, and that Zero2IPO flagged as GPs for which confidence regarding data quality is high.<sup>12</sup> The data do not include individual investors, and so the focus is only formal business entities, which account for the bulk of VCPE capital in the market. We have a total 6,308 active GPs, which include all respondents to our survey, described in Section 4. We then define as “active” all LPs that have ever invested in a fund managed by an active GP. We have a total of 7,974 active LPs, which also include all respondents to our survey. We were able to collect ownership information for the near-universe of these GPs and LPs.<sup>13</sup> Overall, our sample can be considered as having high-quality coverage of the main players in the VCPE ecosystem in China. On

<sup>11</sup>We report robustness to another commonly used definition to capture corporate control, according to which we define as government-owned only those entities where the government owns at least 20% of the shares (Aminadav and Papaioannou, 2020). For brevity, we add to the the Appendix only the tables corresponding to the main analysis tables. These robustness tables are Appendix Tables A1, A4, A5, and A14.

<sup>12</sup>For example, GPs that appear to have made an investment in the same 5-year period but that Zero2IPO was unable to reach to validate the information are typically not included.

<sup>13</sup>The only exception are the GPs that are registered as foreign entities. We classify these GPs as privately (i.e., nongovernment) owned. Because our respondents are not foreign, we remove foreign-owned GPs and LPs from the descriptive statistics reported below.

the other hand, smaller local players are less likely to be labeled as active by Zero2IPO or to have any data reported in the Zero2IPO database.

As discussed later, in Section 4.1, 688 GPs and 312 LPs responded to our surveys. Of these, we drop from the main analysis 11 GPs and 2 LPs that did not fully complete the surveys. Unfortunately, for confidentiality reasons, we are unable to observe the sample of 1,600 GPs and 790 LPs that received an invitation to participate to our study. In the tables discussed in this section, as well as in Appendix Figures A1 and A2, we report a comparison of the basic characteristics of our respondents to the other GPs and LPs in our main dataset. Similarly to the VCPE studies of Gompers et al. (2016) and Gompers et al. (2020), our sample selection leads to a final sample of respondents that is more representative of large and active players in the market.

We present a few main facts to characterize the VCPE market in China, focusing the discussion on all active GPs and LPs over the period 2015–2019.<sup>14</sup>

*Fact 1: The government is the leading VCPE investor.* Table 1 reports summary statistics on our main data sample, showing the characteristics of LPs (Panel A) split by government-owned and nongovernment owned entities. The first fact we point to in the data is the dominant role of government investors in the market. First, about half of the entire set of investors consists of government-owned LPs, as shown in the first row of the LP panel. Second, there is a large difference in size between government-owned investors and other investors, with the former investing significantly larger amounts of capital (about six times more than a nongovernment owned LP) and investing in more VCPE funds on average.

We characterize the role of government investors in several additional ways. Table 2 reports a more detailed breakdown of government ownership shares across different layers of the government. The government is typically a *majority* owner of the LPs: in Panel A of Table 2, we find that conditional on having at least one government shareholder, the median LP ownership share by the government is 82.62%. The additional statistics by government layer indicate the distribution of ownership conditional on the LP having at least a positive ownership share by that government type (central, provincial, or local), pointing to the pervasive presence of local governments in the market.<sup>15</sup>

We further report the distribution of LP types in Appendix Table A2, using the internal classification of Zero2IPO and weighting by the total investment amount of each LP type over 2015–2019. Not only are the majority of entities dedicated VCPE institutions, but there is also a range of players typical of other leading international VCPE markets. Importantly,

<sup>14</sup>The facts established in this section apply similarly to the sample of respondents only. In addition to the output discussed below for facts 1 and 2, we report also Appendix Tables A7 and A9 to show that facts 3 and 4 hold in the sample of respondents only as well.

<sup>15</sup>In Appendix Table A3 we also show what share of LPs is owned by central, provincial, or local government agencies, respectively.

while the government does have wholly owned entities such as government bureaus and guided funds, which do not have a counterpart among private investors, we find a large overlap across other entity types. This evidence speaks to the government functioning in many regards—by means of its widespread ownership stakes—as a typical LP in the market looking to provide capital with GPs to obtain investment returns.

Finally, Figure 1 display the distribution of headquarters location, investment region, and investment industries among active LPs, and Figure 2 instead illustrates the differences across government-owned versus other entities. Relative to private investors, government investors are more focused on traditional industries (e.g., manufacturing) and less developed regions (e.g., inland China). However, we still observe a large degree of overlap across regions and industries.

*Fact 2: The government is a minority owner of a significant share of VCPE fund managers.* Moving the focus to the GP-side of the market, we establish that a striking 38% of these fund managers also have a positive share of government ownership, as shown in Panel B of Table 1.

Akin to the LP analysis, we find that government-owned GPs are also larger, as they have higher assets under management (AUM). As reported in Table 2, however, the government is typically a *minority* owner of the GPs, with the median government-owned GP having a 41.97% government ownership share. Appendix Tables A2 and A3 and Figures Figures 1 and 2 report additional summary statistics analogous to the previous analysis of LPs.

*Fact 3: Government-owned fund managers perform worse than their private counterparts.* We find that government-owned GPs have a lower performance compared to privately owned GPs. While this is already apparent in the raw summary statistics of Table 1, which show a much lower internal rate of returns (IRR), we can also analyze it more precisely when controlling for other characteristics. In Table 3 we observe that government-owned GPs have lower comprehensive returns (CR, introduced in Section 3.1.1) as well as lower internal rates of return (IRR), even after controlling for size (AUM) and location (headquarters fixed effects). While these performance measures are imperfect—the performance of GPs tends to be multidimensional and not easily quantifiable—these patterns are nevertheless suggestive that government-owned entities tend to underperform in terms of generating financial returns on investments. These findings are consistent with other work on government funding in China, as reviewed by Cong et al. (2020).

*Fact 4: There is assortative matching, as the government invests disproportionately more in government-owned fund managers.* Among the actual GP-LP matches, there is sorting along the dimension of government ownership: government-owned GPs are significantly more likely

to receive capital from government-owned LPs, and conversely, government-owned LPs are significantly more likely to invest in government-owned GPs.

These patterns are illustrated in Table 4, where we report the likelihood ratio index for each pair of LP and GP types. The likelihood ratio index for each GP of type  $i$  and LP of type  $j$ , with  $i, j \in \{\text{government, nongovernment}\}$  is defined as

$$s(i, j) = \frac{Pr(\text{GP of type } i \text{ matches with LP of type } j)}{Pr(\text{a random GP has type } i) \times Pr(\text{a random LP has type } j)}.$$

The measure  $s(i, j)$  benchmarks the empirically observed frequency of matches relative to the frequency that would have occurred by chance. If GPs and LPs form matches at random—without sorting by type—then the likelihood ratio should be equal to one in a large sample. A likelihood ratio  $s(i, j)$  above one indicates that matches between type- $i$  GPs and type- $j$  LPs occur more likely than could be attributable to chance, suggesting a preference to match on both sides relative to potential partners of other types. Conversely,  $s(i, j) < 1$  indicates that type- $i$  GPs and type- $j$  LPs may have a dislike to be matched with each other.

#### 4. EXPERIMENTAL DESIGN

The previous section establishes a few basic facts regarding the matching between GPs and LPs. Yet, the equilibrium nature of the observational data makes it difficult to tease out the demand and supply of government capital. In this section, we describe our main experimental survey design, which aims to estimate fund managers' demand for different sources of capital, and specifically for capital coming from investors with government ties.

Estimating preferences for government capital versus capital from private sources is empirically challenging for several reasons. First, it is difficult to separate capital coming from government investors from other confounding factors, such as the fact that they tend to have deep pockets, as we established earlier. That is, that the investor has government ties is correlated with a host of other traits of the investor. Second, government investors may be more or less inclined to provide capital to a given GP, relative to other investors. As a result, GPs may have differential expectations about whether the government investor would provide capital to them in the first place. Third, any match between GPs and investors in observational data would reflect both preferences as well as the endogenous matching process during which the GP observes several other characteristics of the investor that are unobserved by the econometrician.

Therefore, the objective of our experiment is to create an environment where we can randomize whether an investor is connected to the government while holding fixed other characteristics, and where we can isolate GPs' preferences for investors independent of the likelihood of a match. To do so, we ask GPs to rate synthetic LP profiles by providing a strong incentive that aligns our research interests with the interests of the GPs. The incentive for

GPs is to be matched with real LPs by Zero2IPO—a partner that respondents trust and that can make credible promises—based on their ratings of the synthetic profiles. Such a design is inspired by the work of [Kessler et al. \(2019\)](#) and [Low \(2021\)](#) to measure preferences for individual characteristics without deception in the hiring and dating settings, respectively.<sup>16</sup> This design provides a deception-free alternative to correspondence audit studies, common in the literature on discrimination in labor markets, which are especially difficult to realistically conduct in high-stakes contexts like ours where trust is of major consideration. The setting also allows us to go beyond typical binary outcome variables based on “call-back” rates, as we are able to ask respondents to rate investors on multiple dimensions while providing them with specific instructions about factors that should not enter into their rating.

Our research design is further explained in what follows. We introduce the survey we conducted with Zero2IPO in [Section 4.1](#), focusing on the recruitment process and incentive structure. In [Section 4.2](#), we illustrate how we create the pool of realistic, synthetic profiles of GPs and LPs, including details on the specific features we include in the profiles. In [Section 4.3](#), we discuss the questions we ask respondents to rate potential partners, which will be used as dependent variables in our analysis.

**4.1. The China Equity Investment Survey: Recruitment and Incentives.** The core of our paper are new experimental surveys of a large number of GPs and LPs we conducted in collaboration with Zero2IPO, widely considered the leading integrated service and data provider in the China VCPE market since its founding in 2001. We conducted these surveys in the last quarter of 2019.<sup>17</sup> Specifically, we designed a new survey instrument, which we labeled the “Chinese Equity Investment Survey,” designed to be filled in by high-level managers or partners of the targeted organizations.

The process of recruiting respondents is managed directly by Zero2IPO, which regularly conducts surveys of GPs (and LPs) in the VCPE market in China. Zero2IPO has also recently started to play the important role of facilitating the matching between GPs and LPs, by means of face-to-face events and introductions made among various industry players. To this end, our survey is marketed as a joint collaboration between Zero2IPO and Tsinghua University PBC School of Finance, with the objective of using machine learning techniques to improve the matching between GPs and LPs.<sup>18</sup> Specifically, the respondents are truthfully told that survey responses, namely their rating of synthetic investment partner profiles, would be used to introduce them to real LPs matching their preferred characteristics. Importantly, Zero2IPO further conducted follow-up phone calls with the GPs after the survey links were

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<sup>16</sup>See [Harrison and List \(2004\)](#) for a broader discussion of “framed field experiments.”

<sup>17</sup>The surveys were conducted before the first case of COVID-19 was reported on December 31st, 2019.

<sup>18</sup>As a result, in addition to the sample selection discussion in [Section 3.3](#) regarding our respondents being typically large and active players in the market, our incentive structure also likely leads to the selection of players that are looking for investment partners at the time of the survey.

sent, further explaining the project’s goal and reiterating the main participation incentive of introductions to potential capital providers. Zero2IPO also explained the details of the synthetic rating part of the survey, ensuring respondents understood both the incentive and the rating questions.<sup>19</sup> We report the full recruitment script sent to respondents, translated to English, in Figure 3.

Zero2IPO sent the surveys to a total of 1,600 GPs and 790 LPs, respectively. All GPs surveyed are profit-driven. We obtained a total of 1,000 responses, 688 from GPs and 312 from LPs, for an average response rate of 42%. This response rate is high for this setting, especially considering our large sample size.<sup>20</sup> The response rate combined with the fact that the main incentive to participate in the survey consists of being introduced to potential capital providers gives us confidence that GPs value this incentive, as participating in a 45-minute survey is costly for VCPE fund managers. That such introductions are valuable is not surprising in a context like that of GP-LP matching, where the lack of a central marketplace and survey evidence suggest that introductions by trusted third-parties are a common tool to establish investment partnerships (Hochberg et al., 2007; Gompers et al., 2020).

The survey is organized as follows. First, we show an introductory page describing the goals of the survey and the incentives to participate, while also providing survey instructions to the participants. Second, respondents are asked to rate 20 profiles of potential investment partners along several dimensions, with this being the core part of our experiment. Third, we ask a series of questions regarding the respondent’s company and individual role in the organization, which are used by Zero2IPO to ensure that responses are accurate and filled in by a high-level manager of the organization.

**4.2. Creating Partner Profiles.** We estimate GPs’ preferences for LPs by asking each of them to evaluate 20 unique, synthetic profiles. These profiles are brief textual descriptions of LPs summarizing their key features. We create the synthetic LP profiles in direct collaboration with the Zero2IPO research team, using a combination of automated programming and manual checks and changes.

The first step of the process consists of a structured analysis of all text-based descriptions of LPs on the Zero2IPO platform. In particular, we aim to first identify general text

<sup>19</sup>Following extensive discussions with Zero2IPO, we opted not to specify the number of introductions that would be made. While the instructions also mention the research focus of the survey, this is pitched as secondary. Respondents are also promised a summary of the results.

<sup>20</sup>For example, the response rates for other survey-based studies of investors are 13.8% for Da Rin and Phalippou (2017), 10.3% for Bernstein, Lerner, and Mezzanotti (2019), 6.5% for Gornall and Strebulaev (2020), 11.6% for Denes, Howell, Mezzanotti, Wang, and Xu (2020), 0.5% for Zhang (2020), and 2.5-4% for Giglio, Maggiori, Stroebel, and Utkus (2021). The highest response rates in the literature are those by Gompers et al. (2016) (47%) and Gompers et al. (2020) (21%). Relatedly, in the seminal survey work on the practices of Chief Financial Officers, Graham and Harvey (2001) obtain a response rate of 8.9%.

organization patterns that we can use to create realistic profiles, for example by studying how long the profile description typically is, how it is organized in terms of paragraphs, and the order in which certain pieces of information appear. Second, we identify the pieces of information, i.e., “components,” that a profile typically consists of, and their approximate probability distribution. For example, we observe that LP profiles nearly always display information about their size, location, and their relation to SOEs or other government agencies. Third, we create a few pieces of text that are often used to characterize each component, which we generate by manually reading several hundred profiles for each component identified in the previous step. In this way we are able to ensure that survey respondents observe realistic variation in the profiles they are evaluating, which would not be possible if all the information was mechanically presented using the same exact sentence or words in each profile.

Table 5 reports the variables we create from the text of the synthetic LP profiles (column 1), together with a brief explanation of what each variable captures. We expand on the description of all profile components from which the analysis variables are generated in Table 6, where we report all possible ways through which a given component may appear in the text of the synthetic profile. Column 1 of Table 6 also reports in parenthesis the unconditional probability that a given component is randomly drawn to be included in a profile. For a given component, each piece of text has equal probability of being drawn, conditional on the component appearing in the synthetic profile. For a given component, certain pieces of text (displayed in bold) indicate when the dummy variable in our regression takes value 1, while the others indicate when the variable takes value 0, as reported in the second column of Table 6 that refers to the specific numbered text boxes.<sup>21</sup>

To illustrate, consider our main LP characteristic of interest, namely “Government Ties,” which is drawn to appear in a synthetic profile with 80% probability. Conditional on appearing, the LP displays the related text-based information in 11 possible different ways (as per column “Options” in Table 6). Of these 11 pieces of text, 7 of them (i.e., those in bold) would capture an LP that has government ties (i.e.,  $GovernmentTies = 1$ ), while 4 of them would indicate the LP is not linked to the government (i.e.,  $GovernmentTies = 0$ ) using analogous pieces of text. For example, a synthetic profile would suggest the LP has government ties when it reads: “It is an investment organization established by a state-owned firm funded by the provincial government, [...]” Meanwhile, a LP synthetic profile that does not have government ties reads: “This company aims to give full play to the role of the market in allocating resources and expand private capital investments in innovation and entrepreneurship, [...]”<sup>22</sup>

<sup>21</sup>Respondents only see text in Chinese, but we report a translated version in English as well.

<sup>22</sup>While we discuss the other components of the profiles in more detail when reporting the results in Section 5, it is worth noting that the information provided is mostly qualitative in nature, rather than quantitative.

The second step of the process consists of randomly generating synthetic profiles of LPs by mixing and matching the profile components according to the respective probabilities of appearance. Staying somewhat close to the real probability distribution is important so that respondents evaluate profiles they deem realistic. Relatedly, notice that the creation of the final synthetic profiles involves a certain degree of manual adjustments and minor text additions, which are carried out by the Zero2IPO team. In particular, the probabilities of appearance of each component and the specific pieces of text used to characterize a given component are ultimately decided by Zero2IPO. There are two reasons for this. First, text-based profiles are not available for all LPs. Second, only Zero2IPO (and not the researchers) was aware of the specific pool of GPs that would receive the survey invitation. As a result, the Zero2IPO team was able to ensure that the synthetic profiles would look realistic and be a good fit with respect to the specific sample in our study, an issue of crucial importance as also highlighted by [Kessler et al. \(2019\)](#) in the context of employers screening CVs they deem relevant to them.<sup>23</sup>

The process of actually generating the synthetic profiles is then straightforward. Following the probability distribution in place, a Python program would randomly generate all possible profiles by putting together the randomly selected pieces of text for each component that is drawn to appear in a given profile. Second, we randomly draw from this pool the total number of profiles needed to generate the surveys that would be sent out to the potential respondents. Because our survey was sent to 1,600 GPs, a total of 32,000 profiles were created. Finally, the research team at Zero2IPO and a large team of research assistants from the University of Chicago and Tsinghua University manually went over each and every profile to make small manual changes needed to ensure perfect readability of each profile.<sup>24</sup> An example of a synthetic LP profile (with government ties) shown to GPs is the following:

*The investment institution has a total registered capital of RMB 1 billion, was established at the beginning of 2007, and is located in Guangdong to promote stronger domestic enterprises in the Greater Bay area. It is an investment organization established by a state-owned firm funded by the provincial government. It mainly focuses on investment, financing, and asset management.*

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This is necessary to ensure that the profiles look realistic. As explained to us by Zero2IPO, the structure of these profiles resembles that of warm introductions between GPs and LPs that would be made via email, for example. This necessary choice involves a trade-off, as we are unable to provide a perfect monetary quantification of preferences over each component, a point we return to in Section 6.

<sup>23</sup>For similar reasons, in their seminal study on labor market discrimination, [Bertrand and Mullainathan \(2004\)](#) avoid constructing CVs that would make the candidates overqualified or that would include unusual combinations of components that might make respondents suspicious.

<sup>24</sup>Notice that the order in which components are shown is typically fixed to best reflect the profiles in Zero2IPO. With reference to the components described in Table 6, the order of appearance is: Registered Capital, Founding Year, Location of HQ, Government Ties, Investment Philosophy, Industry, Stage Focus, Fund Size and Management, Corporate Governance.

*The investments target late stage projects which can facilitate the IPO of innovative companies. The total size of the funds it provided capital to reached 700 Million yuan, with 15 RMB funds in total. The capital went to 20 startups, 8 of which are now listed companies.*

**4.3. Rating Profiles of Investment Partners.** We measure GPs’ interest in LPs by asking the GPs to rate 20 synthetic LP profiles. We use a 10-point Likert scale to measure the rating, which allows us to observe GPs’ preferences towards characteristics of inframarginal LP profiles. The respondents are instructed that the responses to both questions would be used to generate their LP matches. Our main dependent variable is captured by the following question:

1 *“Are you interested in establishing an investment relationship with this investment partner?”*

We measure the response on a scale of 1 to 10, where 1=“Not interested” and 10=“Extremely interested.” We indicate the answers to these questions as *Partner Rating*, and they represent our main dependent variable to capture how interested a GP is in a given LP profile. We also specify: “Assume that the investment partner is already interested in establishing an investment relationship with your organization—therefore please only consider your views on the quality of the investment partner.” Importantly, the additional emphasis on assuming that the LP is interested allows us to separate the GPs’ interest from their beliefs about the likelihood that the LP would want to provide capital to them. This was a key aspect of the study that Zero2IPO emphasized to the respondents.

We then ask an additional question whose primary purpose is to further encourage GPs to focus only on their interest in establishing an investment partnership with the given LP when answering the main question. On its own, this additional question allows us to also explore GPs’ beliefs about the likelihood that an LP would want to provide investment capital to the GP if given the chance. The question asks the following:

2 *“How likely do you think it is that this investment partner would want to enter an investment relationship with your organization?”*

We measure the response on a scale of 1 to 10, where 1=“Not likely” and 10=“Extremely likely”. We also specify: “Assume that you have already expressed interest in the investment partner—therefore please only consider whether you think the partner is interested in establishing an investment relationship with your organization.” We indicate the answers to these questions as *Expected Interest*, and we report results for this measure in the Appendix.

We also measure whether the GP is interested in meeting an LP with the given synthetic profile with a simple additional question: *“Would you like to be introduced to this investment partner?”* The binary answer to this question has intuitive appeal and is akin to what the

resume audit literature typically captures in hiring settings (Bertrand and Mullainathan, 2004), but a concern is that it conflates GP interest in an LP with the GP’s expectation that the LP would be interested in establishing an investment relationship if they had the chance (Kessler et al., 2019). We report results for this measure in the Appendix as well.

## 5. RESULTS

This section describes our main empirical results. We begin with Section 5.1 by outlining the econometric specifications used to analyze our survey experiment. In Section 5.2, we report the main results on the GPs’ preferences for LP characteristics, and specifically for LPs with government ties. We then discuss mechanisms in Section 5.3, by showing heterogeneous effects for government-owned GPs, additional heterogeneities, and new qualitative surveys asking GPs about the pros and cons of receiving capital from LPs with government ties. Finally, in Section 5.4, we analyze the results of our experimental surveys of LPs’ preferences for GPs.

**5.1. Estimating Equations.** We estimate specifications of the following form:

$$(5.1) \quad y_{ij} = \alpha_i + \beta \times GovernmentTies_j + \sum_{m=1}^N \gamma_m \times Characteristic_{jm} + \epsilon_{ij},$$

where  $i$  indicates the GP who is responding to the survey, and  $j$  indicates the synthetic LP profile that is evaluated.  $y$  is one of our main dependent variables described in Section 4.3, such as *Partner Rating*. The main parameter of interest is  $\beta$ , which measures the average effect of rating an LP that is connected to the government. The parameters  $\gamma_m$  capture all other characteristics that we randomized in the synthetic LP profiles, as discussed in Section 4.2. We report results both with and without  $\alpha_i$ , which are the GP fixed effects that account for different average ratings across respondents.

The set of other characteristics included in the regression is discussed next together with the analysis of the results, while Table 5 summarizes the main variables that we create from the synthetic profiles. All regressors are indicator variables equal to 1 or 0, depending on the piece of text included in the synthetic profile, as indicated in Table 5 and Table 6.<sup>25</sup>

**5.2. GPs’ Preferences for LPs.** We report our main experimental results in Table 7. In particular, we show regression results where the dependent variable is *Partner Rating*, which measures the GP interest in LP profiles on a scale of 1–10. The coefficients in the top row show that, on average, GPs dislike LPs with *Government Ties*. The coefficient is -0.114 on the Likert scale, which indicates that the average respondent GP is willing to give

<sup>25</sup>If the profile component we use to construct our variables of interest does not appear in the profile, the variable takes value 0.

up nearly \$70 million in potential investment from the given LP.<sup>26</sup> The negative coefficient on *Government Ties* is significant both in our specification without (column 1) and with (column 2) GP fixed effects. This is a key result we return to in extensive detail in the next subsection to further discuss economic mechanisms.

Other LP characteristics are also valued positively. GPs are attracted to deep-pocketed LPs, as indicated by the positive coefficients on *Large Investor*—which captures LPs that have allocated at least 1 billion yuan to VCPE—and *High Registered Capital*—which captures LPs with at least 1 billion yuan in registered capital. These results are intuitive as, all else equal, GPs are unsurprisingly attracted to LPs that could generate larger influxes of capital to their funds. We also find that GPs have a preference for LPs with *Headquarter In Beijing*. On the other hand, we observe a dislike for LPs depicted to have a focus on specific industries (*Industry Information*) or stages of investments (*Stage Focus*). These latter findings are consistent with the average GP in the VCPE market in China having a wide spectrum with regards to its investment focus. More broadly, the findings on preferences with respect to these standard characteristics of the LPs seem to be largely uncontroversial, which is reassuring to the extent that we can interpret them as a signal that GPs are indeed evaluating the synthetic profiles according to their true preferences.

We also find that several other components of the LP profiles do not seem to affect GP preferences. We do not observe a statistically significant differential preference for *Young LPs* established after 2010, for LPs with *Headquarter in Foreign Country*, or for profiles displaying information about the *Investment Philosophy* or the *Corporate Governance* practices of the LP.<sup>27</sup>

As described earlier, our surveys also include a separate question that captures the likelihood that the (synthetic) LP would want to provide investment capital to the GP if given the chance. While this is included primarily to ensure that our measure of partner

<sup>26</sup>To compute the dollar values of the Likert coefficient we rely on the variable *Large Investor*, whose coefficient is 0.147, which has a more quantitative interpretation. This latter coefficient implies that the value of *Government Ties* can be approximated by  $\frac{0.114}{0.147}$  times the value obtained from a *Large Investor*. To construct the dollar value of the *Large Investor* coefficient we first divide the total assets invested by the large LPs (using the average value that respondents see in the synthetic profiles of Table 6 when *Large Investor*=1) by the average number of funds large LPs contributed to according to the 2015–2019 administrative data. We then subtract from this amount the analogous number we compute for the complementary group of small LPs. Notice that the cutoff we use to split large and small LPs both in the synthetic profiles and the administrative data is RMB 1 billion. We finally multiply the difference by  $\frac{0.114}{0.147}$  to obtain a value of \$70 million for the *Government Ties* coefficient.

<sup>27</sup>The latter regressors are the outcomes of several discussions with Zero2IPO and primarily aim to make the profiles look realistic, based on typical descriptions of potential investment partners that GPs see, e.g., on Zero2IPO’s platform. Despite having been randomized independently of each other, they are at times similar in nature. For instance, a piece of text for *Investment Philosophy* would be “As a long-term investor, the investment philosophy is to achieve market return while controlling for risk.” Similarly, *Corporate Governance* is equal to one if the profile includes, for instance, “The goal is to achieve the highest possible returns at acceptable levels of risk, so as to generate strong returns in the long-term.”

rating is not confounded with concerns that the LP would be interested in the GP in the first place, it is also of interest on its own. We explore what influences GPs' expected likelihood that a given LP would provide capital to them in Appendix Table A10. We find that GPs report LPs with government ties to be less likely to provide them investment capital, albeit the coefficient becomes statistically marginally insignificant when GP fixed effects are included.

*Robustness.* As our main specifications are ordinary least squares (OLS) regressions, we are implicitly making a linearity assumption regarding the 10-point Likert scale ratings. In Appendix Table A11, we show that our results are robust to relaxing this assumption by running ordered probit regressions, which only require that GPs, on average, value a higher rating more highly than a lower rating. Appendix Table A12 reports the analysis using as dependent variable the 0–1 indicator for *Cooperation Interest*, namely the answer to the question “Would you like to be introduced to this investment partner?” as discussed in Section 4.3. Appendix Table A13 reports the main analysis clustering the standard errors at the respondent level.

**5.3. Why Do GPs Dislike Government LPs?** The results in Table 7 show that, on average, GPs dislike LPs with government ties, suggesting that in our context the negatives of receiving capital that is tied to the government outweigh the positives. In particular, our results indicate that typical political connections considerations, which would make government investors attractive, are not strong enough to outweigh the cons of dealing with government LPs. As discussed earlier, a leading explanation for our findings is one in which investors linked to the government might interfere in the investment decisions of GPs due to political motives, which is seen as unattractive by GPs, considering that they are profit-seeking entities interested in maximizing financial returns.

Importantly—by design—our findings are obtained after controlling for a number of factors that might confound the above interpretation. For instance, real government-related LPs are different along many dimensions compared to private LPs, such as size and preference for certain regions and industries. Without controlling for these differences, our estimates might be suggestive of both a dislike for government interference in investment decisions, for example, or a general dislike for other characteristics of the investor that are correlated with the investor having government ties. For instance, a dislike for government investors might simply be driven by a general dislike for certain industries or regions that are not considered attractive investment opportunities. Since both industry and regions of focus are randomized across LP profiles, these concerns are largely muted in our setting. Moreover, notice that our findings are unlikely to be explained by a differential expectation that government LPs would actually invest in the GP. Indeed as discussed in Section 4.1, the instructions of the experiment, which are explained in detail by Zero2IPO also via phone calls, make clear that

the respondent should assume that the LP would provide funding to them if they expressed interest.

Below, we dig deeper into the potential economic mechanisms at play in three additional ways. First, we report an analysis that shows how the effects vary depending on whether the GP is also government-owned. Second, we show additional descriptive heterogeneities across government types and sectors. Third, we discuss the findings from additional qualitative surveys we conducted on a sample of our respondents that allow us to shed light on aspects of this setting that are impossible to measure with the experiment or administrative data alone.

5.3.1. *Government-Owned versus Private GPs.* To further investigate mechanisms, we start by studying the heterogeneity of our main results along a key margin, namely whether the respondent GP is also government-owned or not. If the dislike for government-related investors is due to the distortions the government introduces after providing investment capital, we should see stronger (i.e., more negative) effects for GPs that have no existing link to the government and that operate according to market principles. On the other hand, we expect the incentives of government-owned GPs to be more aligned with those of government investors, which should result in a more favorable view of government LPs as investment partners. These views are vastly confirmed by anecdotal evidence from both government and private sources, as summarized by [Luong et al. \(2021\)](#) among others. Government ownership of GPs, as for many other private sector entities, is pervasive in China, as we illustrated in 3.3. Importantly, however, all GPs in our sample, independent of their ownership structure, are profit-driven, as discussed earlier.

We report the analysis for the sample of government-owned GPs versus private GPs in Table 8, where we focus on our main dependent variable, *Partner Rating*. We find that the negative coefficient on the indicator for the LP having government ties can be fully accounted for by private GPs. Instead, we find that government ties of the LP do not matter for the preferences of government-owned GPs. Interestingly, we find that no other component of the LP profiles displays a meaningful difference depending on whether the GP is owned by the government or not.

A caveat of this analysis is that while all components of the LP profiles are randomized and all GPs are incentivized in an identical way, it is plausible that government-owned GPs are more likely to focus on regions or industries that are a better match with the focus of government-related LPs. To account for this, we report in Appendix Table A15 a version of Table 8 where we also control for whether the GP has a region and/or industry of focus that matches that of the given synthetic LP profile under evaluation.<sup>28</sup> We find that our main results remain strong, thus indicating that independently of whether the LP's investment

<sup>28</sup>Appendix Table A16 reports instead a version of our main table which includes these additional controls.

focus aligns with that of the GP, the GP prefers to receive funding from LPs that do not have government ties.

A further possible explanation is that government-owned versus privately owned GPs have prior differential exposure to government LPs. If this were the case, the differential effects we observe might be driven by a differential expectation regarding the costs and benefits of having the government as an investor. We therefore report our analysis also controlling for whether the respondent GP ever had a government LP as an investor in the last three years. As shown in Appendix Table A17, we find that our results are mostly unchanged. Similarly, as reported in Appendix Table A18, we find that GPs with prior experience working with a government LP do not have significantly different preferences compared to other GPs.

We then conduct a heterogeneity analysis where, in addition to studying how the effects vary depending on the ownership structure of the GPs, we further augment the analysis using data on whether GPs are high- or low-performing firms. To do so, we rely on data on GP performance introduced in Section 3.1.1, which allow us to observe a measure of returns Zero2IPO uses to create their annual rankings, that is the comprehensive returns (CR) for a subset of the respondent GPs. Using these data, we categorize respondents into High Quality or Low Quality, depending on whether they have above or below median CR in the sample. We then report, in Table A19, the results for a specification analogous to equation 5.1, where we interact all possible splits by government ownership and performance of the GP with our main regressor of interest, *Government Ties*. All estimates of these heterogeneities are therefore relative to the preference of private low-performing GPs for government LPs. Interestingly, we find that the strongest dislike for government LPs is driven by high-performing private GPs.

Overall, the evidence in Table 8 seems consistent with a “grabbing hand” view of the government according to which—all else equal—government investors introduce distortions in the investment process which are particularly unattractive to high-performing private firms.

5.3.2. *Heterogeneity across Layers of Governments and Sectors.* As discussed earlier, a limitation of our approach is that we cannot observe preferences for all possible government entities. In China, the pros and cons of being connected to the government can vary strongly depending on whether the connection is to the central, provincial, or local government. In particular, local government connections are often especially important for the growth of early stage firms typically targeted by VCPE investors. In the Appendix, Table A20, we explore whether the dislike for government investors is especially pronounced for certain

types of government entities.<sup>29</sup> When estimating a specification analogous to equation 5.1, but where the main regressor is split into different indicators for each level of government, we find that the dislike is strongest for investors related to the *central* government, and it is also present when focusing only on *provincial* government ties. On the other hand, we do not find evidence of a dislike for government investors linked to *local* governments.<sup>30</sup>

Another important margin of heterogeneity for which having a government investor might be particularly important is the focus of a GP’s investments. Indeed, if government connections were important to open doors, they should be particularly so in state-dominated sectors, as also discussed in Bai et al. (2020). We therefore explore whether GPs focused on specific sectors might have a stronger preference for investors with government ties relative to other GPs. To do so, we first categorize GPs into their specific sector of focus, by picking the sector in which at least 50% of their 2015–2019 investments were made.<sup>31</sup> We subsequently estimate a nonparametric causal forest model to measure heterogeneous treatment effects following the methodology of Wager and Athey (2018) and Athey and Wager (2019).<sup>32</sup> We report the Conditional Average Treatment Effects (CATE) for the various sectors in Figure 4 together with 95% confidence intervals. Despite the noise in the estimation, we observe a pattern suggestive of a lower dislike for sectors where the government plays a more dominant role, such as Construction and Real Estate, Manufacturing, Mining, and Finance and Insurance, relative to sectors with a smaller government role such as Cleantech and Health, among others.<sup>33</sup>

<sup>29</sup>To do so, instead of using just a single dummy variable, we assign specific pieces of text related to *Government Ties* in Table 6 to create a dummy for Central (option 5), Provincial (options 6-9), or Local (options 10-11) ties to the government.

<sup>30</sup>In Appendix Table A21, we further report the differential dislike of government-owned versus private GPs for investors with ties to central, provincial, or local levels of the government. We find the strongest difference occurring in preference for investors with ties to provincial governments.

<sup>31</sup>As a result, for this specific test, we drop sector-agnostic GPs to which we cannot assign a specific sector of focus, and are left with a sample of 236 respondent GPs. We use the coarsest categorization of sectors in the Zero2IPO administrative data, which was also used in the creation of Figures 1 and 2. Some sectors do not enter our analysis if the sample of respondent GPs listing that sector as their primary investment area is too small.

<sup>32</sup>In practice, in our setting we take the *Government Ties* dummy as the “treatment” and *Partner Rating* as the “outcome.” In addition to the sector dummies of interest, we control for all regressors listed in Table 5, as well as whether the GP is government-owned or not, whether it is focused on the same region and/or same industry as the synthetic LP profile, and whether the respondent GP had ever received capital from the government in the past.

<sup>33</sup>As discussed by Bai et al. (2020), there are several formal documents pointing explicitly to the importance of specific sectors such as Construction and Real Estate, Manufacturing, Mining, and Finance and Insurance for the state. See, for example, [State-owned economy should maintain absolute control over seven industries \(China’s SASAC, 2006\)](#), [Notice of the General Office of the State Council on Printing and Distributing the Special Management Measures for the Market Entry of Foreign Investment in Pilot Free Trade Zones \(China’s State Council, 2015\)](#), and [China names key industries for strong state control \(China Daily, Dec 2006\)](#).

5.3.3. *Surveying GPs on Pros and Cons of Investors with Government Ties.* Our analysis so far points to an explanation according to which the government introduces frictions in the investment process of GPs, therefore making government capital unattractive. Yet, while difficult to pin down experimentally, we conducted an additional round of surveys of our respondents to provide additional more granular evidence. These surveys, which are not experimental but rather qualitative in nature, were conducted in the last quarter of 2021. These new surveys were pitched as a research study to understand the advantages and disadvantages introduced by government participation as an LP. The surveys were not incentivized, except for the promise of a general summary of the results. We were able to reach a total of 361 GPs, which are a subset of the respondents to our main 2019 survey.<sup>34</sup>

We take several steps to ensure that responses reflect the accurate, unbiased beliefs of the respondents regarding the role of government in the capital allocation process. First, all responses were promised to be used only for research purposes and anonymized, and all questions were framed by detaching the respondent from the questions. That is, following the literature on measuring sensitive issues such as corruption (Sequeira, 2012), we ask respondents to state not what *they* think, but rather what they think are the main advantages and disadvantages of having government-related entities as LPs *from the perspective of typical GPs in the market*. Second, even though our interest is to primarily identify the reasons why the government might not be an attractive LP to GPs, we attempt to alleviate the issue that respondents might be wary of speaking negatively about the government. To do so, we do not use explicitly negative language in the introductory messages, and we ask respondents to first state the “advantages” that government LPs can bring. Only afterwards we ask for what “improvements” might make the government a better investment partner. The survey defines government-related LPs government entities or SOEs, and those sponsoring a government-guided fund. We report the full recruitment script sent to respondents and translated to English in Figure 5.

Our survey frames the pros and cons of government investors based on the anecdotal evidence discussed in Section 2 alongside several discussions with Zero2IPO’s expert team. A few key findings emerge from our new survey, as illustrated in Figure 6. First, as shown in Panel A, we find that GPs rank post-investment interference in the investment process as the main negative of receiving capital from government LPs. To a lesser extent, GPs also list the presence of increased policy uncertainty and the lack of professionalization of teams working for LPs tied to the government as unattractive features of government LPs. On the other hand, the GPs are less concerned about differential requirements in terms of project risk or investment horizon with government LPs. Second, as shown in Panel B,

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<sup>34</sup>We analyze the attrition between the original survey and the new qualitative survey in Appendix Table A22. We observe a limited extent of selection bias, with those who responded to both surveys having made more investments on average.

when analyzing what are considered the main advantages of receiving government capital, we observe that GPs find the ability to obtain more favorable local government support to be the most attractive feature of having government-related entities as investors. All together, our qualitative surveys add color to our experimental analysis, by illustrating specific frictions that may account for the peculiar pros and cons associated to the role government LPs in the market.

**5.4. LPs’ Preferences for GPs.** We conduct a contemporaneous experimental survey of LPs to study LP preferences for GP characteristics. This additional survey allows us to study both sides of the market, a unique feature of our experimental setting which we return to when discussing the equilibrium impact of government participation in the next section. The survey, recruitment, and incentive structure are analogous to the survey of GPs. We were able to reach a total of 312 LPs. We report the details of the variables used in the analysis and the randomized components of synthetic GP profiles in Appendix Tables A23 and A24, respectively.

The analysis follows the same structure as the previous analysis of GP preferences. The results are presented in Table 9. Some of the key findings are that LPs prefer high-performing, foreign, recently established GPs that have a specialized focus in specific industries. What stands out, however, is that the strongest determinant of LP interest in a GP is whether that GP already has entities with government ties among its investors. We also find that LPs value positively GPs whose team members have direct experience in the government, while industry experience does not matter.<sup>35</sup>

Unlike the GP-level analysis, we find little heterogeneity depending on the ownership structure of the LP itself, as illustrated in Appendix Table A28, even though private LPs have a slightly stronger preference for high-performing GPs.

## 6. EQUILIBRIUM IMPACT OF GOVERNMENT PARTICIPATION

Our experimental surveys reveal substantial heterogeneity in preferences for government participation from both the firm and investor sides of China’s VCPE market. Given the two-sided nature of the market, the allocation of government capital must be co-determined in equilibrium by both the ability of government LPs to find GPs and the preferences and demand for capital on the GP side. To better understand and quantify the equilibrium and distributional consequences of government participation, in Section 6.1 we build a simple two-sided search and matching model of government and nongovernment GPs and LPs. We calibrate the model using both our experimental surveys and the administrative data

<sup>35</sup>Appendix Table A25 shows the analysis with *Expected Interest* as dependent variable. Appendix Table A26 shows robustness to an ordered probit specification, while Appendix Table A27 reports the analysis clustering the standard errors at the respondent level.

in Section 6.2. We conduct policy counterfactuals on changing the nature and extent of government participation in Section 6.3.

**6.1. Model Setup.** We model the formation of GP-LP partnerships as a two-sided search and matching process in continuous time. There are discrete  $I$  types of GPs and  $J$  types of LPs looking for potential partners. While the matching between GPs and LPs can be many-to-many—each GP can be funded by multiple LPs, and each LP can invest in many GPs—we abstract away from the intensive margin of investment size and instead assume each GP has a discrete number of investment slots to be fulfilled with funding. Each slot can be fulfilled by a partner LP, and each LP has the capacity to invest in potentially multiple slots. The matching process between GPs and LPs at the investment slot-to-capacity level is one-to-one. If GP of type  $i \in I$  and LP of type  $j \in J$  jointly decide to form a partnership, then the GP obtains value  $x_{ij} + \epsilon$  and the LP obtains value  $y_{ij} + \delta$ , where  $x_{ij}$  and  $y_{ij}$  are type-specific values from the partnership and  $\epsilon, \delta$  are idiosyncratic values that capture heterogeneity within GP and LP types  $i$  and  $j$ .

Meeting a potential partner takes time and is thus costly; we let  $r$  denote the discount rate. Let  $\{n_i\}_{i=1}^I$  and  $\{m_j\}_{j=1}^J$  respectively denote the distribution of GP and LP types waiting to be matched in the market, with  $\sum_{i=1}^I n_i = \sum_{j=1}^J m_j = 1$ . Meetings arrive following a Poisson process. The types of GP and LP at each meeting are independently drawn, with probability  $n_i m_j$  a meeting takes place between GP of type  $i$  and LP of type  $j$ . Both parties then decide whether to form a partnership—the LP decides whether to invest in the GP and the GP decides whether to accept the investment. A partnership is formed if and only if both parties prefer the match over rejecting the counterparty. If either prefers to wait for another match, both parties go back to the market.

Let  $u_i$  and  $v_j$  denote the value functions of unmatched GPs and LPs, respectively. The value functions are characterized by the following Hamilton-Jacobi-Bellman (HJB) equations:

$$(6.1) \quad r u_i = \rho^G \sum_{j=1}^J \left\{ m_j q_{ij} \mathbb{E} [\max (u_i + \epsilon_0, x_{ij} + \epsilon) - u_i] \right\}.$$

$$(6.2) \quad r v_j = \rho^L \sum_{i=1}^I \left\{ n_i p_{ij} \mathbb{E} [\max (v_j + \delta_0, y_{ij} + \delta) - v_j] \right\},$$

where  $\rho^G$  and  $\rho^L$  are the Poisson rates at which a GP and an LP meet a potential partner, respectively. We allow these meeting rates to differ ( $\rho^G \neq \rho^L$ ), reflecting the fact that the total supply of investment capacity may differ from the available number of investment slots.

To interpret the HJB equations, consider equation (6.1).  $r$  is the opportunity cost of waiting, and  $r u_i$  is thus the flow value of a GP waiting to be matched. With Poisson rate  $\rho^G$ , the GP gets to meet an LP of type  $j$  randomly drawn from distribution  $\{m_j\}$ . Upon meeting,

both parties learn about each other and then decide whether to form a partnership—LP decides whether to invest in the GP and the GP decides whether to accept the investment. From the GP’s perspective, its continuation value is  $x_{ij} + \epsilon$  if forming the partnership, and is  $u_i + \epsilon_0$  if it continues to search, where  $\epsilon_0$  denotes the change in continuation value despite rejecting the potential partner;  $\epsilon_0$  could reflect the information the GP gathers from the meeting, potentially about its own investment prospects or about the market more broadly.

A partnership is formed when both parties prefer the match over rejecting the counterparty. Conversely, both parties have to continue the search if either party decides against forming a partnership. In equation (6.1), the term  $q_{ij}$  captures the probability that the LP of type  $j$  prefers the match. In that case, the GP’s continuation value is  $\max(u_i + \epsilon_0, x_{ij} + \epsilon)$  and the expected change in value is thus  $\mathbb{E}[\max(u_i + \epsilon_0, x_{ij} + \epsilon) - u_i]$ . Otherwise, if the LP rejects the GP, the GP’s continuation value is  $u_i + \epsilon_0$  as it has no choice but to continue the search, with the expected change in value being zero.

Whether to form a partnership or continue to search is the only decision that each party gets to make. The probabilities of preferring to match ( $p_{ij}$  and  $q_{ij}$ ) follow

$$(6.3) \quad p_{ij} = \mathbb{E}[u_i + \epsilon_0 \geq x_{ij} + \epsilon], \quad q_{ij} = \mathbb{E}[v_j + \delta_0 \geq y_{ij} + \delta].$$

We normalize the ex-ante expected value of  $\epsilon_0$  to be zero. The expected change in the GP’s continuation value, conditioning on matching a random LP of type  $j$ , is therefore  $q_{ij}\mathbb{E}[\max(u_i + \epsilon_0, x_{ij} + \epsilon) - u_i]$ . The right-hand side of equation (6.1) calculates the unconditional expected change in value by integrating the conditional change in value over the distribution of LPs and then multiplying by the Poisson rate of matching. The HJB equation (6.2) for LP has a similar interpretation.

We take as model primitives the type-specific values from partnerships ( $x_{ij}$  and  $y_{ij}$ ), the rate at which meetings occur ( $\{\rho^G, \rho^L\}$ ), the discount rate  $r$ , and the distribution of unmatched types ( $n_i, m_j$ ). That is, we study a stationary equilibrium where a constant stream of new GPs and LPs enter the search market to replace those that leave after having found a partner, such that the total mass and distribution of participant types are time-invariant. Given the model primitives, the probabilities of preferring to match ( $p_{ij}$  and  $q_{ij}$ ) follow (6.3), and the value of unmatched entities ( $u_i$  and  $v_j$ ) are the fixed point solutions to the HJB equations (6.1) and (6.2) and are therefore endogenous outcomes of the matching equilibrium. We later consider counterfactual changes to the model primitives as we conduct policy experiments.

We impose the standard assumption in the discrete choice context that the idiosyncratic values ( $\epsilon$ ’s and  $\delta$ ’s) are drawn from type-I extreme value distributions, implying

$$(6.4) \quad p_{ij} = \frac{e^{u_i}}{e^{u_i} + e^{x_{ij}}}, \quad \mathbb{E}[\max(u_i + \epsilon_0, x_{ij} + \epsilon)] = \ln(e^{u_i} + e^{x_{ij}}),$$

$$q_{ij} = \frac{e^{v_j}}{e^{v_j} + e^{y_{ij}}}, \quad \mathbb{E} [\max(v_j + \delta_0, y_{ij} + \delta)] = \ln(e^{v_i} + e^{y_{ij}}).$$

**6.2. Calibration.** We now describe how we leverage both our experimental surveys and the administrative data to recover the model primitives and conduct policy counterfactuals. Motivated by our reduced form evidence, we categorize GPs into  $I = 4$  four types, according to their government ownership  $\in \{\text{gov}, \text{non-gov}\}$  and quality  $\in \{\text{high}, \text{low}\}$ . In our calibration, we cut the sample along the quality dimension by the median as measured by comprehensive returns. We categorize LPs into  $J = 2$  types according to government ownership only.

We exploit the two main questions we ask respondents as part of the experimental survey, namely [1] “*Are you interested in establishing an investment relationship with this investment partner?*” and [2] “*How likely do you think it is that this investment partner would want to enter an investment relationship with your organization?*”. We interpret the answers to question [1], from both GPs and LPs, as informative of  $x_{ij}$  and  $y_{ij}$ , respectively.

For question [2], we assume each response provides a noisy signal to the probability of being preferred to match. Specifically, for each GP respondent  $\nu$  of type  $i$  rating a synthetic LP profile of type  $j$ , we assume  $\nu$ 's answer to question [2] is a noisy monotone transformation to the expected probability of counterparty's cooperation interest  $q_{ij}$ . We parametrize the monotone transformation using log-likelihood ratio to ensure that the underlying probability lies between zero and one:

$$(6.5) \quad \text{ans}_2^{GP}(v|i, j) = \alpha + \beta \ln \frac{q_{ij}}{1 - q_{ij}} + \xi$$

where  $\xi$  are i.i.d. mean-zero errors, and  $\alpha$  and  $\beta$  are parameters to be calibrated. By collapsing the survey responses to each type-pairs, we purge the i.i.d. errors and obtain the average GP type  $i$ 's assessment of LP type  $j$ 's interest to cooperate:

$$\text{anw}_2^{GP}(i, j) = \alpha + \beta \ln \frac{q_{ij}}{1 - q_{ij}}.$$

We assume LP respondents' answers are symmetrically informative of  $p_{ij}$ .<sup>36</sup>

From the administrative data, we observe the distribution of existing matches between GPs and LPs across each type-pair,  $\{\mu_{ij}\}$ , as reported in Table A6. We now argue  $\{\mu_{ij}\}$  is informative of the distribution of unmatched GPs and LPs,  $\{n_i\}$  and  $\{m_j\}$ . Specifically, consider a meeting between a GP and an LP. The likelihood that the meeting involves GP type  $i$  and LP type  $j$  is  $n_i m_j$ ; the likelihood of the meeting turning into a partnership is  $n_i m_j p_{ij} q_{ij}$ . In a stationary environment, the distribution of existing matches must satisfy:

$$(6.6) \quad \frac{\mu_{ij}}{\mu_{i'j'}} = \frac{n_i m_j p_{ij} q_{ij}}{n_{i'} m_{j'} p_{i'j'} q_{i'j'}}.$$

<sup>36</sup>LP preferences for GPs by ownership and quality types  $(i, j)$  are reported in Table A29.

That is, upon a meeting taking place, if the pair  $ij$  has a greater likelihood of being drawn (higher  $n_i m_j$ ) and forming a partnership (higher  $p_{ij} q_{ij}$ ) than the alternative pair  $i'j'$ , the former pair must have a proportionally bigger presence in the existing matches. Equation (6.6) implies that, given the preference probabilities  $\{p_{ij}, q_{ij}\}$  and the observed distribution of existing matches  $\{\mu_{ij}\}$ , one can recover the distribution of GP and LP types that are still waiting to find a partner, exploiting the fact that the distributions integrate to one:

$$(6.7) \quad n_i = \frac{\mu_{ij} (p_{ij} q_{ij})^{-1}}{\sum_{i'=1}^I \mu_{i'j} (p_{i'j} q_{i'j})^{-1}}, \quad m_j = \frac{\mu_{ij} (p_{ij} q_{ij})^{-1}}{\sum_{j'=1}^J \mu_{ij'} (p_{ij'} q_{ij'})^{-1}}.$$

We now describe the calibration strategy. We will calibrate parameters  $\{\alpha, \beta\}$  as well as  $\rho^G/r$  and  $\rho^L/r$ .<sup>37</sup>  $\alpha$  and  $\beta$  translate survey response to counterparty's cooperation interests  $\{p_{ij}, q_{ij}\}$ , which enables us to recover the value of unmatched entities  $\{u_i, v_j\}$  using equations (6.4) and, along with the observed distribution of matches  $\mu_{ij}$  in the administrative data, also recover the distribution  $\{n_i, m_j\}$  of unmatched types in the search market using equation (6.7). Since the value of unmatched entities  $\{u_i, v_j\}$  must satisfy the HJB equations (6.1) and (6.2), which provide  $I + J = 6$  (4 GP types and 2 LP types) moment conditions. We thus have an over-identified system with six moments and effectively four parameters, which calibrate to minimize the sum of square errors in the moment conditions.

Based on our calibration, a typical entity is willing to cooperate with about one in five potential partners it encounters. GPs on average have 30% shorter waiting time than LPs ( $\rho^G/\rho^L \approx 1.29$ ), implying that there are more LPs funding investments than GPs with investment opportunities. Given an annual cost of funds at  $r = 20\%$ , our estimates imply that an average GP (LP) meets 34 (26) potential partners a year.

As a validation exercise, Table A8 Panel A shows the model-implied distribution of meetings ( $n_i \times m_j$ ) between unmatched GPs and LPs by their types, recovered from equations (6.7). The assortative matching along government ownership types, shown as motivating evidence in Table 4, is also reflected in the probability to form partnerships conditioning on meetings, as shown in Panel B of Table A8. Controlling for quality, a government LP is about 50% more likely to form a partnership with a government GP than with a nongovernment GP. Conversely, a nongovernment LP is between 65% (if the GP's IRR is above-median) and 110% (if the GP's IRR is below-median) more likely to form a partnership with a nongovernment GP than a government one.

**6.3. Results and Counterfactuals.** We now exploit the calibrated model to perform counterfactuals in order to assess the equilibrium impact of government participation in China's VCPE market.

<sup>37</sup>Note the Poisson meeting rates are not separately identified from the discount rate  $r$ , as the HJB equations continue to hold if  $\rho^L$ ,  $\rho^G$ , and  $r$  are multiplied by the same factor. Nevertheless, by identifying the meeting rates relative to discount rate, we can already perform the policy counterfactuals in Section 6.3.

In the first set of counterfactuals, reported in Panel A of Table 10, we consider changing the composition of government versus nongovernment investors in the economy. In column (1), we assume a 10-percentage-point increase in the share of LPs that are government-owned. Because of assortative matching, government GPs—especially low-quality ones—experience surplus gains (increase in  $u_i$ ). In contrast, nongovernment GPs—especially high-quality ones—experience surplus losses. We report the magnitudes of the surplus changes in terms of Likert points, consistent with our survey design, in Table 10. Extrapolating the coefficients in Table 7, we find that the impact of this policy experiment is quantitatively significant. For example, the effect on government GPs’ surplus is equivalent to raising the capital allocated by their LP investors by \$26 and \$43 million, respectively, for high- and low-quality GPs. On the LP side, the surplus of unmatched government LPs declines by 0.012 Likert points (equivalent to a one-percentage-point decline in internal rates of return of all potential GP partners). On the other hand, because of their now-higher relative scarcity, the surplus of unmatched nongovernment LPs increases, albeit only marginally. In column (2), we consider a more extreme version of changing government participation, by computing the equilibrium impact of replacing all government investors with nongovernment ones. This large shock reduces the surplus of government GPs by over 0.25 points on the Likert scale (equivalent to more than \$144 million decline in the capital allocated by their investors) and raises the surplus of nongovernment GPs by an analogous amount. Importantly, the distributional effects of replacing all government investors with private ones are such that they are the most negative for low-quality GPs, while they are the most positive for high-quality GPs, consistent with our reduced-form evidence.

One common narrative is that the government misallocates funds by favoring underperforming politically connected firms. However, a nuanced view of our experimental results is that to the extent that high-performing, privately owned GPs have a dislike for government capital, any empirical observation about government investors possibly misallocating funds (e.g., as shown in the correlations of Table 4) might suggest, at least in part, their inability to attract the best firms rather than poor decision-making due to corruption, favoritism, or incompetence (Murphy, Shleifer, and Vishny, 1993; Shleifer, 1998; Lerner, 2009; Colonnelli, Prem, and Teso, 2020). We therefore next consider a set of policy experiments that channel government capital exclusively to nongovernment or well-performing GPs, reported in Panel B of Table 10. First, we consider the policy restriction that government LPs must invest in nongovernment GPs. How does this mandate affect the quality of investments that are ultimately funded, and what are the distributional effects on market participants? To investigate this, we hold constant all other model primitives, and we specify that when a meeting between a GP and an LP takes place, and if both parties are drawn to be government-owned, then the meeting dissolves immediately and a new pair of GP and LP are drawn

to meet. Column (1) in Panel B of Table 10 shows that government GPs and LPs experience very large declines in their equilibrium surplus, whereas nongovernment-owned entities experience more moderate increases. This is intuitive, as the policy experiment effectively lowers the rate at which government-owned entities meet any potential partner while raising the rate at which nongovernment entities meet potential partners. Altogether, the average surplus of entities on both sides experiences substantial declines. In terms of magnitudes, unmatched low-quality, government-owned GPs experience the largest decline in surplus of -1.6 Likert points. Extrapolating the coefficients in Table 7, this is equivalent to reducing the capital allocated by their investors by nearly \$1 billion. Under the policy mandate, government LPs invest in better-performing GPs with significantly higher (6.8 percentage points) returns. However, the overall effect on returns of funded GPs is small, namely a 0.4-percentage-point increase. This is because even though government LPs direct investments away from government GPs, these GPs can and do substitute towards nongovernment LPs to fulfill their funding needs. Our model shows that the mandate reduces the average returns of GPs funded by nongovernment LPs by 6.3 percentage points. We then consider a similar experiment in column (2) of Table 10 Panel B, where we study the policy that enforces government LPs to invest only in those GPs with above-median returns. Unsurprisingly, the policy drastically raises the performance of GPs receiving investment from government LPs (by 17.2 percentage points). The net effect on the average returns of all funded GPs is however lower (an increase of 3.7 percentage points), due to substitution by low quality GPs towards investments from nongovernment LPs. Despite the increase in average returns, market participants' equilibrium value again decreases on average for entities on both the LP and GP side of the market, consistent with the large surplus losses of government-owned entities. Overall, these results indicate that the empirical regularity that government LPs tend to invest in low-performing GPs does not necessarily reflect only capital misallocation. Instead, it might be at least in part driven by the preferences of the top-performing GPs for private capital, which makes it challenging for government investors to match with the best firms in the first place.

## 7. CONCLUSION

In China, as well as in many other, typically developing economies around the world, the government plays a key role as an investor in and owner of private sector firms. In light of this fact—which we establish using rich administrative data within the context of the second-largest market for investment in high-growth firms and entrepreneurs, namely that of venture capital and private equity (VCPE) in China—two opposing models of state-firm relationships have naturally different implications for our understanding of the growth path of these economies. We show that a “grabbing hand” model where the state aims to

keep control over the private sector fits our context better relative to a model where the government acts as a “helping hand” that allows firms to overcome other first-order frictions and grow faster.

Our main contribution to the literature consists of the design of a non-deceptive field experiment to estimate the demand for government participation. In collaboration with the leading industry organization, we conduct 1,000 experimental surveys of both sides of the market: the capital investors and the private firms that manage the invested capital by deploying it to high-growth entrepreneurs. The experimental design, which is inspired by studies of discrimination in the labor market, allows us to overcome typical empirical difficulties, which in our context are that we observe only equilibrium matching outcomes and that government investors differ from other investors along a multitude of dimensions. We document that the average firm dislikes investors with government ties, that such dislike is not present for government-owned firms, and that it is highest for the best-performing firms and lowest for firms operating in state-dominated industries. Consistent with the experimental evidence, we also conduct new qualitative surveys which directly point to political interference in decision-making as a leading mechanism why government capital is unattractive to private firms. We conclude the paper by quantifying the distributional implications of government participation using an equilibrium model of matching between government and nongovernment firms and investors.

Our study has several implications. On the one hand, by providing direct evidence of the private sector perspective of the advantages and, in particular, the disadvantages of government investors, we help advance the recent debate aimed at understanding the nature of China’s model of economic growth grounded on the dominance of state economic actors (Bai et al., 2020). On the other hand, our paper makes the simple point that the demand for government capital differs across different types of firms. As a result, to the extent that how capital is allocated depends on the agents receiving it, understanding the demand side is important to fully capture the efficiency implications of government participation. We believe this is an aspect of the debate that has been largely neglected but that is crucial for both theory and policy. That is, analyzing the efficiency outcomes and potential misallocation consequences of government participation requires understanding the demand for what the government offers. Such an implication is natural in the context of government as an investor, like the one we study, and in contexts where we aim to estimate the impact of government programs, such as financial assistance to businesses, among many others. More broadly, there are several contexts, such as that of public procurement or foreign direct investments, where the differential selection of firms willing to engage with the state in the first place has direct economic consequences.

Our paper also naturally has limitations that future research should build on. First, our experiment only focuses on a specific market largely characterized by sophisticated investors, and on a context, that of China, that is certainly unique. There are reasons to believe several of the pros and cons that typically accompany government investments are prevalent in the broader debate about how governments around the world should foster entrepreneurship and innovation, and whether governments are well-equipped to do so in the first place (Bai et al., 2021), but establishing external validity to other contexts should be an important next step. Similarly, our survey was conducted in 2019, and to the extent that state-firm relationships evolve dynamically, it would be valuable to measure changes in such relationships over time. Second, in the interest of realism, our design favors simplicity to the detriment of a perfect quantification of magnitudes. Third, our study is silent regarding the broader efficiency goals of the government. For example, the state might want to control private sector firms as a way to channel resources to regions and industries where the social value of investments, such as poverty reduction, might be higher. These are first order issues that should be studied in future work, and for which we hope our study can have important lessons for.

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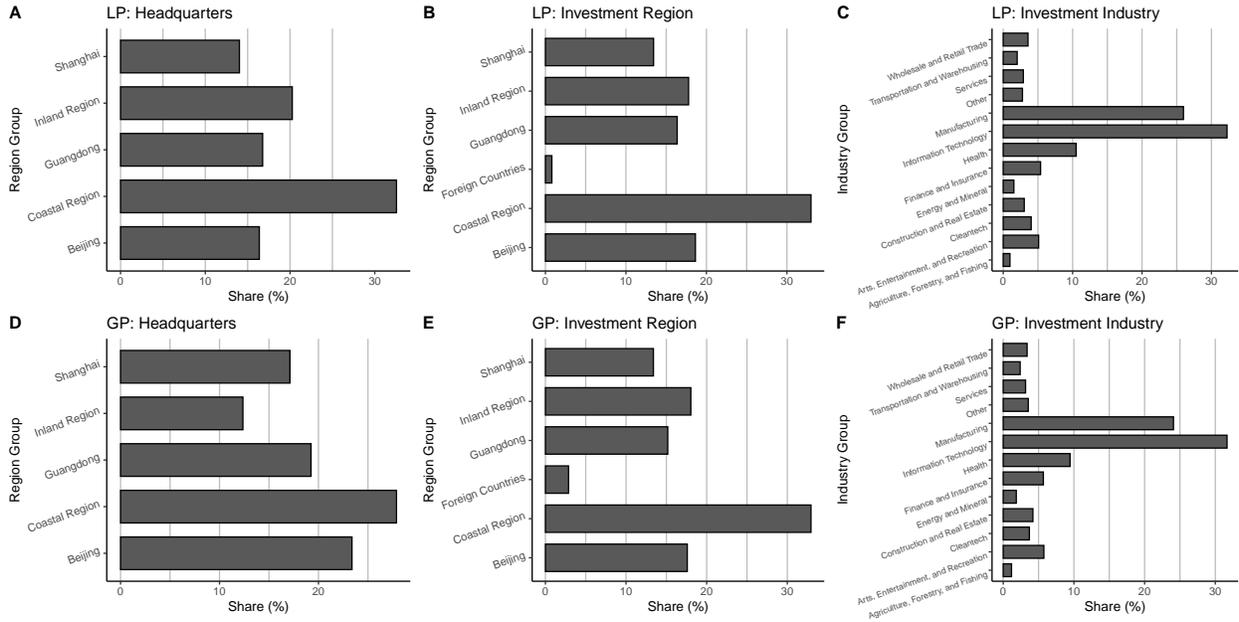


FIGURE 1. Distribution of Headquarters Location, Investment Region, and Investment Industry

**Notes:** This figure reports the distribution of headquarters location, investment region, and investment industry for the sample of active LPs and GPs. We have 7,974 active LPs and 6,308 active GPs. We exclude foreign entities from this analysis. Panels A and D show the distribution of headquarters for LPs and GPs, respectively. Panels B and E show the proportion of investment in each region group for LPs and GPs, respectively. In the *Region Group* of Panels A, D, B and E, we map all regions into 6 categories for visualization, *Beijing*, *Shanghai*, *Guangdong*, *Inland Region*, *Coastal Region* and *Foreign Countries*, in which *Coastal Region* indicates that the area belongs to a province adjacent to the sea, while *Inland Region* is the opposite. Panels C and F show the proportion of investment in each industry group for LPs and GPs, respectively.

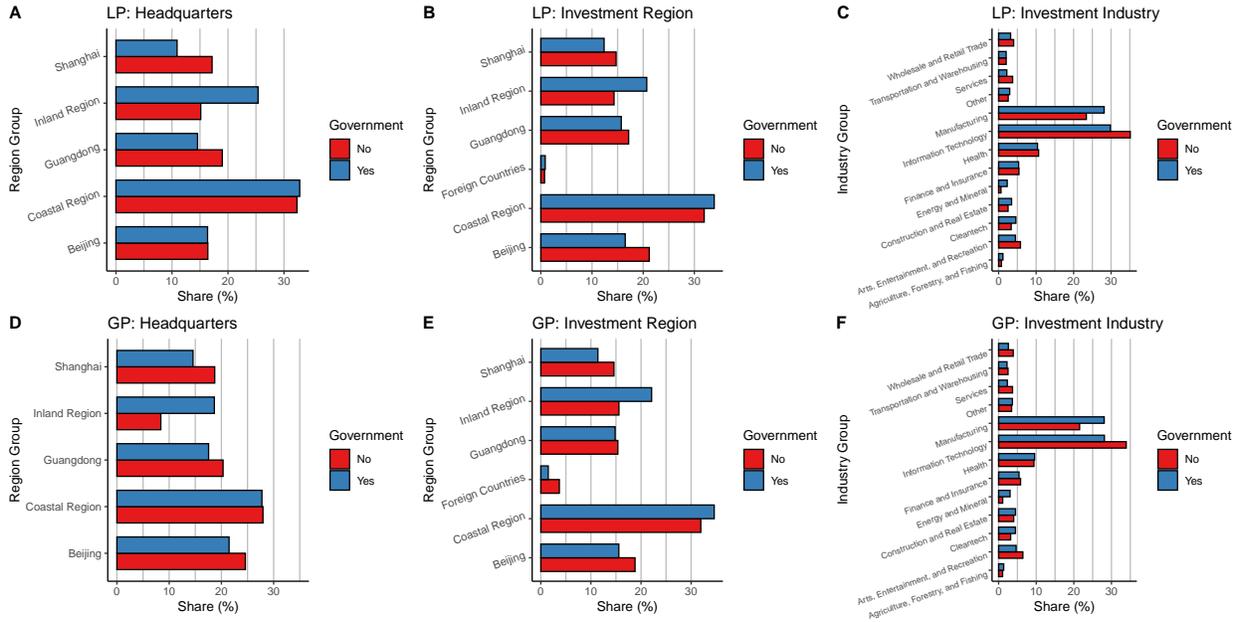


FIGURE 2. Distribution of Headquarters Location, Investment Region, and Investment Industry (by Government Ownership)

**Notes:** This figure reports the distribution of headquarters location, investment region, and investment industry for the sample of active LPs and GPs, split by government-owned versus nongovernment-owned entities. We have 3,969 government-owned active LPs and 4,005 nongovernment-owned active LPs. We have 1,812 government-owned active GPs and 4,496 nongovernment-owned active GPs. We exclude foreign entities from this analysis. Panels A and D show the distribution of headquarters for LPs and GPs, respectively. Panels B and E show the proportion of investment in each region group for LPs and GPs, respectively. In the *Region Group* of Panels A, D, B and E, we map all regions into 6 categories for visualization, *Beijing*, *Shanghai*, *Guangdong*, *Inland Region*, *Coastal Region* and *Foreign Countries*, in which *Coastal Region* indicates that the area belongs to a province adjacent to the sea, while *Inland Region* is the opposite. Panels C and F show the proportion of investment in each industry group for LPs and GPs, respectively.

### 2019 Chinese Equity Investment Survey

Zero2IPO and Tsinghua University PBC School of Finance are studying how to improve the resource allocation in China's private equity investment market more effectively, establish an efficient and reliable market-based investment system, and better promote technological innovation. The purpose of the survey is to use machine learning technology to introduce general partners (GP) and limited partners (LP), and to help GP and LP form a more effective match by identifying important characteristics of different institutions. We sincerely hope that we could receive strong support and assistance from your organization. Please take the time to fill out the survey questionnaire accurately.

We hope you could evaluate the profiles of hypothetical investment partners. Your choices will be used to provide you with recommendations of and make introductions with actual partners you may be interested in that closely match your preferences. In the survey questionnaire, you will see descriptions of 20 hypothetical partners. Please evaluate each profile based on the following questions:

0) Would you like to meet this investment partner?

**1) Are you interested in establishing an investment relationship with this investment partner? (On a scale of 1-10, 1="Not interested"; 10="Extremely interested")**

**2) How likely do you think it is that this investment partner would want to enter an investment relationship with your organization? (On a scale of 1-10, 1="Not likely"; 10="Extremely likely")**

*Question 1) seeks to measure your interest in this partner. Assume that the investment partner is already interested in establishing an investment relationship with your organization—therefore please only consider your views on the quality of the investment partner.*

*Question 2) seeks to measure the likelihood that this partner wants to establish a business relationship with your organization. Assume that you have already expressed interest in the investment partner—therefore please only consider whether you think the partner is interested in establishing an investment relationship with your organization.*

\* All the data you fill in will be kept strictly confidential, and we will also send you anonymous summary research and related policy reports.

*In order to thank your institution for participating, we will provide you with:*

- 1) An introduction between the (real) general partner (GP) and the (real) limited partner (LP) to form more effective matches;
- 2) An early research report from this survey.



FIGURE 3. 2019 Experimental Survey: Recruitment Email

**Notes:** This figure shows the recruitment email sent to respondents by Zero2IPO for the 2019 survey. Respondents would read this page before they start the surveys and Zero2IPO would guide them with phone calls and in case they have any questions during the whole process.

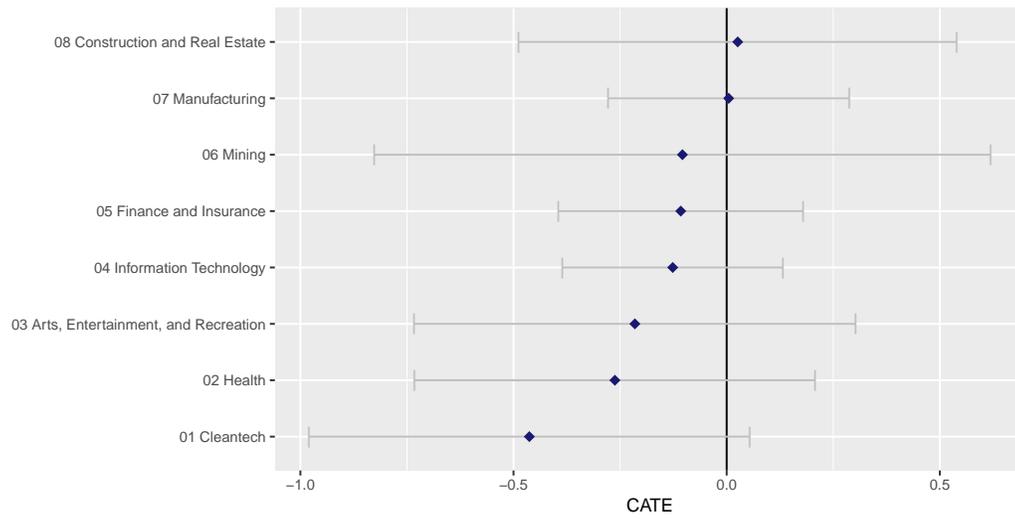


FIGURE 4. GP Dislike for LPs with Government Ties: Heterogeneity by Investment Sector

**Notes:** This figure shows the heterogeneity of GP preferences for LP government ties by GP’s industry focus, using the causal forest machine learning model suggested by [Wager and Athey \(2018\)](#) and [Athey and Wager \(2019\)](#). 95% confidence intervals are reported. We define the “industry focus” of a GP as the industry that accounts for more than half of the GP’s total investment deals. Five industries (*Agriculture, Forestry, and Fishing, Other, Services, Transportation and Warehousing, and Wholesale and Retail Trade*) were dropped due to small sample size. The conditional average treatment effects are estimated on a sample of 236 GP respondents.

 		2021 China Equity Investment Market Research Survey
<p><b>About this survey</b></p> <p>Zero2IPO Research Center and PBC School of Finance of Tsinghua University are jointly studying how to more effectively improve the allocation of resources in China's venture capital (VC) and private equity (PE) market, so as to establish an efficient and reliable market-based investment system that can promote technological innovation. Your institution has previously strongly supported and participated in the "2019 China Equity Investment Survey". After rigorous machine-learning analysis, we have helped GPs and LPs form effective matches with each other.</p> <p>A sizable share of investment in the Chinese VC and PE market comes from the government or from enterprises with state-owned equity, which have the purpose of supporting entrepreneurship and technological innovation, especially among young and small to medium sized firms. We would like you to respond to the questions below, based on the general perceptions from the perspective of typical GPs in the market, about <b>government-related LPs (such as government agencies or state-owned firms, or government entities investing in guided funds)</b> and evaluate (1) the advantages of receiving funding from government-related LPs, and (2) how to improve the efficiency in the investment of government-related funding.</p> <p>* After completion, we will summarize the research, and write policy reports and proposals that can inform relevant regulatory authorities to improve the system. All the information you fill in will be kept strictly confidential, and we will also send you anonymous summaries of the research and related policy reports. We sincerely hope that we can continue to receive strong support and assistance from your organization. Please take the time to fill out the survey questionnaire and send it back within the next two weeks.</p>		
<b>1: The advantages of government-related LPs</b> (10=extremely important, 1=not important at all)		<i>Please mark the most important advantage among the 5 options below.</i>
1	To speed up regulatory approvals and obtain tax reductions	Please choose: a value between 1-10
2	To obtain larger shares or returns from the government, receive timely funding when facing shortages of private funds in the market, reduce the pressure of fundraising, and obtain follow-up funds more easily	Please choose: a value between 1-10
3	To obtain faster access to reliable information/relevant future policies/industry resources	Please choose: a value between 1-10
4	Government LPs can obtain support from the local government and bring local investment opportunities	Please choose: a value between 1-10
5	To help attract potential investors and follow-up investment from private capital	Please choose: a value between 1-10
Other, please specify:		Please provide comments or suggestions:
<b>2: What can be improved by government-related LPs</b> (10=extremely important, 1=not important at all)		<i>Please mark the most important one among the 5 options below.</i>
1	Need less post-investment restrictions on usage of funds in specific regions and industry and on the ratio of investment from private LPs	Please choose: a value between 1-10
2	Need more tolerance of investment risks, and more focus on profit maximization with high-return/high-quality/competitive projects	Please choose: a value between 1-10
3	Need to extend the investment horizon and the requirements on when to exit	Please choose: a value between 1-10
4	Need a more professional team and a more professional approach to make investment decisions so that value can be added post-investment	Please choose: a value between 1-10
5	Need to reduce exposure to policy uncertainty and have more clear investment objectives	Please choose: a value between 1-10
Other, please specify:		Please provide comments or suggestions:

FIGURE 5. 2021 Qualitative Survey

**Notes:** This figure shows the recruitment email sent to respondents by Zero2IPO for the 2021 survey. Respondents would read this page before they start the surveys and Zero2IPO would guide them with phone calls and in case they have any questions during the whole process.

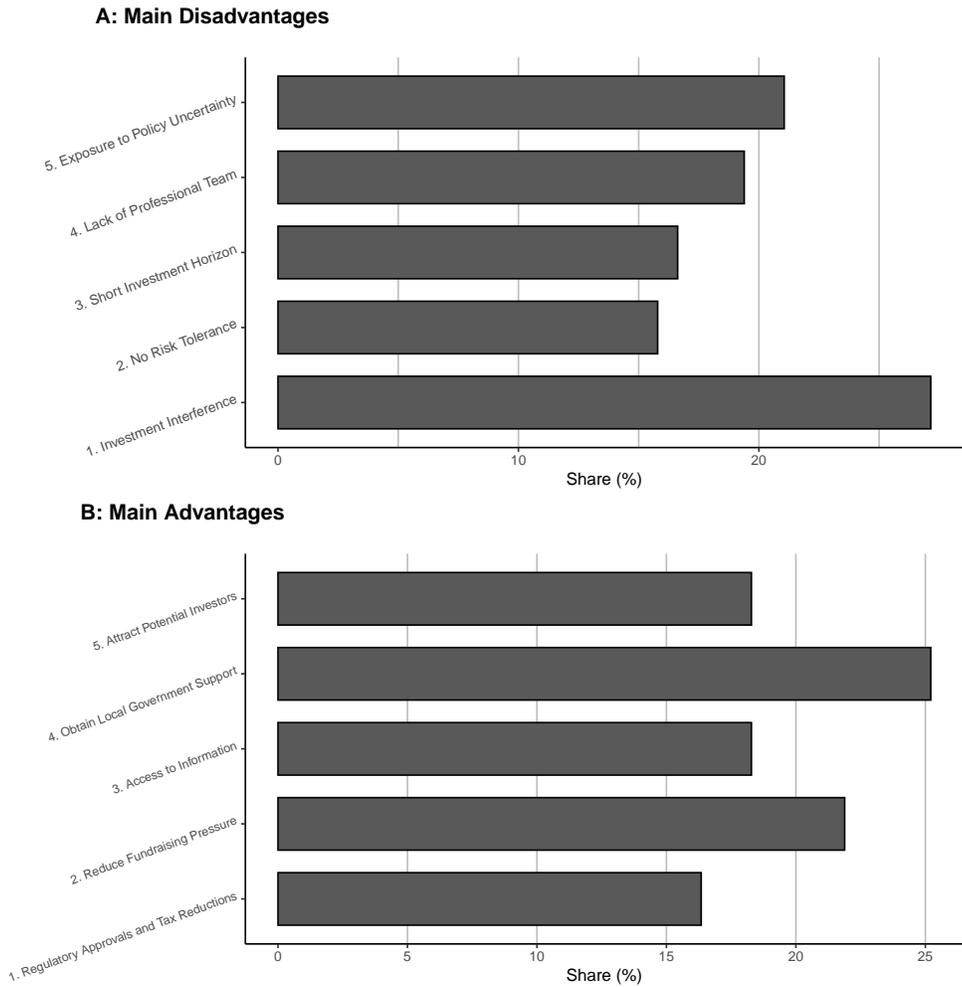


FIGURE 6. Survey on Pros and Cons of Government Investors

Notes: This figure shows the distribution of responses from the 2021 surveys, and specifically the shares of each option marked as the most important reason by the respondent. Panel A shows the main advantages of government LPs. Panel B shows the main disadvantages of government LPs.

TABLE 1. Summary Statistics

	Active			Respondents		
	All	Gov	NonGov	All	Gov	NonGov
Panel A: LPs						
Share Government-Owned (%)	50.11	100.00	0.00	77.52	100.00	0.00
Capital Invested (\$ millions)	50.36	98.95	16.18	399.59	471.71	207.33
Funds Invested	1.98	2.53	1.43	9.24	10.18	4.45
Panel B: GPs						
Share Government-Owned (%)	38.63	100.00	0.00	32.05	100.00	0.00
AUM (\$ millions)	741.30	993.02	607.21	1001.76	1491.76	691.78
IRR (% median)	27.64	23.48	31.16	32.34	25.78	36.57
Funds	2.54	2.77	2.38	3.32	4.22	2.81
Investments	13.42	11.72	14.47	48.40	44.36	50.35
Exits	5.91	6.82	5.37	9.36	11.86	8.06

**Notes:** This table reports summary statistics for both LPs and GPs, using Zero2IPO administrative data for the period 2015–19. We have 7,974 active LPs of which 312 LPs are respondents, and 6,308 active GPs of which 688 GPs are respondents. We exclude foreign entities from this analysis. The Panel A includes variables for LPs. The Panel B includes variables for GPs. *Share Government-Owned (%)* is the share of entities that have at least one ultimate owner that is affiliated either with a government agency or a state-owned enterprise, *Capital Invested (\$ millions)* is the amount of capital the LP invested in funds (in Million USD), *Funds Invested* is the number of funds the LP invested in; *AUM (\$ millions)* is the assets under management (in Million USD), *IRR (% median)* is the median internal rate of return, *Funds* is the number of funds managed by the GP, *Investments* is the number of investments made by the GP, *Exits* is the number of exit events for the GP investments. *Capital Invested (\$ millions)*, *AUM (\$ millions)* and *IRR (% median)* are winsorized at the top 95%.

TABLE 2. Government Ownership of Investors and Fund Managers

	Active								Respondents							
	Min	p10	p25	Median	Mean	p75	p90	Max	Min	p10	p25	Median	Mean	p75	p90	Max
Panel A: LPs																
Total Gov Share	0.00	0.00	0.00	0.00	29.76	76.01	100.00	100.00	0.00	0.00	1.66	63.96	55.98	100.00	100.00	100.00
Gov Share (within Gov Entities)	0.00	1.09	12.80	82.62	61.70	100.00	100.00	100.00	0.14	18.79	43.39	99.93	73.16	100.00	100.00	100.00
Central Gov Share	0.00	0.03	0.46	2.84	17.35	17.60	68.37	100.00	0.00	0.14	1.74	9.60	23.55	39.31	70.89	100.00
Provincial Gov Share	0.00	0.03	0.27	4.97	27.99	45.73	100.00	100.00	0.00	0.09	3.29	22.02	42.56	100.00	100.00	100.00
Local Gov Share	0.00	0.19	1.52	46.38	51.04	100.00	100.00	100.00	0.00	0.29	3.03	50.83	53.01	100.00	100.00	100.00
Panel B: GPs																
Total Gov Share	0.00	0.00	0.00	0.00	13.87	1.86	69.27	100.00	0.00	0.00	0.00	0.00	11.56	2.17	48.04	100.00
Gov Share (within Gov Entities)	0.00	1.25	8.07	41.97	48.24	100.00	100.00	100.00	0.00	0.89	4.50	31.24	38.56	67.87	100.00	100.00
Central Gov Share	0.00	0.06	0.60	3.22	19.45	29.73	69.19	100.00	0.00	0.36	0.35	2.00	14.92	17.88	45.76	100.00
Provincial Gov Share	0.00	0.05	0.27	5.99	25.02	35.13	100.00	100.00	0.00	0.02	0.14	2.17	20.65	31.02	90.00	100.00
Local Gov Share	0.00	0.10	0.98	8.20	31.69	53.12	100.00	100.00	0.00	0.09	0.95	4.67	20.68	33.70	69.91	100.00

**Notes:** This table reports the summary statistics of government ownership for both LPs and GPs. We have 3,969 active government-owned LPs (out of 7,974 active LPs) of which 238 government-owned LPs are respondents (out of 312 LP respondents), and 1,812 active government-owned GPs (out of 6,308 active GPs) of which 216 government-owned GPs are respondents (out of 688 GP respondents). We exclude foreign entities from this analysis. For this analysis, we omit government-owned entities whose government ownership was identified but for which the precise government ownership share value was missing. *Total Gov Share* is computed using all entities, with nongovernment-owned entities having 0 government ownership share. *Gov Share (within Gov Entities)* is computed using only the government-owned entities; *Central Gov Share* is computed using only the sample of entities with at least some central government ownership; *Provincial Gov Share* is computed using only the sample of entities with at least some provincial government ownership; *Local Gov Share* is computed using only the sample of entities with at least some local government ownership. Government-owned entities are those with at least one ultimate government owner, as described in the paper.

TABLE 3. Government-Owned GPs Perform Worse

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CR	CR	CR	CR	IRR	IRR	IRR	IRR
Gov GPs	-0.012*** (-3.74)	-0.006** (-2.21)	-0.014*** (-3.25)	-0.008** (-2.22)	-12.871*** (-3.13)	-10.529** (-2.51)	-17.211*** (-3.52)	-15.112*** (-3.00)
AUM			0.000* (1.84)	-0.000 (-0.13)			-0.001 (-1.09)	-0.002 (-1.60)
Observations	1104	1104	683	683	984	984	631	631
HQ FEs	No	Yes	No	Yes	No	Yes	No	Yes

**Notes:** This table illustrates the association between GPs' government ownership status and GP performance. The specification is  $y_j = \alpha_i + \beta \times GovGPs_j + \gamma \times AUM_j + \epsilon_{ij}$ . The sample includes all active GPs with non-missing data for CR (columns 1-4) and IRR (columns 5-8). *GovGPs* is a dummy indicating whether a GP is government-owned. CR is comprehensive return, which is standardized to 0-1. IRR is winsorized at the 95% percentile. *AUM* is the total asset under management in USD millions, and is winsorized at the 95% percentile. Columns 1 and 5 show the basic models. Columns 2 and 6 show the results with headquarters FEs. Columns 3 and 7 show the results with *AUM* as controls. Columns 4 and 8 show the results with both headquarters FEs and *AUM* controls. *t* statistics are presented in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

TABLE 4. Assortative Matching Between Government-Owned GPs and LPs

	Gov LP	Non-Gov LP	ColRatio
Gov GP	1.608 ( 33.54 %)	0.633 ( 13.46 %)	2.540 ( 0.000)
Non-Gov GP	0.828 ( 23.75 %)	1.001 ( 29.25 %)	0.827 ( 0.000)
RowRatio	1.941 ( 0.000)	0.632 ( 0.000)	
<b>Assortative Index</b>		1.254	
Homogeneity Test(p-value)		0.000	

**Notes:** This table presents the distribution of links between different GPs and LPs grouped by government ownership, illustrating assortative matching patterns. The likelihood ratio index is calculated as  $s(p^{GP}, p^{LP}) = \frac{Pr(G^{GP}=p^{GP}, G^{LP}=p^{LP})}{Pr(G^{GP}=p^{GP})Pr(G^{LP}=p^{LP})}$ . We define  $Pr(G^{GP} = p)$  as the ratio of type  $p$  GP among all GPs with at least one link, e.g., if  $p$  is government owned, then the probability is the ratio of government owned GPs among GPs with at least one link.  $Pr(G^{GP} = G^{LP} = p)$  is defined as the ratio of links where GP and LP both belong to group  $p$  among all links in the sample. The number in the parentheses is the fraction of links among all links formed between GP and LP with ownership information. Assortative index is calculated as the weighted average of the diagonal elements. ColRatio is calculated as column 1 divided by column 2 in the same row. RowRatio is calculated as row 1 divided by row 2 in the same column. The numbers in the parentheses under the ColRatios and RowRatios are the p-values of the binomial test within the corresponding rows and columns respectively, under the null hypothesis of random matching. The p-value of the homogeneity test is a Chi-square test. Government GP and government LP are defined as entities that have at least one ultimate government owner, as described in the paper.

TABLE 5. Variables in Synthetic LP Profiles

<b>Variables</b>	<b>Description</b>
Government Ties	A dummy indicating whether the LP has ties to the government.
Large Investor	A dummy indicating whether the LP has size above 1 billion yuan.
High Registered Capital	A dummy indicating whether the registered capital of the LP is > 1 billion yuan.
Industry Information	A dummy indicating whether the LP profile displays industry information.
Young LP	A dummy indicating whether the LP is a young LP (founded after 2010).
Headquarter in Foreign Country	A dummy indicating whether the LP is headquartered in a foreign country.
Headquarter in Beijing	A dummy indicating whether the LP is located in Beijing.
Corporate Governance	A dummy indicating whether the LP profile displays description of corporate governance.
Investment Philosophy	A dummy indicating whether the LP profile displays description of investment philosophy.
Stage Focus	A dummy indicating whether the LP profile displays the targeted stage of investments.

**Notes:** This table illustrates the coding of regressors based on original profile components. The first column shows the main regressors. The second column gives a brief description of the variables. See Table 6 for details on all profile components.

TABLE 6. Description of LP Profiles Randomized Components

Variable	Categorical Value	Options			
Government Ties (0.8)	<b>Government Ties:</b> 1 if with government ties [5-11].	1 This company aims to give full play to the role of the market in allocating resources and expand private capital investments in innovation and entrepreneurship, so as to promote the development of emerging industries. 公司目标是充分发挥市场资源配置和扩大社会资本投资创新创业的作用, 以促进新兴产业发展。	2 With the help of the private capital market and modern management practices, this organization channels capital to sectors of strategic importance and beneficial to social development. 公司依托资本市场, 运用现代管理战略, 吸引各类社会资金投资具有战略意义和促进社会发展的领域。	3 This organization is one of the earliest market-oriented financing platforms in China. The management team is committed to increasing investors' asset value, using modern management methods to protect investors' rights. 公司是最早的以市场为导向的投资融资平台之一, 管理者运用现代管理方式维护投资者权力, 致力于投资者资本保值增值。	4 This organization channels capital to independent innovative enterprises nationwide. It aims to better promote technological innovation through its professional business model and its efficient and reliable market-oriented investment system. 机构面向全国自主创新企业, 并为其提供资金支持, 通过专业的经营模式, 高效可靠的市场化投资体系, 更好地推动科技创新。
		5 It is a platform for the central government to hold shares of large enterprises and supervise SOEs, thus supporting the restructuring of SOEs and the adjustment of industrial structure. 中央政府通过持股大型企业来直接监督国有企业, 为国有企业的改制和产业结构调整搭建平台。	6 This organization is established by the CCP provincial committee and the provincial government. It accelerates economic transformation mainly through supporting the development of venture capitals and attracting social capital into venture capitals. 经省委、省政府批准而设立的投资机构, 主要支持风险投资企业的发展, 引导社会资金进入风险投资领域, 加快转型。	7 It is an investment organization established by a state-owned firm funded by the provincial government. It mainly focuses on investment, financing, and asset management. 经省人民政府资助的国有独资公司批准而设立的投资机构, 主要从事投资, 融资和资产管理。	8 It is funded by the provincial government. It aims to attract social capital investment into enterprises. 得到省政府财政资金的支持, 目的是吸引社会资本投资到企业。
		9 The provincial government established this organization and guides its capital operation, equity investment and asset management. 由省政府批准成立设立, 指导资本运作、股权投资和资产管理。	10 Its establishment and operation is approved by the local government. Its main businesses include the investment, operation, and management of state-owned assets. 经当地政府批准, 主营业务包括国有资产的投资, 经营和管理。	11 Funded and managed by the local government, it operates in a market-oriented manner. 由当地政府出资和运作, 并以市场化的方式进行运作。	
Fund Size and Management (0.8)	<b>Large Investor:</b> 1 if fund size >1 billion [7-12].	1 The amount under management is 200 Million yuan allocated to a total of 12 funds, with investments in more than 12 startups, including 5 of them that are listed in domestic and foreign capital markets. 管理基金投资项目2亿多元, 拥有基金12支, 已投资12家创业公司, 其中5家在国内外资本市场上市。	2 It established 20 RMB funds with a total size of 600 Million yuan. 管理20多支人民币基金, 总资产管理规模达到6亿元。	3 The total size of the funds it provided capital to reached 700 Million yuan, with 15 RMB funds in total. The capital went to 20 startups, 8 of which are now listed companies. 管理总规模达到7亿元, 设立15支投资基金, 已投资接近20家创业公司, 通过股权投资平台, 成功培育了8家上市公司。	4 A total of 21 funds were set up, which led to about 650 Million yuan of social funds. 设立风险投资基金21支, 带动社会资金约6.5亿元。
		5 It established more than 25 funds, with a total committed capital of over 750 Million yuan and more than 20 accumulated investment projects. 已参与设立25多支基金, 总管理资金超过7.5亿元, 累计投资项目超过20个。	6 As of end of 2018, it managed a capital of 800 Million yuan, with 23 completed investment projects, and 9 listed companies that have been fostered by the investment platform. 截至2018年, 已管理8亿元资金, 完成投资项目23个, 通过投资平台, 培育了9家上市公司。	7 The assets under management are over 1.5 Billion yuan, with investments in 25 projects, and a total amount invested of 900 million yuan. 管理资产超过15亿元, 完成投资项目25个, 总投资为9亿元。	8 As of December 2018, it established 8 direct investment platforms, and had committed capital of 2.5 Billion yuan, with investments in over 25 enterprises. 截至2018年12月, 共有8个直接投资平台, 管理资金达到25亿元, 累计投资企业超过25家。
		9 By the end of March 2018, it invested in 15 funds, for a total of 2.5 Billion yuan, and overall available assets of 4.5 billion yuan. 截至2018年3月底, 已投资15支基金, 总规模达25亿, 总资产为45亿元人民币。	10 As of June 2018, it contributed to 22 funds for a total size of 6 Billion yuan. 截至2018年6月, 公司共设立22支基金, 总资产管理规模达到60亿元。	11 By the end of 2018, the company invested in 30 funds, including industrial investment funds and platform investment funds. 截至2018年底, 公司管理了近30支基金, 包括产业投资基金和平台投资基金。	12 The target scale of the fund to invest in is 15 Billion RMB, and in the past it invested in 30 funds, and 45 innovative small and medium-sized enterprises, effectively playing the exemplary role of guiding the funds to promote innovation and entrepreneurship. 基金目标规模为150亿人民币, 共设立了30家创业投资基金, 已投资45家创新型中小企业, 有效发挥了推动创新创业的示范作用。
Registered Capital (1)	<b>High Registered Capital:</b> 1 if >1 Billion [5-9].	1 The institution has a registered capital of 100 million yuan, 公司的注册资本为1亿元人民币。	2 The financing platform has initial total assets of 500 million RMB, 融资平台的起始资本为5亿元人民币。	3 The investment institution has a total registered capital of RMB 1 billion, 投资公司的注册资本是10亿元人民币。	4 The registered capital of the government-guided fund reaches RMB 1 billion, 引导基金的注册资本是10亿元人民币。
		5 The guided fund has a registered capital of 3 billion yuan, 引导基金资本的注册为30亿元人民币。	6 The investment institution has a registered capital of 3 billion yuan, 投资机构的注册资本为30亿元人民币。	7 The investment institution has a registered capital of RMB 5 billion, 风险投资的注册资本为50亿元人民币。	8 The guided fund has a registered capital of RMB 5 billion, 政府引导基金的注册资本为50亿元人民币。
		9 The government guided fund, which provides strong support to advanced industries, has a registered capital of RMB 8 billion, 一家为促进先进产业发展而设立的政府引导基金, 注册资本为80亿元人民币。			

Table 6 (cont.): Description of LP Profiles Randomized Components

Variable	Categorical Value	Options			
Industry (0.5)	<b>Industry:</b> 1 if show industry information [1-21].	1 It focuses on the Internet industry and provides financing service for enterprises in the industry. 重点投向互联网行业，并为企业提供金融服务。	2 In the past, the institution has successfully funded several investments in Social Network and Media. 已投资项目聚集在社交网络和媒体行业。	3 The institution targets investments in information technology and related sectors such as Blockchain, Big Data, Artificial Intelligence, Robot, or Human Face Recognition. 重点投向区块链、大数据、人工智能、机器人或人脸识别等信息技术相关的高科技领域。	4 The firm seeks to invest in Bio and Healthcare industries and actively seeks equity investments or strategic buyouts. 致力于投资生物和医疗保健领域，并积极寻求股权投资和战略性收购。
		5 The primary industries of past investments include high-tech, high growth companies in clean technology, healthcare, and advanced manufacturing sectors. 优先投资领域为清洁技术、医疗保健、先进制造业。	6 The investment scope includes advanced manufacturing, modern agriculture, and the maritime economy. 重点投资领域包括先进制造业、现代农业和海洋经济。	7 The main direction of the company's investments is infrastructure investment and the development of electric power, gas, water production and supply, railway transportation and other industries. 主要投资方向是基础设施投资和电力、天然气、水生产和供应、铁路运输和其他行业。	8 Over the past years, the investment focus has been on new opportunities in the wealth management industry. 一直以来，机构专注财富管理行业的新发展环境和机遇。
		9 Core businesses include venture capital broadly, and sectors related to fund management, assets management, project assessment, and financial advisory in finance. 公司核心业务包括风险投资、基金管理、资产管理、项目评估和金融行业财务咨询等服务。	10 The institution prefers investments in fast-moving consumer products (Food and Beverages) and the broader services industry. 机构主要投资于快速消费品（食品和饮料）和服务业。	11 The investments currently focus on education and training. 公司目前的投资重点是教育和培训。	12 The focus is on strategic emerging industries such as biotech, internet, new energy, new materials, new generation of information technology, cultural creativity, energy conservation, and environmental protection. 专注于生物、互联网、新能源、新材料、新一代信息技术、文化创意、节能环保等战略性新兴产业。
		13 The institution focuses on investments in Aerospace related industries, as well as industries such as life and health, ocean, military industry, robots, wearable, and intelligent equipment. 致力于对航空航天相关行业的投资，同时投向大健康、海洋、军事工业、机器人、可穿戴设备和智能设备等行业。	14 The institution seeks opportunities in information technology, energy conservation and environmental protection, new energy, new materials, biotechnology, high-end equipment manufacturing and other national strategic emerging industries. 在信息技术、节能环保、新能源、新材料、生物技术、高端装备制造等国家战略性新兴产业投资。	15 The incubation and investment in the transformation of scientific and technological achievements includes information technology, life sciences and Biological Medicine. 投资科技成果转化孵化，包括信息技术、生命科学和生物医学。	16 The institution is equipped with specialized investment teams that produced successful exits in various industries, such as agriculture, chemical engineering, energy, pharmaceuticals, healthcare, and information technology. 机构拥有专业的团队，在农业、化学工程、能源、制药、医疗保健、信息技术等行业创造大量成功案例。
		17 The fund pays important attention to intelligence-sensitive services, advanced manufacturing, environment protection, and energy saving industries. 重点投向先进制造业、环保和节能产业。	18 The investment areas are very extensive, and include software and hardware companies, production companies and technology service companies, including home and business mobile communications. 投资领域非常广泛，包括软件和硬件公司、生产公司和技术服务公司，涵盖家庭和企业移动通信。	19 It regularly invests in satellite applications, information technology, new materials and new energy, aerospace special technologies, automation and special vehicles and other fields. 一直以来投资于航空航天、卫星应用、信息技术、新材料和新能源、航空航天特殊技术应用、汽车零部件和特种车辆等领域。	20 To promote local high-tech industry, the institution focuses on new materials, new equipment, new energy, new communication technologies, marine tech, energy conservation and environmental protection, and life and health. 重点投向新材料、新设备、新能源、新一代通信技术、海洋高科技、节能环保、生命健康等领域，促进当地高新技术产业发展。
		21 The portfolio covers a broad spectrum of industries: financial services, telecommunications, media technology, energy resources, and life sciences. 投资项目涉及广泛的行业，金融服务、电信、媒体技术、能源和生命科学。			
		Founding Year (0.8)	<b>Young LP:</b> 1 if founded after 2010 [5-9].	1 founded in June 2000, 2000年成立。	2 formally established in 2002, 2002年成立。
5 founded in December 2010, 2010年12月成立。	6 established in 2011, 2011年成立。			7 founded in 2012, 2012年成立。	8 established in 2015, 2015年成立。
9 was recently established in 2016, 2016年新成立。					

Table 6 (cont.): Description of LP Profiles Randomized Components

Variable	Categorical Value	Options							
Location of HQ (1)	<b>Headquarter in Foreign Country:</b> 1 if headquarter in Foreign Country [13,14]. <b>Headquarter in Beijing:</b> 1 if headquarter in Beijing [15,16]	1	located in Jiangsu Province. 位于江苏省。	2	set up in the Guizhou Province. 设立于贵州省。	3	headquartered in Shanghai. 总部位于上海市。	4	mainly invests in Shanghai and Yangtze River Delta. 投资主要覆盖上海和长三角地区。
		5	located in Guangdong to promote the development of the Greater Bay area. 位于广东，致力于推动大湾区发展。	6	investment headquarter in Guangzhou. 投资总部设在广州。	7	located in the Shenzhen-Hong Kong Business Cooperation Zone. 地点位于深港业务合作区。	8	set up 10 business centers in 8 cities including Beijing, Shanghai, Guangzhou, Shenzhen and Chongqing. 在北京、上海、广州、深圳、重庆等8个城市分别设立了10个业务中心。
		9	has 15 branches in 10 regions across the whole China. 在中国内地10个地区设有15家分支机构。	10	which invests all provinces and cities across the country. 投资项目覆盖全国各省市。	11	established in Fujian Province as one of the most important investment platforms. 是福建省重要的投资平台之一。	12	an influential investment institution in Shandong Province. 是目前山东省具有影响力的投资机构。
		13	headquartered in the Silicon Valley. 总部位于硅谷。	14	based in Singapore and concentrated on Asia and growth markets. 位于新加坡，主要关注亚洲和新兴市场。	15	located in Beijing. 位于北京。	16	headquartered in Beijing, it has offices in Europe and North America. 总部位于北京，在欧洲和北美设有分支机构。
Investment Philosophy (0.63)	<b>Investment Philosophy:</b> 1 if investment philosophy is included [1-10].	1	Its investment philosophy is to promote new industrialization through science and technological development. It also takes advantage of the amplifying effect of financial leverage and enforces professional management. 投资理念是依靠科学技术的发展和高新技术的开发，推动新型工业化，发挥杠杆放大效应，实施专业化治理。	2	To attract to the local area high-quality venture capital firms, projects, technologies, and talents, it focuses on cultivating strategic and emerging industries. 投资专注于培育战略和新兴产业，以吸引高质量的风险投资、项目、技术和人才到当地。	3	It aims to enhance independent innovation ability through attracting venture capital investment into SMEs, especially science and technology SMEs, and taking advantage of the amplifying effect of financial leverage. 为了发挥资金的杠杆放大效应，吸引风险投资公司对中小企业的投资，特别是科技型企业，以提高自主创新能力。	4	It aims to enrich the structure of financial products through technological and management innovation, thus enlarging the space for economic development and social reform. 经营宗旨是：不断推进技术和管理创新，丰富金融产品结构，为经济发展和社会改革提供更广阔的空间。
		5	It aims to promote the development of the venture capital market, thus accelerating the improvements of financing environment and economic structure. 发展目标是促进风险投资环境的发展，推进融资环境和经济结构调整。	6	Accelerating the improvement of industrial structure through the integration of high-quality social resources is its investment objective. 投资坚持“集合优质社会资源，促进产业优化”的宗旨。	7	Its long-term goal is to promote the development of high-tech industries in China through providing value-added services related to venture capital investment, thus nurturing strategic industries and promoting the economic transformation. 长期目标是通过提供风险投资相关的增值服务，促进中国高科技产业的发展，培育战略性新兴产业，实现经济转型的目标。	8	It aims to attract social capital to follow its investment, including prestigious venture capital institutions from both within and outside the local province. 引导基金吸引社会资本的范围包括省内外的一流风险投资公司。
		9	It implements a management system that separates management decision-making from the government; Its operation principles are “government guidance, market operation, amplification through leverage, and risk prevention”. 机构实行管理决策与政府分离的管理体制，按照“政府引导，市场运作，杠杆放大和风险防范”的原则运作。	10	As a long-term investor, it has the investment philosophy of achieving the targeted return rate while keeping the risks low. 作为长期投资者，投资理念是在实现回报目标同时控制风险。				

Table 6 (cont.): Description of LP Profiles Randomized Components

Variable	Categorical Value	Options			
Corporate Governance (0.5)	<b>Corporate Governance:</b> 1 if corporate governance [1-7].	1 The organization adopts a rigorous auditing and compliance system on par with international standards to better serve the interests of investors. 公司引入严格的审计和合规体系，以更好地服务于投资人的利益。	2 This firm implements strict risk management with modern corporate governance practices; it closely follows the core values of “integrity, professionalization, standardization, and innovation”. 公司坚持“诚信，专业，规范，创新”的核心价值观，依靠现代化的公司治理，严格的实施风险控制和他管理。	3 With a professional team and an open cultural atmosphere, this firm offers comprehensive and professional financial services to the clients, and is committed to becoming the most reliable, the most sustainable, and the most advanced firm in the industry. 依靠专业的员工团队，开放的文化氛围，为投资者提供全面和专业的金融服务，致力于成为行业“最可靠，最可持续的和最领先的公司”。	4 With the goal of accelerating industrial advancement and social development, this firm has the following codes of conduct: professionalization, innovation, rigor, and efficiency. 公司坚持专业、创新、严谨、高效的准则，以促进产业进步和社会发展发挥积极作用。
		5 Bringing long-term returns at an acceptable level of risk is its long-standing investment philosophy. 长期以来的投资理念是在可接受的风险水平下带来长期回报。	6 To help start-ups establish a leading position in their industries, this firm established a standard and rigorous investment and risk management system, introduced advanced management philosophy and professional methods, and built an experienced and high-quality investment team. 建立规范、严谨的投资管理体系和风险控制体系，引入先进管理理念和专业管理手段，培育了一支经验丰富、高素质的投资团队，确立创业型企业的领先地位。	7 This firm operates, invests, manages, and withdraws in a market-oriented way. 以市场导向的方式运作、投资、管理和撤回。	
Stage Focus (0.5)	<b>Stage Focus:</b> 1 if show stage focus [1-3]	1 The purpose is to channel capital to angel projects to help finance early stage enterprises. 集中投资企业的早期天使项目，并发挥对资本的撬动作用。	2 It frequently provides financing for investments in the growth and expansion stage, but it also invests selectively in early and late stage projects. 一直以来为企业的扩张阶段提供融资，同时投资早期和晚期的项目。	3 The investments target late stage projects which can facilitate the IPO of innovative companies. 投资着重于后期阶段，以帮助创新企业实现上市目标。	

TABLE 7. GP Preferences for LPs

	Partner Rating	
	(1)	(2)
Government Ties	-0.114*** (-2.92)	-0.079** (-2.14)
Large Investor	0.147*** (4.21)	0.167*** (5.03)
High Registered Capital	0.196*** (5.52)	0.185*** (5.53)
Industry Information	-0.231*** (-6.68)	-0.178*** (-5.39)
Young LP	-0.004 (-0.11)	-0.010 (-0.29)
Headquarter In Foreign Country	0.034 (0.55)	-0.022 (-0.35)
Headquarter In Beijing	0.208*** (4.04)	0.175*** (3.51)
Corporate Governance	0.013 (0.37)	0.055* (1.67)
Investment Philosophy	0.014 (0.40)	0.039 (1.14)
Stage Focus	-0.085** (-2.44)	-0.086** (-2.57)
Observations	13375	13375
Unique GPs	679	679
GP FEs	No	Yes
Model	OLS	OLS
DV Mean	6.448	6.448
DV SD	2.016	2.016

**Notes:** This table shows GP preferences for LP synthetic characteristics. The specification is  $y_{ij} = \alpha_i + \beta \times GovernmentTies_j + \sum_{m=1}^N \gamma_m \times Characteristic_{jm} + \epsilon_{ij}$ . The sample includes all GP respondents participating in the experiments who gave at least one valid answer to each question. *GovernmentTies* is a dummy indicating whether the LP profile displays a link to the government. Details of the remaining characteristics are illustrated in Table 5. Partner Rating is on a scale of 1-10. Column 1 shows the baseline OLS. Column 2 shows the regression adding GP respondents fixed effects. *t* statistics are presented in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

TABLE 8. GP Preferences for LPs: Heterogeneity by Government-Owned GPs

	(1) Gov	(2) Non-Gov	(1)=(2) P-Value	(3) Gov	(4) Non-Gov	(3)=(4) P-Value
Government Ties	0.016 (0.22)	-0.173*** (-3.68)	0.026	0.008 (0.13)	-0.119*** (-2.70)	0.104
Large Investor	0.186*** (2.95)	0.131*** (3.11)	0.470	0.186*** (3.08)	0.157*** (3.94)	0.682
High Registered Capital	0.210*** (3.28)	0.189*** (4.44)	0.782	0.163*** (2.66)	0.194*** (4.85)	0.664
Industry Information	-0.255*** (-4.09)	-0.222*** (-5.33)	0.658	-0.172*** (-2.84)	-0.181*** (-4.59)	0.893
Young LP	0.010 (0.16)	-0.012 (-0.28)	0.774	-0.007 (-0.11)	-0.013 (-0.33)	0.931
Headquarter In Foreign Country	0.027 (0.24)	0.039 (0.52)	0.926	-0.091 (-0.81)	0.011 (0.15)	0.431
Headquarter In Beijing	0.281*** (2.98)	0.175*** (2.84)	0.349	0.226** (2.46)	0.151** (2.54)	0.486
Corporate Governance	0.047 (0.75)	-0.003 (-0.08)	0.503	0.123** (2.05)	0.024 (0.62)	0.160
Investment Philosophy	0.008 (0.13)	0.020 (0.45)	0.882	0.050 (0.80)	0.036 (0.88)	0.852
Stage Focus	-0.083 (-1.31)	-0.084** (-1.99)	0.985	-0.115* (-1.90)	-0.071* (-1.78)	0.531
Observations	4221	9154		4221	9154	
Unique GPs	214	465		214	465	
GP FEs	No	No	SUR	Yes	Yes	SUR
Model	OLS	OLS		OLS	OLS	
DV Mean	6.452	6.445		6.452	6.445	
DV SD	2.038	2.006		2.038	2.006	

**Notes:** This table compares government GP and nongovernment GP preferences for LP synthetic characteristics. The specification is  $y_{ij} = \alpha_i + \beta \times GovernmentTies_j + \sum_{m=1}^N \gamma_m \times Characteristic_{jm} + \epsilon_{ij}$ . We run separate regressions for government GPs and nongovernment GPs. Gov-GPs are defined as GPs with government owners. The sample includes all GP respondents participating in the experiments who gave at least one valid answer to each question. *GovernmentTies* is a dummy indicating whether the LP profile displays a link to the government. Details of the remaining characteristics are illustrated in Table 5. Partner Rating is on a scale of 1-10. Columns 1 and 2 show the basic models for government GPs and nongovernment GPs respectively. Column 3 shows the difference in coefficients in columns 1 and 2 using SUR model. Columns 4 and 5 show regressions with GP respondents fixed effects. Column 6 shows the difference in coefficients in columns 4 and 5 using SUR model. *t* statistics are presented in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

TABLE 9. LP Preferences for GPs

	Partner Rating	
	(1)	(2)
Government Investors	0.652*** (7.27)	0.692*** (7.60)
Team Government Experience	0.196** (2.40)	0.191** (2.31)
Team Industry Experience	0.050 (0.61)	0.041 (0.49)
High AUM	0.025 (0.35)	0.056 (0.76)
High IRR	0.153** (2.46)	0.159** (2.50)
Exits	0.151** (2.27)	0.160** (2.35)
Ranked GP	-0.271 (-1.22)	-0.252 (-1.12)
Industry Information	0.631*** (10.85)	0.637*** (10.69)
Young GP	0.172*** (2.60)	0.137** (2.02)
Headquarter In Foreign Country	0.490*** (3.87)	0.466*** (3.62)
Headquarter In Beijing	0.069 (0.87)	0.065 (0.81)
VC	0.019 (0.23)	-0.010 (-0.12)
Market Approach	0.111 (1.55)	0.106 (1.45)
Investment Philosophy	-0.029 (-0.50)	-0.042 (-0.71)
Investment Stage	0.076 (1.06)	0.072 (1.00)
Investment Horizon	-0.101* (-1.65)	-0.094 (-1.50)
Serial Fund Manager	0.042 (0.47)	0.007 (0.08)
Observations	6220	6220
Unique LPs	311	311
LP FEs	No	Yes
Model	OLS	OLS
DV Mean	4.284	4.284
DV SD	2.326	2.326

**Notes:** This table shows LP preferences for GP synthetic characteristics. The specification is  $y_{ij} = \alpha_i + \beta \times GovernmentInvestors_j + \sum_{m=1}^N \gamma_m \times Characteristic_{jm} + \epsilon_{ij}$ . The sample includes all LP respondents participating in the experiments who gave at least one valid answer to each question. *GovernmentInvestors* is a dummy indicating whether the GP profile indicates the GP already had government investors. Details of the remaining characteristics are illustrated in Appendix Table A23. Partner Rating is on a scale of 1-10. Column 1 shows the basic models. Column 2 shows regressions adding LP respondents fixed effects. *t* statistics are presented in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.