How Does Organization Capital Alleviate SMEs’ Financial Constraints? Evidence from China

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ABSTRACT
This study investigates whether and how organization capital affects corporate financial constraints faced by Chinese small- and medium-sized enterprises (SMEs). Using SMEs listed on the Shenzhen Stock Exchange from 2001 to 2019, we find that organization capital significantly alleviates corporate financial constraints and that information asymmetry and operational efficiency are two possible mediators of the relationship. This effect is more pronounced for high-tech and growth-stage firms, consistent with the said mediation effect. Besides, we perform propensity score matching, instrumental variable regressions, and several robustness checks to address possible endogeneity concerns and measurement errors.

1. Introduction
China has the largest emerging market in the world. Its economy is developing rapidly, and small- and medium-sized enterprises (SMEs) are the main economic development engines. Xiao Yaqing, the Minister of Industry and Information Technology, stated that there are more than 40 million enterprises in China, of which more than 95% are SMEs. SMEs have made significant contributions in absorbing employment and promoting economic growth. However, SMEs face heavy financial constraints due to the imbalance between investment demand and capital supply. The financing difficulty of SMEs is a serious problem that has long plagued China’s economic development (Guowei et al. 2020; Luo, Zhang, and Zhou 2018).

SMEs need to overcome seemingly insurmountable obstacles such as lack of legitimacy, resources, and government support, making it hard to invest in risky and physical assets. SMEs thus turn to alternative opportunities that are less risky, convenient, and easy to adopt, such as intellectual, social, and organization capital (Guowei et al. 2020; Wu and Leung 2005). This investment preference for SMEs is also accepted and recognized by investors, banks, and the government (Batjargal and Liu 2004).

Organization capital is an important intangible asset of small- and medium-sized enterprises (Corrado, Hulten, and Sichel 2009), strengthening the coordination between human capital and physical capital and enabling the company to use various economic resources effectively (Prescott and Visscher 1980). The anecdotal evidence also indicates the usefulness of organization capital, such as the corporate culture and product development system of Huawei, supply chain management, and logistics distribution system of Jingdong. As a key production factor and an essential part of global capital stock, organization capital plays a vital role in developing enterprises (Eisfeldt and Papanikolaou 2013). It can create sustainable competitive advantages for companies (Peters and
Taylor 2017), bring excess returns and better financial performance (Hasan and Cheung 2018). Vital sourcing for SMEs’ financial constraints is the lack of measurable or collateralized tangible assets, which can be reported in financial statements. Meanwhile, organization capital has the characteristics of convenience, ease of adoption, high flexibility, and universality. Considering SMEs’ investment preferences and operating environment, organization capital may be a new pattern for alleviating Chinese SMEs’ financing difficulties.

Based on corporate financial data from the SME Board of the Shenzhen Stock Exchange from 2001 to 2019, this study examines the impact of organization capital on the financial constraints of SMEs and further verifies its mechanism. We find that organization capital can alleviate Chinese SMEs’ financial constraints, and the results are robust to a battery of sensitivity checks. This effect works by reducing information asymmetry and increasing operational efficiency. Additionally, the mitigation effect of organization capital on the financial constraints of SMEs is greater for high-tech firms or growth-stage firms, which have less accumulation of fixed assets, a high degree of information asymmetry, and low operational efficiency, lending support to our hypotheses.

This study mainly contributes to extant research in the following respects. First, it provides a new perspective on internal operation and management methods for alleviating SMEs’ financial constraints. This breaks away from the existing literature on the relationship between financial constraints and traditional governance mechanisms. The research conclusions also confirm Brennan’s (1992) argument that long-term and intangible capital are the most valuable assets in a competitive environment. Yet, most of them do not appear in financial statements. Second, it provides incremental evidence of the influence of organization capital on SMEs’ financial policies. We found that organization capital reduces information asymmetry and increases operational efficiency, thus alleviating SMEs’ financial constraints. Finally, this study provides firm-level micro evidence for alleviating “structural” financing problems in China. Organization capital can alleviate the unbalanced financing difficulties for firms with different characteristics, aligning with China’s actual situation and policy orientation: not flood irrigation and focusing on specific policies for financial constraint.

The remainder of this paper proceeds as follows. Section 2 provides a literature review and presents the hypotheses development. Section 3 describes the research design. Section 4 discusses the empirical results. Section 5 provides robustness checks, and Section 6 concludes the paper.

2. Literature Review and Hypotheses Development

Prescott and Visscher (1980) first proposed the concept of organization capital. They argue that organization capital is an information asset that affects firm output, which can explain the development and scale of the company. Lev and Radhakrishnan (2005) believe that organization capital comprises corporate business practices, processes, design, and incentive and compensation systems. The collection of these skills enables companies to obtain higher output under a certain level of resources continuously and efficiently. Eisfeldt and Papanikolaou (2013) indicate that organization capital is a production factor reflected in a company’s key talents and can improve its output efficiency. Following extant studies, we define organization capital as a collection of enterprise proprietary knowledge, business processes, and systems, strengthening the coordination between human capital and physical capital and enabling companies to utilize various economic resources effectively.

An increasing number of studies have explored the role of organization capital in firm value, financial performance, and operating policies. Organization capital can increase productivity (Atkeson and Kehoe 2005), lead to better company performance and M&A performance (Lev, Radhakrishnan, and Zhang 2009; Li, Qiu, and Shen 2018; Li and Wu 2021), increase investors’ expected returns (Leung et al. 2018), reduce investment cash flow sensitivity, increase cash holdings (Attig and Cleary 2014; Marwick, Hasan, and Luo 2020), accelerate corporate innovation (Cui, Dai, and Zhang 2021), and
have a substitution effect on its executive pay-for-performance sensitivity (Gao, Leung, and Qiu 2021). Although these studies provide sufficient evidence that organization capital affects financial performance and other economic consequences, analysis of how organization capital plays this role is lacking. Studying the influence of organization capital on financial constraints is helpful to understand the mechanism of organization capital value creation.

Due to information asymmetry and agency problems, the cost of external financing is too high, making it difficult for enterprises to raise sufficient funds based on theoretical prices. Consequently, enterprises are forced to forgo valuable investment opportunities, reduce corporate returns, and even slow development, seriously affecting corporate value creation and expansion (Fazzari et al. 1988). Several studies have explored the internal and external factors affecting financial constraints. Market frictions, credit policy, political affiliation, stocks’ religious orientation, and trade credit financing significantly influence financing decisions from the perspective of the operating environment (Deng, Zeng, and Zhu 2019; Lee and Wang 2021; Narayan et al. 2021; Shi, Wang, and Tan 2020; Sun and Jiang 2015; Wen, Lee, and Zhou 2021). Firms with higher customer satisfaction scores, annual report readability, Twitter use, director attention, fewer policy-related risks, and less environmental profile are associated with fewer financing barriers, mainly by reducing the information asymmetry and cost of equity capital (Al Guindy 2021; Chava 2014; Huang et al. 2021; Lee, Lee, and Xiao 2021; Rjiba et al. 2021; Truong, Nguyen, and Huynh 2021).

For SMEs in China, access to finance is often cited as an important factor in the survival and growth of small businesses (Bakhtiari et al. 2020). Cull and Xu (2005) find that Chinese entrepreneurs are more likely to reinvest their profits if they have easier access to credit, and this effect is stronger for small firms. Beck, Demirgüç-Kunt, and Maksimovic (2005) find that the higher obstacles faced by smaller firms translate into slower growth, and small firms’ financing obstacles have almost twice the effect on annual growth than large firms’ financing obstacles. Bank market power, local banking market structure, exporting activities, financial system, and corporate default risk also significantly influence financial constraints for SMEs (Lu et al. 2021; Meslier, Sauviat, and Yuan 2020; Ryan, O’Toole, and McCann 2014; Wang, Han, and Huang 2020).

Whether and how organization capital influences financial constraints is an empirical question. Organization capital can enable companies to achieve efficient production, stable business operations, and better corporate performance (Lev, Radhakrishnan, and Zhang 2009) and reduce the sensitivity of company operations to economic fluctuations. Organization capital investment can improve a company’s future profitability and competitive position (Lev and Radhakrishnan 2005) and help predict long-term financial performance (Banker, Potter, and Srinivasan 2000). This stable and better performance reduces the uncertainty of future cash flows and helps reduce external stakeholders’ concerns about the company’s prospects.

Additionally, companies with high organization capital are more susceptible to investor attention. As organization capital improves the quality of company output, it will increase market share and customer loyalty, making it easier to observe by stakeholders such as customers, suppliers, analysts, and investors (Attig and Cleary 2014). This helps external stakeholders obtain internal and external information about the company’s future operating conditions. Simultaneously, high-organization capital companies will output more relevant information. Companies with high organization capital are more likely to form a more formal corporate structure and efficient information-sharing mechanisms (Fredrickson 1986), which will increase the understanding of management strategies and plans for investors and other stakeholders (Slevin and Covin 1997). For example, adequate records of the factors considered in organization capital investment and decision-making procedures can minimize the uncertainty caused by unobservable features of organization capital.

Moreover, investment in organization capital reflects an executive’s commitment to aligning business operations and development with long-term organizational goals. Organization capital is associated with better management practices, forward-looking management styles, and optimized
management behaviors. The higher quality of internal controls and financial reports helps reduce financing friction and obtain external financing (Rahaman and Zaman 2013). This logic suggests the following hypothesis.

H1: The financial constraints of high-organization capital firms are lower than those of low-organization capital firms, and investing in organization capital alleviates these financial constraints.

Some studies provide indirect evidence of how organization capital affects SEM’s financial constraints. Organization capital may ease financial constraints through the following two channels.

First, information asymmetry is the key factor causing financial constraints (Miller and Modigliani 1961; Modigliani and Miller 1958), organization capital may help reduce information asymmetry, thus obtaining more external financing. The higher the organization capital, the higher the proportion of corporate marketing expenditures, and the faster the operating income growth (Lev, Radhakrishnan, and Zhang 2009), which can attract the attention of external governance mechanisms such as investors, analysts, and even the media. An increase in external attention may alleviate enterprises’ information asymmetry. In addition, as a ubiquitous invisible resource, organization capital is different from human capital and does not change significantly in a relatively short period due to management turnover (Attig and Cleary 2014). These relatively stable characteristics help reduce uncertainty in firm value. The preceding discussion suggests that organization capital increases investors’ awareness of a firm’s existence, enlarges its investor base, improves risk-sharing, and alleviates financial difficulties (Merton 1987). Based on the preceding analysis, we propose hypothesis 2:

H2: Organization capital can alleviate financial constraints by reducing information asymmetry.

Second, higher operating efficiency induces higher profitability (Oral and Yolalan 1990), implying lower bankruptcy and default risk. Thus, the bargaining power between the company and the bank or investor will be improved, which helps obtain funds at a lower cost (Chava 2014; Huang, Yang, and Tu 2019). A plant’s specific productivity depends on the vintage of its technology and its built-up stock of knowledge regarding how to use it. By modeling specific productivity as an exogenous stochastic process, Atkeson and Kehoe (2005) found that it can increase with the accumulation of organization capital. Moreover, organization capital can benefit a company by improving operational performance, enabling companies to obtain higher output under a certain level of resources continuously and efficiently (Eisfeldt and Papanikolaou 2013; Lev and Radhakrishnan 2005; Li, Qiu, and Shen 2018). Improved company performance will increase future output, thereby ensuring repayment of bank loans, reducing default risk, and excessive stock returns for investors. Based on this analysis, we propose hypothesis 3:

H3: Organization capital can alleviate financial constraints by improving operational efficiency.

3. Research Design

3.1. Sample Selection and Data Sources

This study takes the SME board-listed companies from 2001 to 2019 as the research sample and filtration according to the following methods: A) Remove s
tocks that have been delisted; B) Remove ST or *ST stocks; C) Eliminate financial firms; D) For data continuity and stability, only keep companies with financial data for more than five consecutive years; E) Eliminate observations where the key variables are missing. The filtered regression sample
comprises 6,099 observations, including 616 listed companies. The data are obtained from the China Stock Market and Accounting Research Database (CSMAR), and all continuous variables have been winsorized at the 1% and 99% levels.

3.2. Variable Definition

3.2.1. Organization Capital
Eisfeldt and Papanikolaou (2013) and Li, Qiu, and Shen (2018) performed seven empirical tests to verify that Selling, General, and Administrative (SG&A) expenditures are a reliable measure of organization capital. SG&A expenditures represent all nonproductive charges in its operations, including information technology infrastructure, information systems, research and development, knowledge building, business process improvement, employee training, and advertising. These expenditures enable a company to form intellectual capital, corporate culture, and other organization capital components, further improving resource utilization efficiency. Following Eisfeldt and Papanikolaou (2013), we calculate organization capital by using Equation 1:

\[ OC_{i,t} = (1 - \delta_0)OC_{i,t-1} + \frac{SGA_{i,t}}{CPI_t} \]  

where the subscripts i and t represent the company and year, respectively; \( \delta_0 \) is the depreciation rate of organization capital; CPI is the consumer price index in China, and SGA is the sum of management expenses and sales expenses. Equation 1 can only measure accumulated organization capital; therefore, the initial value of organization capital must be set separately, as shown in Equation 2:

\[ OC_{i,0} = \frac{SGA_{i,1}}{g + \delta_0} \]  

where g is the average growth rate of SGA expenses, finally, we divide the calculated organization capital by the book value of the total assets at the end of the fiscal year to establish a standardized value (OC), allowing companies of differing sizes to be compared.

Since Chinese firms’ specific development situations may differ from firms in developed countries, we carefully treat the two key coefficients in calculating the organization capital proxy. First, we calculate the average growth rate of SGA expenses using the financial data of listed Chinese SMEs, set to 18%. Second, following Cui, Dai, and Zhang (2021) and Li and Wu (2021), we set the depreciation rate of organization capital to 15%.

3.2.2. Financial Constraints
Financial constraints are typically measured using a single or composite indicator. Single indicators include company size, dividend distribution rate, and debt. Most studies use composite indicators as a single indicator may lead to selection bias and measurement errors. Following Hadlock and Pierce (2010), we construct an SA index less affected by the company’s business decisions to measure corporate financial constraints and exclude the effect of possible endogenous financial variables. These financial constraint proxies are suitable for companies in developing countries, proving their validity in previous studies (Ding et al. 2020; Hu, Jiang, and Holmes 2019). The SA index is constructed as follows:

\[ SA_{i,t} = -0.737 \times SIZE_{i,t} + 0.043 \times SIZE_{i,t}^2 - 0.04 \times AGE_{i,t} + \varepsilon_{i,t} \]  

where i and t represent the company and year, respectively; SIZE is firm size; and AGE is the number of years the company was established.
3.2.3. **Control Variables**

Referring to Lu et al. (2021) and other related literature, we control for other determinants of financial constraints to parse out potential confounding effects, including firm leverage (LEV), fixed assets ratio (FA), growth opportunity (OR), cash holding (Cash), investment expenditure rate (INV), return on assets (ROA), and future investment opportunities (TOBINQ). In all specifications of our model, we include industry and year indicators to control for potential industry and year effects. Table 1 lists the definitions of the specific variables.

3.3. **Model Specification**

To test hypothesis 1, we construct model (4).

\[
SA_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 CONTROL_{it} + \beta_3 YEAR_t + \beta_4 IND_j + \varepsilon_{it}
\]

where i, t, and j denote the company, year, and industry, respectively. SA is the dependent variable, measuring the degree of financial constraints. OC reflects the stock of organization capital investment. CONTROL is the control variable. YEAR and IND are annual and industry dummy variables, respectively. Next, we correct for possible serial correlations between the variables and heteroskedasticity by clustering at the firm level, following Petersen (2009). According to hypothesis 1, coefficient \( \beta_1 \) of OC should be significantly negative.

To verify hypotheses 2 and 3, following VanderWeele (2015) and Chen et al. (2020), we test the influence of organization capital on information asymmetry proxies and operational efficiency proxies using the following model (5):

| Table 1. Variables and definitions. |
|-----------------------------------|
| Variable                          | Definition                                                                 |
| **Key Variables**                 |                                                                            |
| OC                               | The calculation method is shown in Equation 1 and 2.                       |
| SA                               | The calculation method is shown in Equation 3.                            |
| Analyst                          | The logarithm of the number of analysts following.                        |
| Accruals                         | Total accruals = (Δcurrent asset – Δcurrent liability – Δcash + Δlong-term debt – depreciation + Δincome tax payable)/total assets. |
| TAT                              | The ratio of operating income to total average assets.                     |
| ROA                              | Return on assets is defined as operating income before depreciation and amortization divided by total assets. |
| **Controls Variables**            |                                                                            |
| LEV                              | The ratio of total debt to total assets.                                  |
| FA                               | The ratio of fixed assets to total assets.                                |
| OR                               | Annual operating income growth rate.                                      |
| Cash                             | The ratio of cash to total assets.                                         |
| INV                              | The ratio of cash paid for the purchase and construction of fixed assets, intangible assets, and other long-term assets to total assets. |
| TOBINQ                           | The ratio of the firm market value to total assets.                        |
| **Variables for Other Tests**     |                                                                            |
| H_tech                           | Dummy variable equals 1 in year t, t + 1, t + 2 if the enterprise was recognized as a high-tech firm in year t, 0 otherwise. |
| Int, Growth, Mat, Dec            | Dummy variables represent the different life cycles of the enterprise, respectively: introduction stage, growth stage, maturity stage, and decline stage. For example, when the enterprise is in the introduction stage, Intro is set to 1, and if in other life cycles, Intro is set to 0. |

1 The data are obtained from the “Qualification Accreditation” sub-database in the CSMAR database, and the enterprise qualification is valid for three years.

2 Following Dickinson (2011), according to the net cash flow generated by operating activities, investment activities and financing activities, all samples are classified into five stages representing different life stages: the introduction period, the growth period, the maturity period, the decline period, and the swing period. Where, introduction period (INTRO): OANCF < 0, INVCF < 0 and FINCF > 0; growth period (GROWTH): OANCF + 0, INVCF < 0 and FINCF > 0; maturity period (MAT): OANCF > 0, INVCF < 0 and FINCF < 0; recession period (DEC): OANCF < 0, INVCF > 0 and FINCF ≤ 0 or FINCF ≥ 0; swing period (SHAKE-OUT): remaining company-annual sample. OANCF, INVCF and FINCF respectively represent the net cash flow generated by operating activities, investment activities and financing activities.
$$Mediator_{i,t} = \beta_0 + \beta_1 OC_{i,t} + \beta_2 CONTROL_{i,t} + \beta_3 YEAR_i + \beta_4 IND_j + \epsilon_{i,t}$$ (5)

The mediator variables include analyst following (Analyst), total accruals (Accruals), total asset turnover (TAT), and return on assets (ROA).

To test the heterogeneity impact of organization capital on financial constraints, we introduce the characteristic variables of firms (Character) to construct model (6):

$$SA_{i,t} = \beta_0 + \beta_1 OC_{i,t} + \beta_2 Character_{i,t} + \beta_3 OC_{i,t} \times Character_{i,t} + \beta_4 CONTROLV_{i,t} + \beta_5 YEAR_i + \beta_6 \text{IND}_j + \epsilon_{i,t}$$ (6)

The characteristic variables include whether the company is a high-technology firm (H Tech) and firm life cycle (Int, Growth, Mat, Dec), which captures the information asymmetry level, operational efficiency, and financing ability.

### 4. Empirical Results and Analysis

#### 4.1. Summary Statistics and Correlation Analysis

Table 2 lists the statistical results of the main variables. The average percentage of organization capital on assets is 26.3%, which implies organization capital is an important asset for the operation and development of firms, and improving the efficiency of organization capital is of practical significance to the enhancement of corporate value. The statistical significance of the SA indicator is consistent with previous research. The larger the indicator, the more serious the financial constraints problem faced by the enterprise.

Table 3 reports the Pearson correlation coefficients of the main variables. The correlation coefficient between organization capital and financial constraints SA is negative and significant, indicating that, without considering other factors, companies with higher organization capital have lower financial constraints, which is consistent with hypothesis 1. After the VIF test, the max coefficient is 1.42, and the average coefficient is 1.23. There is no severe multicollinearity between the variables.

#### 4.2. Regression Results of Organization Capital and Financial Constraints

The regression results are presented in Table 4. The regression coefficient of OC is significantly negative at the 1% level (−1.267, −0.852, respectively). Companies with higher organization capital have lower financial constraints. The multivariate regression results show that as the accumulation of organization capital investment increases by one standard deviation of 0.188, firms’ financial constraints decrease by approximately 0.160, which is 4.267% of the median financial constraints. After

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**Table 2. Summary statistics.**

| Variable | N   | Mean | SD  | Min  | Median | Max  |
|----------|-----|------|-----|------|--------|------|
| OC       | 6,099 | 0.263 | 0.188 | 0.029 | 0.215 | 1.044 |
| SA       | 6,099 | 3.871 | 1.091 | 1.078 | 3.754 | 7.359 |
| Analyst  | 6,099 | 3.202 | 1.340 | 0.000 | 3.367 | 5.889 |
| Accruals | 4,814 | 0.072 | 0.198 | −4.282 | 0.060 | 1.383 |
| TAT      | 6,099 | 0.712 | 0.533 | 0.006 | 0.602 | 7.871 |
| ROA      | 6,099 | 0.048 | 0.050 | −0.138 | 0.044 | 0.209 |
| LEV      | 6,099 | 0.373 | 0.182 | 0.044 | 0.360 | 0.799 |
| FA       | 6,099 | 0.218 | 0.133 | 0.005 | 0.200 | 0.601 |
| OR       | 6,099 | 0.236 | 1.464 | −0.801 | 0.134 | 8.099 |
| Cash     | 6,099 | 0.174 | 0.136 | −0.145 | 0.132 | 0.928 |
| INV      | 6,099 | 0.062 | 0.053 | 0.001 | 0.047 | 0.251 |
| TOBINQ   | 6,099 | 2.132 | 1.369 | 0.795 | 1.714 | 31.40 |

This table reports the sample size, mean, percentiles, and standard deviations of the sample variables. The sample includes 6,099 observations and 616 listed companies from 2001 to 2019. All continuous variables are winsorized at the 1st and 99th percentiles. The definitions of the variables are presented in Table 1.
the company invests in organization capital, with the accumulation of proprietary knowledge, the optimization of business processes, and the improvement of management level, the financial constraints faced by the company can be alleviated, supporting hypothesis 1.

Investment in organization capital benefits SMEs by alleviating financial constraints, but the excessive investment may not always be as beneficial as the initial investment. Organization capital combines human skills and physical capital into systems for producing and delivering want-satisfying products (Evenson and Westphal 1995). Accordingly, the effect of organization capital relies on the underlying systems and processes of operating, investment, and innovation capabilities that enable them to generate output. The lack of relative human skills or physical capital mitigates the effectiveness of organization capital, especially for SMEs with limited resources.

Table 3. Pearson correlation coefficient.

|       | OC    | SA    | Analyst | Accruals | TAT   | ROA   | LEV   | FA    | OR    | Cash | INV | TOBINQ |
|-------|-------|-------|---------|----------|-------|-------|-------|-------|-------|------|-----|--------|
| OC    | 1.000 |       |         |          |       |       |       |       |       |      |     |        |
| SA    | −0.220| 1.000 |         |          |       |       |       |       |       |      |     |        |
| Analyst | 0.042 | 0.421 | 1.000   |          |       |       |       |       |       |      |     |        |
| Accruals | −0.146 | 0.165 | 0.114   | 1.000    |       |       |       |       |       |      |     |        |
| TAT   | 0.231 | 0.055 | 0.073   | 0.013    | 1.000 |       |       |       |       |      |     |        |
| ROA   | 0.142 | −0.024 | 0.342   | 0.012    | 0.135 | 1.000 |       |       |       |      |     |        |
| LEV   | −0.174 | 0.492 | 0.031   | 0.238    | 0.177 | −0.344| 1.000 |       |       |      |     |        |
| FA    | −0.042 | −0.114 | −0.132  | −0.081   | 0.026 | −0.108| 0.059 | 1.000 |       |      |     |        |
| OR    | −0.054 | 0.083 | 0.001   | 0.123    | 0.069 | 0.077 | 0.041 | −0.030| 1.000 |      |     |        |
| Cash  | 0.150 | −0.247 | 0.101   | −0.105   | −0.040| 0.326 | −0.430| −0.309| 0.002 | 1.000 |     |        |
| INV   | −0.107 | −0.071 | 0.135   | 0.225    | 0.027 | 0.118 | −0.008| 0.345 | 0.042 | −0.027| 1.000|        |
| TOBINQ | 0.223 | −0.276 | 0.017   | −0.078   | −0.058| 0.232 | −0.273| −0.033| −0.012| 0.163 | −0.059| 1.000 |

This table reports Pearson’s correlation matrix among the key variables used in the regression analyses for the 6,099 firm-year observation sample from 2001 to 2019. The bold indicates that the correlation is significant at the 10% level or below. The definitions of the variables are presented in Table 1.

Table 4. Regression results of organization capital and financial constraints.

|       | (1)                          | (2)                          |
|-------|------------------------------|------------------------------|
|       | SA                           | SA                           |
| OC    | −1.267***                    | −0.852***                    |
|       | (−6.17)                      | (−5.52)                      |
| LEV   | 2.724***                     | 0.025***                     |
|       | (15.01)                      | (−2.95)                      |
| FA    | −0.671***                    | 0.153                        |
|       | (−2.95)                      | (0.86)                       |
| Cash  | 0.153                        | 0.982***                     |
|       | (4.12)                       | (2.72)                       |
| INV   | 5.685***                     | 0.155                        |
|       | (11.28)                      | (2.72)                       |
| TOBINQ| −0.155***                    | 3.211***                     |
|       | (−7.51)                      | (11.39)                      |
| CONSTANT| 3.211***                     | 1.943***                     |
|       | (11.39)                      | (5.88)                       |

This table presents the results of examining the influence of organization capital on corporate financial constraints. The dependent variable SA is calculated using Equation (3). The independent variable OC is calculated using Equations (1) and (2). See Table 1 for the variable definitions. Standard errors (reported in parentheses) are clustered by the firm. ****, ***, and * indicates p-values of 1%, 5%, and 10%, respectively.
4.3. Mechanism Analysis

Reducing information asymmetry and increasing operational efficiency are two possible mechanisms for the financial constraints’ mitigation effect of organization capital. As an important factor in the corporate information environment in the capital market, we use analyst following to measure corporate information asymmetry. Accruals also reflect the level of information transparency. Total asset turnover reflects the efficiency of a company’s production and operation, and financial performance is the operating consequence of the combination of various assets. Total asset turnover (TAT) and return on assets (ROA) can be mediating variables measuring operational efficiency.

The regression results in Table 5 indicate that with the increase in organization capital accumulation, the number of analysts following is increased (0.215), the total accruals decreased (−0.086), illustrating a lower level of information asymmetry, and the total asset turnover and return on assets increased (0.534, 0.019), demonstrating higher operational efficiency, thus alleviating the financial constraints faced by firms. Thus, the mechanism test supports hypotheses 2 and 3.

4.4. Heterogeneity Analysis

The influences of organization capital on financial constraints may vary according to firms’ characteristics. Asymmetric information, highly variable returns, and a lack of collateral are three reasons small high-tech firms face severe financing barriers (Carpenter and Petersen 2002). As an important intangible resource for high-tech firms, organization capital can alleviate the financial constraints of high-tech SMEs more effectively. Using model (6), we find that the interaction term (OC×H_tech) is significantly negative at the 1% level (−0.309).

Table 5. Mechanism test.

| Information asymmetry | Operational Efficiency |
|------------------------|------------------------|
|                        | Analyst | Accruals | TAT | ROA |
| OC                     | 0.215** | −0.086*** | 0.534*** | 0.019*** |
|                        | (2.33)  | (−5.75)  | (19.45) | (4.39)  |
| LEV                    | 1.277*** | 0.271*** | 0.681*** | −0.065*** |
|                        | (13.31) | (13.82)  | (17.25) | (−15.66) |
| FA                     | −1.182*** | −0.317*** | 0.172*** | −0.045*** |
|                        | (−7.81) | (−13.64) | (2.97)  | (−8.47)  |
| OR                     | −0.043*** | 0.010*** | 0.021*** | 0.003*** |
|                        | (−2.74) | (2.90)   | (3.15)  | (1.97)   |
| Cash                   | 0.310** | −0.134*** | −0.141*** | 0.049*** |
|                        | (2.27)  | (−4.33)  | (−3.06) | (8.16)   |
| INV                    | 4.657*** | 1.021*** | −0.351*** | 0.125*** |
|                        | (14.96) | (18.10)  | (−2.57) | (9.95)   |
| ROA                    | 10.538*** | 0.224*** | 2.175*** |
|                        | (26.51) | (3.66)   | (17.34) |
| TOBINQ                 | −0.051*** | 0.004*   | −0.023*** | 0.006*** |
|                        | (−3.82) | (1.75)   | (−5.43) | (5.34)   |
| CONSTANT               | 1.434*** | −0.050   | 0.179*  | 0.066*** |
|                        | (5.69)  | (−1.03)  | (1.96)  | (6.37)   |
| N                      | 6,099   | 4,814    | 6,099 | 6,099 |
| YEAR                   | YES     | YES      | YES   | YES     |
| IND                    | YES     | YES      | YES   | YES     |
| Adj-R²                 | 0.249   | 0.174    | 0.239 | 0.233   |

This table reports the effects of the two possible mechanisms of organization capital on financial constraints. The information asymmetry measures are analyst following and total accruals, and the operational efficiency measures are total asset turnover and return on assets. See Table 1 for the variable definitions. Robust standard errors are reported in the parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.
Similarly, owing to resource limitations, confidentiality requirements, and incomplete corporate structure, companies in the introduction and growth stages often face higher financial constraints (Berger and Udell 1998; Dickinson 2011). We argue that the mitigating effect of organization capital on financial constraints is stronger for these companies. The regression results are presented in Table 6. For firms in the growth stage, the interaction term is significantly negative at the 1% level (−0.432), and organization capital has a stronger mitigation effect on financial constraints. The detailed analyses are presented in the supplementary document.

5. Robustness Tests

Endogeneity problems may bias the sign, size, and statistical significance of the regression results. To further alleviate potential endogeneity problems, we adopt various methods, including instrumental variable regression, propensity score matching, other model specifications, and alternative measures of key variables. These results are consistent with the main regression results. The detailed steps and results are presented in the supplementary document.

6. Research Conclusions

Financial constraints have always been a pivotal problem that hinders the operation and development of enterprises, especially for SMEs with fewer fixed assets and higher operational risk. This study empirically examines the relationship between organization capital and corporate financial

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Table 6. Heterogeneity analysis.

|                | (1)          | (2)          |
|----------------|--------------|--------------|
|                | SA           | SA           |
| OC             | −0.624***    | −0.795***    |
|                | (−6.30)      | (−6.94)      |
| H_tech         | 0.093**      |              |
|                | (2.13)       |              |
| OC×H_tech      | −0.309***    |              |
|                | (−2.70)      |              |
| Intro          |              | 0.256***     |
|                |              | (3.63)       |
| OC×Intro       | −0.335       | (−1.25)      |
| Growth         | 0.309***     | (6.31)       |
| OC×Growth      | −0.432***    | (−2.94)      |
| Mat            | 0.124**      | (2.33)       |
| OC×Mat         | 0.193        | (1.39)       |
| Dec            | −0.156       | (−1.15)      |
| OC×Dec         | 0.569        | (1.55)       |
| CONSTANT       | 1.898***     | 1.877***     |
|                | (12.48)      | (12.18)      |
| N              | 6,099        | 6,099        |
| Control        | YES          | YES          |
| YEAR           | YES          | YES          |
| IND            | YES          | YES          |
| Adj-R²         | 0.505        | 0.509        |

This table reports the results for the heterogeneous effect of organization capital on financial constraints under different firm characteristics. The firm characteristics include (1) whether it is a high-tech firm and (2) a firm’s life cycle. See Table 1 for the variable definitions. Robust standard errors are reported in the parentheses. ***, **, and * indicates p-values of 1%, 5%, and 10%, respectively.
constraints. Selecting SME board-listed companies on the Shenzhen stock exchange from 2001 to 2019 as a sample, we find that the financial constraints of high-organization capital companies are lower, and the research conclusion remained robust after a battery of sensitivity tests.

Furthermore, we study the mechanisms of organization capital on financial constraints and find that with an increase in organization capital accumulation, the number of analysts following is increased, the total accruals decreased, and the total asset turnover and return on assets increased, demonstrating that information asymmetry and operational efficiency are two possible mediators. We examine the heterogeneity effect of organization capital on financial constraints. For high-tech firms and those in the growth stage, organization capital has a stronger mitigation effect on financial constraints.

Organization capital is an intangible resource and capability that can effectively alleviate financial constraints while decreasing the marginal effects. The company should focus on the budget and management of the organization capital investment to improve its use efficiency. There are two premises for this: First, the company has stronger control over internal investment than other financial constraint mitigation measures. Second, the retention of organization capital through accumulation and depreciation implies that the management and maintenance of organization capital can help increase the conversion rate of expenses, extend working years, and improve the investment value of organization capital. The importance of SMEs in the economic system is gradually increasing from banks’ and other fund providers’ perspectives. With the continuous development and change in business models and asset structures, SMEs’ bank loan businesses have become more complex. Greater attention to organization capital and other intangible resources may improve their ability to identify and evaluate loans or investment risks.

**Notes**

1. [http://www.china.com.cn/lianghui/news/2021-03/08/content_77287627.shtml](http://www.china.com.cn/lianghui/news/2021-03/08/content_77287627.shtml)
2. [http://www.gov.cn/banshi/2010-07/02/content_1644120.htm](http://www.gov.cn/banshi/2010-07/02/content_1644120.htm), [http://www.gov.cn/zhuanti/2015-12/14/content_5023883.htm](http://www.gov.cn/zhuanti/2015-12/14/content_5023883.htm), “Guiding Opinions on Vigorously Developing Credit Guarantee Insurance Services and Supporting Small and Micro Enterprises”
3. The depreciation rate of R&D investment is in a range of 11%–26% and 15% is commonly used in existing studies (Corrado, Hulten, and Sichel 2009). Following Li and Wu (2021), we replace the depreciation rate as 10%, 20%, and 25% to exclude possible deviation of organization capital proxy in robustness checks.
4. Hadlock and Pierce (2010) cast serious doubt on the validity of popular measure of financial constraints and propose a particularly useful predictor based on the firm size and age, the SA index.

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