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A Meta-analysis of the Relationship between Organizational Improvisation and Performance

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Abstract

A growing number of studies argue that organizational improvisation is increasingly important for the competitive advantage of firms. Given growing interest in organizational improvisation, this paper proposed a framework for its outcomes and tested it using meta-analysis. Based on analysis of 49 correlations from 48 studies on the topic, the paper offered much needed clarity. The research results indicated that organizational improvisation-performance link was positive and significant. Results also showed that this relationship is context dependent. Using sub-group analysis and meta-regression analysis, the paper identified some moderators affecting this relationship. Factors such as the cultural context, the data source and improvisational measuring dimensions affected the impact of organizational improvisation on performance to a large extent. In addition, there wasn't publication bias in this study through the analysis of funnel plot, Begg's rank correlation test and Egger's regression analysis. Based on these findings, we developed recommendations for future research.

Key words: ORGANIZATIONAL IMPROVISATION, ORGANIZATIONAL PERFORMANCE, INNOVATIVE PERFORMANCE, META-ANALYSIS, HOMOGENEITY ANALYSIS, MODERATOR ANALYSIS, PUBLICATION BIAS.

1. Introduction

The roots of improvisation come from the Latin derivative "proviso" which means to stipulate beforehand or to foresee. "Im" means "not", i.e., the negation. Hence, the word improvisation can be interpreted to mean unforeseen or to take action in the moment. Improvisation is a common phenomenon in music and theater, which has been attracted attention in recent decades by the field of management scholars. A major milestone for research in improvisation occurred at the Academy of Management meeting held in 1995 in Vancouver. Hatch, Barrett and some other scholars explore the use of jazz as a metaphor for understanding organization and improvisation, these motivated several research studies which, in 1998, resulted in a special issue of *Organization Science* devoted to organizational improvisation. Since then, a stream of articles has poured into the literature on issues ranging from organization learning [1], strategy management [2], organizational change [3], innovation management [4], entrepreneurship management [5], and project management [6] and so on, which indicates that the improvisation research has entered the mainstream filed of management.

Some researchers have showed the role of individual improvisation in an organization. Individual improvisation can be related to internally focused project outcomes [7], and have a positive relationship with entrepreneur work satisfaction [8], new venture performance [9] and innovative performance [10]. In addition to studies of individual improvisation, a large number of studies have focused on the improvisational behavior in organizational level. Organizational improvisation is not only the sum of the individual contributions and affected by many factors, which may make things complicated between the two variables. So it is necessary to conduct an in-depth

study and analyze the relationship between organizational improvisation and performance in a more comprehensive way based on even many researches to reach much more consistent findings, and explore what causes inconsistency among these results from various studies.

Meta-analysis is to dissect a literature using statistical procedures and econometric techniques that help to quantify key relationships. This enables valid inferences to be drawn, rather than relying on subjective interpretations that necessarily follow from traditional qualitative literature review. To perform this analysis, this paper is organized as follows. In section 2, a series of research hypotheses are propounded on the basis of the theoretical review proposed. Section 3 introduces some main ideas of meta-analysis and shows the process of collecting and dealing data. Section 4 gives the result of the meta-analysis based on the collected literatures and discusses acquired results. Finally, section 5 concludes this paper and lays out the directions for further work.

2 Theory and hypotheses

2.1 Organizational improvisation and performance

The most attractive outcome is flexibility, which is then followed by learning, motivation and affective outcomes [11]. Improvisation can generate new solutions to new tasks or problems. Organizations whether it is due to poor planning in advance or emergencies, and improvisational abilities are essential in the face of changes of external environment. It is however suggested that an ability to adapt and move quickly to respond to changing conditions, as provided by improvisation, could entail positive benefits for performance. This leads us to hypothesize:

H1. The relationship between organizational improvisation and performance is positive.

2.2 Theoretical moderators

2.2.1 National culture

National culture have a tremendous influence on the propensity to improvise through the way people in the organizations share values, engage in information exchange processes, and the level of trust and commitment among organizational members[12]. Individualism is characterized by self-interest seeking and loose ties, whereas collectivism seeks group interest. This leads us to hypothesize:

H2. The positive relationship between organizational improvisation and performance is stronger in collectivism culture context.

2.2.2 Industrial characteristics

The dynamism and uncertainty of the environment have already been identified as impacting upon the incidence of improvisation [13]. In practice, the organizations in different industries will face different market and technological environment. High-tech industries have more uncertainty and dynamism environment. This leads us to hypothesize:

H3. The positive relationship between organizational improvisation and performance is stronger in high-tech industry.

2.3 Methodological moderators

2.3.1 Data resource

The variability among the results of empirical research can be influenced by the data resource. When using a single source of data, common method variance will change the strength of association between variables. On the contrary, when using multiple sources of data, common method variance will be reduced or even eliminated [14]. This leads us to hypothesize:

H4. The positive relationship between organizational improvisation and performance is stronger with multiple sources of data.

2.3.2 Improvisational dimension

Compared with the single dimension construct, multidimensional constructs can be more fully and truly reflect the complex psychological phenomenon, and researchers can explore the relationship in a broader scope [15]. This leads us to hypothesize:

H5. The positive relationship between organizational improvisation and performance is stronger using the multidimensional measurement of organizational improvisation.

2.3.3 Performance type

Due to the characteristics of creativity, improvisation will play an active role in the creative process. At the same time, the results of prior meta-analysis also showed that organizational improvisation had a positive impact on product innovation performance [16]. This leads us to hypothesize:

H6. The positive relationship between organizational improvisation and innovative activity performance is stronger than the positive relationship between organizational improvisation and non-innovative activity performance.

3 Data and methods

3.1 Search strategy and inclusion criteria

To identify relevant studies, we employed several search techniques. First, we consulted computerized databases (Emerald, EBSCO, Elsevier Science, John Wiley, SAGE Premier, Google Scholar, and CNKI) using the search terms improvisation, improvisational, improvise and improvising in organization and management filed. No limitations were placed on the year of publication. To reduce publication bias, we also searched for unpublished studies. Second, we scanned reference lists of relevant articles. Altogether, these procedures resulted in the initial identification of 254 potentially eligible studies.

To be included in our meta-analysis, studies had to meet four criteria. First, we only considered studies examining the organizational improvisational behavior. Studies focusing on individual level were thus excluded. Second, studies needed to be empirical research, in which dependent variables must be performance indicators and independent variables must include organizational improvisation. Third, included studies had to report a Pearson correlation for organizational improvisation and a unit-level performance, or data from which a correlation could be derived, as well as sample size. Fourth, studies had to employ independent samples. If the same dataset was used more than once but included different variables, we maintained the effect sizes separately.

Applying these criteria, our final search resulted in 48 primary studies (of which 32 are journal articles, 7 are conference articles and 8 are thesis) with 49 independent samples involving a total of 7886 observations. Table 1 gives an overview about the included empirical studies.

3.2. Coding and measures

The main constructs examined in the primary studies and the way we coded them are showed in Table 1. To improve coding reliability, the first and second author both coded the studies. In the few cases where there was disagreement, we resolved it through discussion.

3.2.1 Organizational improvisation

Multi-disciplinary scholars have described improvisation: improvisation is a convergence of composition and execution [65], improvisation is the spontaneous and creative process of attempting to achieve an objective in a new way [66], organizational im-

provisation is the conception of action as it unfolds, by an organization and/or its members, drawing on available material, cognitive, affective and social resources [11]. Although these definitions are discussed from different angles, but the main characteristics of improvisation have been defined. Accordingly, the scholars also measure the improvisation from one dimension to multi dimensions.

3.2.2 Organizational performance

Organizational performance is a multidimensional construct that has been measured using a variety of indicators. In this regard, researchers should distinguish between financial and nonfinancial performance measures [67]. Accordingly, we coded studies based on two types of performance: innovative performance and non-innovative performance.

Table1. Summary of samples and variables codes for studies included in the meta-analysis

| Author(Year) | Sample | Industry | Culture | Source | Improvisation | Performance | <i>r</i> |
|-----------------------|--------|----------|---------------|--------|---------------|----------------|----------|
| Eisenhardt (1995)[17] | 72 | High | Collectivism | Multi | Multi | Innovative | 0.160 |
| Moorman (1998)[18] | 107 | Low | Individualism | Single | One | Innovative | 0.090 |
| Taikonda (2000)[19] | 120 | Low | Individualism | Single | Multi | Innovative | 0.217 |
| Akgun (2001)[20] | 89 | High | Individualism | Multi | One | Innovative | 0.140 |
| Vera (2001)[21] | 30 | Low | Individualism | Multi | Multi | Innovative | 0.550 |
| Akgun (2002a)[22] | 124 | High | Individualism | Single | One | Innovative | 0.090 |
| Akgun (2002b)[23] | 354 | High | Individualism | Single | One | Innovative | 0.110 |
| Lewis (2002)[24] | 79 | Low | Individualism | Single | Multi | Innovative | 0.034 |
| Koberg (2003)[25] | 192 | High | Individualism | Single | One | Innovative | 0.080 |
| Thieme (2003a)[26] | 128 | Low | Collectivism | Single | One | Innovative | 0.320 |
| Thieme (2003b)[26] | 64 | Low | Collectivism | Single | One | Innovative | 0.570 |
| Kyriakos (2004)[27] | 138 | Low | Individualism | Single | One | Innovative | 0.017 |
| Nunez (2004)[28] | 414 | High | Individualism | Single | One | Innovative | 0.057 |
| Slotegraaf (2004)[29] | 186 | Low | Individualism | Single | One | Non-innovative | 0.005 |
| Samra (2005)[30] | 129 | High | Individualism | Multi | Multi | Innovative | 0.316 |
| Vera (2005)[31] | 38 | Low | Individualism | Multi | Multi | Innovative | 0.160 |
| Vincent (2005)[32] | 20 | High | Individualism | Single | One | Non-innovative | 0.050 |
| Akgun (2006)[33] | 165 | High | Individualism | Single | One | Innovative | 0.160 |
| Akgun (2007)[34] | 197 | High | Individualism | Single | One | Innovative | 0.100 |
| Salomo (2007)[35] | 132 | Low | Individualism | Single | One | Innovative | -0.300 |
| Souchon (2007)[36] | 198 | Low | Individualism | Single | Multi | Non-innovative | 0.136 |
| Magni (2008a)[37] | 53 | High | Individualism | Multi | Multi | Innovative | 0.300 |
| Magni (2008b)[38] | 71 | High | Individualism | Multi | Multi | Non-innovative | 0.280 |
| Samra (2008a)[39] | 55 | Low | Individualism | Multi | Multi | Innovative | 0.026 |
| Samra (2008b)[40] | 392 | High | Individualism | Multi | Multi | Innovative | 0.047 |
| Stockstrom (2008)[41] | 475 | High | Collectivism | Single | One | Innovative | -0.315 |
| Arshad (2009)[42] | 128 | High | Collectivism | Single | Multi | Non-innovative | 0.297 |
| Kang (2009)[43] | 188 | Low | Collectivism | Single | One | Innovative | 0.138 |
| Pavlou (2009)[44] | 180 | Low | Individualism | Single | One | Innovative | 0.340 |
| Samra (2009)[45] | 128 | Low | Individualism | Single | Multi | Innovative | 0.099 |
| He (2010)[46] | 147 | High | Collectivism | Single | Multi | Innovative | 0.350 |

| | | | | | | | |
|---------------------|-----|------|---------------|--------|-------|----------------|--------|
| Liu (2010)[47] | 272 | Low | Collectivism | Single | One | Non-innovative | -0.225 |
| Qiu (2010)[48] | 86 | Low | Collectivism | Multi | Multi | Innovative | 0.669 |
| Kyriakos (2011)[49] | 132 | Low | Individualism | Multi | One | Innovative | 0.160 |
| Song (2011)[50] | 227 | High | Individualism | Single | One | Innovative | -0.100 |
| Zippel (2011)[51] | 130 | Low | Individualism | Multi | One | Innovative | -0.220 |
| Nunez (2012)[52] | 400 | High | Individualism | Single | One | Innovative | -0.033 |
| Tienne (2012)[53] | 192 | Low | Collectivism | Single | One | Innovative | 0.123 |
| Cai (2013)[54] | 44 | Low | Collectivism | Multi | Multi | Innovative | 0.724 |
| Chen (2013)[55] | 72 | Low | Collectivism | Single | Multi | Non-innovative | 0.217 |
| Ji (2013)[56] | 44 | Low | Collectivism | Multi | Multi | Innovative | 0.311 |
| Magni (2013a)[57] | 48 | Low | Individualism | Multi | Multi | Non-innovative | 0.020 |
| Magni (2013b)[58] | 71 | High | Individualism | Multi | Multi | Non-innovative | 0.280 |
| Ruan (2013)[59] | 209 | High | Collectivism | Single | Multi | Innovative | 0.170 |
| Sheng (2013)[60] | 407 | High | Collectivism | Multi | Multi | Innovative | 0.193 |
| Nemkova (2014)[61] | 200 | Low | Individualism | Single | Multi | Non-innovative | 0.156 |
| Ruan (2014)[62] | 178 | High | Collectivism | Multi | Multi | Innovative | 0.185 |
| Uwe (2014)[63] | 183 | Low | Individualism | Single | One | Innovative | 0.084 |
| He (2015)[64] | 198 | High | Collectivism | Single | Multi | Innovative | 0.715 |

3.2.3 Theoretical moderators

We coded studies according to the sampled countries and industries. Culture is defined by individualism versus collectivism of Geert Hofstede. Sectors are classified as high-technology industries included biotechnology, Internet, software, electronics, computer equipment, and technology consulting services. Low-technology industries included food, restaurant, hotel, agriculture, manufacturing, construction, fashion, and retail [68].

3.2.4 Methodological moderators

First, we coded whether studies carried out on the project level or on the firm level. Second, we classified studies into those using single data source or multi data source to value variables. Third, we classified studies in coding to the measurement of independent and dependent variables.

3.3. Meta-analytic procedures

The current analysis has three main goals: (a) to provide an estimate of the effect size for the relationship between organizational improvisation and per-

formance, (b) to examine any moderator variables that may be associated with differences in effect size noted across studies, and (c) examine whether there is any evidence of publication bias in the research reviewed here.

This paper followed the widely used meta-analytic procedures, including data preparation, calculation and test of the effect size, moderating effects analysis, publication bias analysis and interpretation of results. Statistical analysis of the whole process was performed by the Comprehensive Meta-Analysis 2.0 and Stata.12.

4 Research results

4.1 Main effects and homogeneity analysis

Table 2 and Figure 1 show the results of meta-analysis in this study.

According to the results in Tab.2, the Q value of heterogeneity was 497.840 (p<0.001), which shows that the possibility is available that there is inconsistency among those data.

Table 2. The result of meta-analysis and homogeneity

| Method | r | 95% CI | Z | Q | I ² | Tau ² |
|--------------|-------|----------------|-----------|------------|----------------|------------------|
| Fixed Model | 0.119 | [0.097, 0.141] | 10.537*** | 497.840*** | 90.358% | 0.060 |
| Random Model | 0.160 | [0.051, 0.221] | 4.290*** | | | |

Notes: ***p < 0.001

Generally there are two approaches for meta-analysis: one is the fixed effect model, and the other is the random effect model. For judging which model should be applied in a specific study, it is a common method to compare values of Q and $S-1$ (S is the number of studies to be synthesized). When $Q \leq S-1$, the result generated by the random effect model is similar to that by the fixed effect model; when $Q > S-1$, the random effect model should be used. In this study, $Q=497.840$ while $S-1=49-1=48$, therefore, the ran-

dom effect model should be used and we can choose random effect model to do meta-analysis aiming to correct these influences the heterogeneity brings.

According to the result of random model shown in Tab.2, organizational improvisation was positively linked to performance at the aggregate level ($r=0.166$). A confidence interval not including zero indicated that this effect significantly differed from zero. Hypothesis 1 was supported.

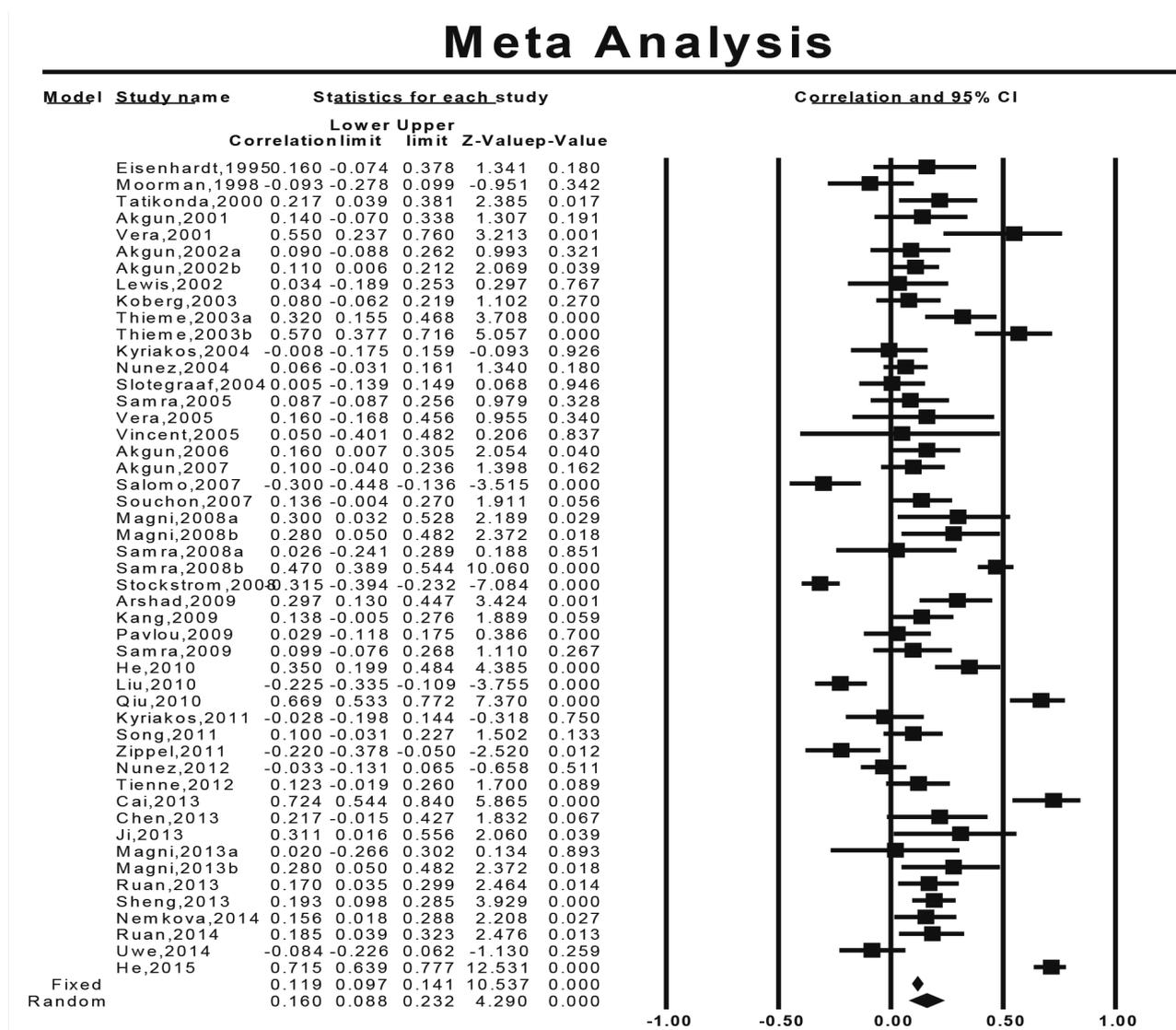


Figure 1. Forest plot of meta-analysis

4.2 Moderating effects analysis

Given that evidence from the tests of homogeneity suggests the presence of moderator variables, several potential moderator variables were tested. In order to carry out an initial test of moderating effects, we applied sub-group analysis and meta-regression analysis. Tables 3 and 4 depicted the sub-group and meta-regression results, respectively. The results of the analyses were consistent.

According to the results of Table 3, organizations based in countries with collectivism culture benefited more from improvisation ($r=0.291$) than organizations operating in countries with individualism ($r=0.088$). All differences relating to culture moderator variables were significant ($Q=4.96$, $p<0.05$). The results of meta-regression in Table 4 showed that the positive coefficient was not significant ($B=0.199$, $t=2.06$, $p<0.05$). Hence, the data strongly supported

Hypothesis 2.

Results of both methods of analyses demonstrated that industry characteristics didn't affect the organizational improvisation–performance relationship significantly. The correlation between organizational improvisation and performance was higher in high-tech industry ($r=0.185$) than in low-tech indus-

try($r=0.137$). However, the difference between high-tech industry and low-tech industry was not significant ($Q=0.428$, $p>0.05$). A non significantly positive coefficient ($B=0.048$, $t=0.64$, $p>0.05$) for industry characteristics in the meta-regression confirmed the results found in the sub-group analysis. Hence, the data strongly didn't support Hypothesis 3.

Table 3. The result of sub-group analysis

| Moderator | K | r | 95% CI | Q-value | I ² | Tau ² | Z-value | Fail-safe N |
|-----------------|----|-------|----------------|------------|----------------|------------------|----------|-------------|
| Overall | 49 | 0.160 | [0.088,0.232] | 497.840*** | 90.358 | 0.060 | 4.290*** | 1736 |
| Culture | | | | 4.96** | | | | |
| Individualism | 32 | 0.088 | [0.025,0.150] | 142.671*** | 78.272 | 0.024 | 2.726** | 263 |
| Collectivism | 17 | 0.291 | [0.124,0.442] | 345.785*** | 95.373 | 0.127 | 3.351*** | 613 |
| Industry | | | | 0.428 | | | | |
| Low-tech | 26 | 0.137 | [0.039,0.232] | 186.669*** | 86.607 | 0.055 | 2.727** | 210 |
| High-tech | 23 | 0.185 | [0.077,0.288] | 300.912*** | 92.689 | 0.064 | 3.335*** | 702 |
| Source | | | | 3.426** | | | | |
| Single | 31 | 0.111 | [0.025,0.196] | 324.432*** | 90.753 | 0.054 | 2.519** | 362 |
| Multi | 18 | 0.251 | [0.130,0.365] | 125.178*** | 86.419 | 0.060 | 3.986*** | 486 |
| Improvisation | | | | 18.057*** | | | | |
| One-dimension | 24 | 0.027 | [-0.049,0.103] | 150.046*** | 84.671 | 0.029 | 0.693 | 0 |
| Multi-dimension | 25 | 0.288 | [0.196,0.376] | 173.146*** | 86.139 | 0.051 | 5.904*** | 1561 |
| Performance | | | | 0.437 | | | | |
| Innovative | 39 | 0.170 | [0.086,0.253] | 452.485*** | 91.602 | 0.066 | 3.917*** | 1312 |
| Non-innovative | 10 | 0.119 | [-0.009,0.244] | 42.264*** | 78.705 | 0.031 | 1.823 | 21 |

Note: ** $p < 0.05$, *** $p < 0.001$

Table 4. The result of meta-regression analysis

| Moderator | B | S.E. | 95% CI | t | Tau ² | I ² | Adj. R ² |
|---------------|--------|-------|----------------|---------|------------------|----------------|---------------------|
| Culture | 0.199 | 0.044 | [0.002,0.180] | 2.06** | 0.052 | 90.38% | 11.75% |
| Industry | 0.048 | 0.076 | [-0.104,0.201] | 0.64 | 0.060 | 90.36% | -0.92% |
| Source | 0.144 | 0.077 | [-0.011,0.299] | 1.86** | 0.056 | 89.55% | 5.18% |
| Improvisation | 0.268 | 0.065 | [0.137,0.398] | 4.12*** | 0.041 | 85.46% | 30.74% |
| Performance | -0.049 | 0.096 | [-0.241,0.144] | -0.51 | 0.060 | 90.50% | -1.97% |

Note: ** $p < 0.05$, *** $p < 0.001$

With regard to data sources used, the hypothesis was strongly supported. The results suggested that organizational improvisation had a higher impact on performance with multi data source ($r=0.251$) than with single data source ($r=0.111$). The difference between single data and multi data was significant ($Q=3.426$, $p<0.05$). Additionally, we performed meta-regression. In Table 4, the meta-regression showed a significant positive coefficient ($B=0.144$, $t=1.86$,

$p<0.05$) for multi data compared to single data. Thus, we found support for Hypothesis 4.

As for measurement of organizational improvisation, Table 3 showed that effect size were larger for studies employing multi-dimensions ($r=0.288$) than for studies using one-dimension ($r=0.027$). The difference was statistically significant ($Q=18.057$, $P<0.001$). The regression analyses further demonstrated that organizational improvisation using multi-dimension had a significantly stronger impact

on performance than organizational improvisation using one-dimension. This result provided support for Hypothesis 5.

In examining the possible moderating influence of performance type, we found no significant differences in effect sizes between studies that employ innovative performance and studies using non-innovative performance ($r=0.170$, $r=0.119$, respectively; $Q=0.437$, $p>0.05$). The results of meta-regression also showed the similar conclusion ($B=-0.049$, $t=-0.51$, $p>0.05$), which didn't support Hypothesis 6.

4.3 Publication bias analysis

Publication bias is the term for what occurs whenever the research that appears in the published litera-

ture is systematically unrepresentative of the population of completed studies.

There is no perfect means of estimating publication bias and there are several methods for estimating publication bias. These methods include visual examination of a funnel plot, the Fail-safe N, Begg's rank correlation test and Egger's Regression, in which the first, the fourth and the fifth are frequently-used. In this study, we used other three methods to analyze the publication bias in addition to the previously mentioned Fail-safe N. The results are showed in Figure 2, Figure 3, Figure 4, Table 5 and 6.

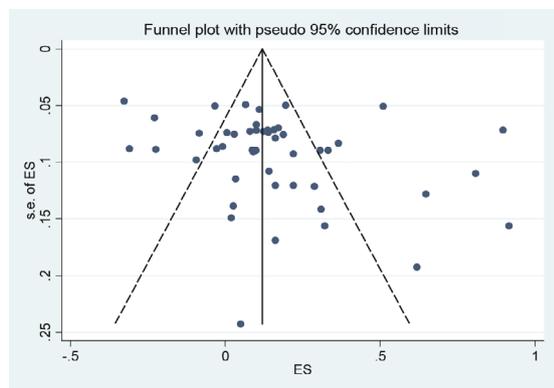


Figure 2. The funnel plot of the meta-analysis

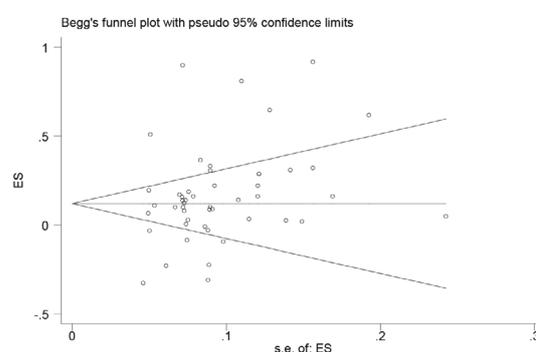


Figure 3. Begg's publication bias plot

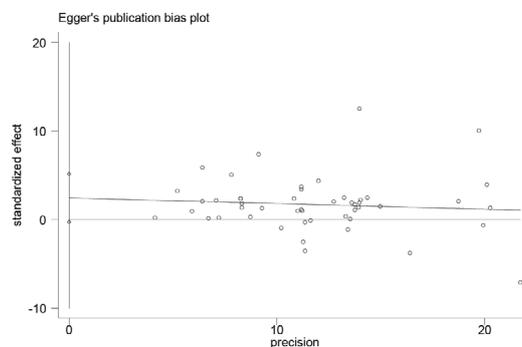


Figure 4. Egger's publication bias plot

Table 5. Begg's Rank Correlation Test

| Kendall's Score (P-Q) | S.D. | Without continuity correction | | With continuity correction | |
|-----------------------|--------|-------------------------------|---------|----------------------------|---------|
| | | Z-value | P-value | Z-value | P-value |
| 225 | 115.97 | 1.94 | 0.052 | 1.93 | 0.053 |

Table.6 Egger's Test of the Intercept

| | B | S.E. | t | p | 95% CI |
|-------|--------|-------|-------|-------|-----------------|
| Slope | -0.064 | 0.108 | -0.59 | 0.556 | [-0.281, 0.153] |
| Bias | 2.447 | 1.353 | 1.81 | 0.077 | [-0.275, 5.169] |

As shown in Fig.2, the studies are distributed symmetrically about the combined effect size, which suggests that there isn't publication bias in this study.

As shown in Tab.5, the Z-value (continuity corrected) is 1.93 and the p-value is 0.053(continuity corrected) in Begg's rank-correlation test, and the plot in Fig.3

is also symmetric, which indicate that no publication bias at the 0.05 level. As shown in Tab.6, the p-value of corresponding slope is 0.556(>0.05), indicating that there isn't significant difference between the intercept and 0, which means the intercept can't be deemed as 0 and the regression line isn't through the point of origin, which is showed in Fig.4. Therefore, there isn't publication bias in this study.

5 Conclusion and future work

This study aggregated empirical evidence regarding the relationship between organizational improvisation and performance. It was directed to uncover whether organizations can benefit from pursuing improvisation. The findings show that organizational improvisation creates value for firm. However, this work also uncovers different factors that influence the strength of the relationship.

Our findings contradict the commonplace assumption that countries characterized by individualism provide more fertile grounds for improvisation. In fact, the improvisation–performance relationship is lowest for companies based in highly individualistic countries such as the U.S. while the greatest positive impact of improvisation on performance is found in Asian countries. Hence, managers in collectivist countries may be well-advised to consider pursuing improvisation behaviors to enhance performance.

Our findings also didn't reveal differences in organizational improvisation performance effects across industries. A logical inference is that the distinction between high and low-technology industries might be too crude to accurately capture industry differences in the external environments. Future research could therefore study how improvisation behaviors might similarly enable managers to navigate different types of industry and identify the implications for performance.

Yet findings also revealed that multi data resource yielded somewhat stronger correlations than single data resource. This is good news from a data collection standpoint, as accurate data aren't often easier to obtain from single responder. One implication is that future research may benefit from using multiple responders.

Our analysis also indicated that the organizational improvisation-performance link was stronger for multi dimensions of improvisation than for one dimension of improvisation. The result suggests that if studies only consider improvisational some characteristics and disregard its other main characteristics, they may risk understanding the true value of organizational improvisation. A direct implication is that future research will benefit from adopting more refined

measures of improvisation.

In examining the influence of performance type, we found that innovative measures and non-innovative yielded similar effect sizes. The result is surprising because innovative activities, by eliciting managers' motivation, may yield finer-grained indicator of improvisation than non-innovative activities asking actors to rely on prior plan. More broadly, however, our findings raise the issue of how the value of existing improvisational scope can be improved. Indeed, organizational improvisation will be regular behaviors to help firm deal with problems and grasp opportunities.

Overall, this study identified a number of important contextual factors that impact the organizational improvisation-performance relationship. In so doing, we hope to foster a more contextual understanding of the improvisation phenomena. We believe that the identified variables are indicators of a variety of salient contextual dimensions; yet, we do not want to suggest that the identified variables are the only ones. More research can be directed at uncovering other moderators and illustrating specific mechanisms how organizational improvisation affects performance.

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