

**Chinese State-owned Enterprises – government
departments or (lumbering) free-marketeers?**

A comparative study of strategic cognition

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A Thesis submitted to Business School, the University of Adelaide, in fulfilment of the
requirements for the degree of Doctor of Philosophy

December 2016

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List of Abbreviations

SOE	State-owned enterprises
POE	Private-owned enterprises
FOE	Foreign-owned enterprises
MNEs	Multinational Enterprises
EMNEs	Emerging country Multinational Enterprises
SO-MNEs	State-owned Multinational Enterprises
SIP	Share Issue Privatisations
FDI	Foreign Direct Investment
M&A	Merger and Acquisition
SASAC	State-owned Assets Supervision and Administration Commission

ABSTRACT

Since the last round of political and academic debates over the privatisation of State-owned enterprises (SOEs) in Eastern Europe in the 1990s, the prominence of SOEs in China and concerns about state capitalism has triggered a new era of disputation amongst policy makers, economists and the public. Whether Chinese SOEs, are more political arms of the China government than free-market, profit-optimising entities is the main focus of western politicians.

In contrast, academic discussion about SOEs has lagged practical interest. Empirical investigations into the direct relationship between firm ownership and cross-border actions and performance have given rise to mixed results. Competing explanations of these results have been based on contrary premises and support has been offered via varied explicit and implicit interpretations of institutional theory. However, where governments believe that profitable SOEs make the state stronger and as hybrid organizational forms of SOEs are increasingly prevalent in the 21st century, the validity of stereotypical assumptions about SOEs becomes questionable.

The SOE debate is back at centre stage. Discussions and investigations of SOEs require an updated research perspective that is able to provide a new thread in its contribution to the academic debate, whilst also addressing the immediate practical concerns.

In order to achieve this aim, rather than applying the traditional top-down approach, this research refer to the work of Weber and Glynn (2006), a micro-level strategic cognitive perspective is connected to the macro-level institutional context to develop a theoretical framework for this study of SOE strategic behaviour. Under this theoretical

framework, this study attempts to understand how the management cognition (micro institution internal to the firm) responds to the macro institutional forces (external to the firm), affecting the firm's strategic behaviour. In particular, managers' convergent interpretations of strategy in the field is argued to reveal the salient institutional dynamics that prompt their collective strategic actions. Revealed collective (strategic) cognition is taken as a tool to tap the nature of the institutional dynamics that embody the imprint of government influence.

This research uses the annual reports of 21 SOEs and POEs in the Chinese auto parts industry from the year 2011.

Both the congruence and variance of the strategic cognitions of these two groups are identified. The findings of a predominantly convergent pattern of strategic thinking add to the explanatory power of institutional theory in firm strategic behaviour. In general, this research shows that under reinforced institutional pressure from the market and government policy, SOEs and POEs in the auto industry share similar strategic mindsets. Rather than being passive government policy-followers, SOEs are also predominantly driven by economic goals, even though SOEs still assume social stability roles and are disadvantaged in market competition through path dependence and organization culture.

The identified convergent salient institution dynamics of SOEs and POEs strategy behaviour also reconcile and extend some of the competing arguments pertaining to the dynamics of SOEs' and POEs' activities. In particular, driving forces of Chinese firms' internationalization are mainly domestic market forces (supply chain and factor market change) rather than government forces.

Practically, the findings of this research address the pressing concerns in host country governments and decision makers in industries in relation to the internationalization ambitions and activities of Chinese SOEs (exemplified as the ‘Trump Hypothesis’).

Methodologically, the integrated application of cognitive based techniques in the Chinese language provides a methodological contribution for future studies.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Acknowledgements

First and foremost, I give my greatest gratitude to both of my supervisors Dr Georges Baume and Dr Chris Smith. I thank their patience, tolerance and encouragement during these years in supporting me to explore the knowledge in depth and eventually finish the study. I benefited a lot in the discussions with them. The most important thing I have learned from them is to be open-minded with independent and critical opinions. My deepest appreciation goes to Dr Chris Smith, who devoted so much time in improving my academic writing.

My sincere thanks to my friends Che Yee Lye and Yu Chen. They have brought in their interdisciplinary ideas, which made the academic discussion with them really eye-opening. Thanks them for reading my work with a fresh and critical mind. Their comments are very helpful.

Many thanks and appreciations to my colleagues and friends in Business school and the University. The discussions with them have been very enjoyable. My study life would never have been so colourful and rich without them. Also, thanks my friends in China, especially Lingfeng Liu, Jing Deng, and Feiyang Li. They provide me variety of supports in my study journey.

I would also like to acknowledge some of the administrative staff of Business school and the University for their support and for making my studying experience in Adelaide so enjoyable. They work hard to make students' life more comfortable. I really admire their professional ethics and kindness.

I am also indebted to the Chinese Government Scholarship Council, South China University of Technology, and the University of Adelaide for providing me with the chance to study here in Australia—a beautiful and peaceful country.

Last but not the least, I express my warmest appreciation to My parents for their support and encouragement. Their positive attitude towards life is always a great source of inspiration for me. My deepest thanks to Uncle Li and my cousin Cuixiang Li for their trust and support for my study trip in Australia.

Chapter 1 Introduction

1.1 Background of the research problem

1.1.1 Definition and clarification of terms

State capitalism

The term state capitalism originated in the 19th century and is used to describe an economic system in which commercial activities are undertaken by the state, as contrasted with taking place in the free market. State capitalism peaked in Europe when governments nationalized firms in the middle 1970s . In the 21st century, following the global financial crisis, new forms of state capitalism have arisen in both developed and developing countries (Bremmer 2010; Musacchio & Lazzarini 2014). Musacchio et al. (2014) summarized these new forms and updated the definition of state capitalism as *“the widespread influence of the government in the economy, either by owning majority or minority equity positions in companies or by providing subsidized credit and/or other privileges to private companies”* (p.12).

State-owned enterprises (SOEs)

In order to capture the changing landscape of state ownership in the 21st century, this research follows the OECD’s (2009b, 2014, 2016) broader definition of state-owned enterprises (SOEs). SOEs in this research are state-owned and state-holding enterprises, which include wholly state-founded firms and the firm whose majority share directly or indirectly belongs to the government (OECD 2009b). For non-wholly state-founded firms, ownership is classified by tracking the actual owner revealed in the ownership hierarchy (OECD 2009b).

Hybrid organization form

Consistent with the definition of SOEs, a hybrid organization form (Bruton et al., 2015) is another trend of SOEs evolution in the 21st century (OECD 2016). Rather than being wholly funded by the state, private ownership and foreign ownership are also part of the ownership hierarchy (although the actual owner in terms of ultimate control of the enterprise is still the state). Normally SOEs listed on the stock market are hybrid organizations. The hybrid SOEs in this research are all listed firms, and the term ‘listed SOEs’ is also used in this thesis.

1.1.2 Practical issues: The rise of SOEs and state capitalism

The rise of hybrid SOEs in the 21st century, and their growing influence on domestic economies as well as international trade and investment has triggered another round of disputes about SOEs among both policy makers and the public. Whereas the SOEs centered debate in the 20th century focused mainly on privatization and market-oriented economic reforms, the current round of SOEs centered issues have brought strong political connotations to the term ‘state capitalism’ (Economist 2012a), particularly for SOEs from China. This new concern about foreign SOEs has prompted inward foreign direct investment (FDI) policy changes in many developed countries and ignited multiple world trade disputes (Kowalski & Perepechay 2015).

More recent examples of political obstruction to the international growth of China companies are many and include:

- On the 3rd December 2016 US President Obama blocked Chinese company Fujian Grand Chip’s proposed acquisition of Aixtron SE, a German maker of semiconductor manufacturing equipment, on the grounds of ‘national security risk’ (Mozur 2016).

- In November 2016 the Australian government blocked attempts by the Chinese investment company Genius Link Asset Management (GLAM), in competition with Shanghai Pengxin, to purchase S. Kidman and Co Limited, the owners of the largest set of cattle stations in Australia. It was deemed by the Treasurer, Mr. Scott Morrison to be ‘contrary to the national interest’ to allow Chinese interests to purchase 2.5% of Australian agricultural land (Clint & James 2016).
- In August 2016 the Australian Government blocked an \$A10 billion deal to lease its biggest electricity grid in New South Wales to China and Hong Kong-based investors on the grounds of ‘national security’ (Brook 2016). This followed the UK’s decision to delay Hinkley Point nuclear power station following the US authorities decision to lay espionage charges against China General Nuclear Power (CGN), the company that would have had a one-third stake in the Hinkley Point project. Again ‘national security’ was cited as the reason for the delay (Ganga 2016).
- In another context, the Australian Labour Party Senator Sam Dastyari was forced to resign from the front bench of the opposition party for having accepted a donation of \$1670 for travel expenses from a Chinese company. It was argued to be an example of the increasing development of ‘soft power’ (Nye 1990) by China-based companies (Anthony & Sarah September 2, 2016).

These issues are a manifestation of the belief by international governments that Chinese firms, and particularly Chinese SOEs, are more a policy arm of the China government than they are ‘pure’ market-based enterprises. Such a viewpoint, incorporating systematic currency manipulation and predatory pricing, has been loudly espoused during his recent election campaign by the US President-elect Mr. Donald Trump

(Vaishampayan 2016). The ‘Trump Hypothesis’ is used as shorthand for the idea (accusation?) that Chinese companies are arms of the Chinese government.

Most of the rhetoric in the political domain can be argued to be at the level of populist assertion and suspicion. However the fact that Chinese SOEs are claimed by Western economists to be inefficient, bloated behemoths and only remain economically viable due to bailouts and government subsidies(Economist 2015b), lends weight to the claim that such firms are indeed political more than market entities.

On the contrary, the less severe recessions and quicker recovery in most large emerging economies where effective state control is the norm, seems to support their government officials’ claims about the legitimacy of SOEs as primarily being market driven (Kose & Prasad 2010). In addition, SOEs’ cross-border investment appears to be a global phenomenon that transcends political motives according to world investment reports (UNCTAD 2011).

In sum, a key practical issue embedded in the current practical controversy is the extent of political motivation of China SOEs’ strategic behavior. So a broad question about China SOEs and their strategic behavior in their national and international industries is: *Does ownership matter for firms’ strategic orientation?*

1.1.3 Unsatisfactory answers from academic discussion

Bruton, Peng, Ahlstrom, Stan and Xu (2015) suggested that the rise of SOEs in the 21st century has received scant attention from scholars, and in particular, the hybrid organization form of SOEs existing in many countries has gone relatively unnoticed. However, conventional research into SOEs, while establishing stereotypical assumptions of strategic behavior, relies on arguments that remain unresolved. Over two decades of research has accumulated mixed results in terms of the relationship between

ownership and performance with competing explanations based on New Institutional Economics.

More recent international business studies have begun to investigate the relationship between state ownership and cross-border activities. Institutional theory is also the main theoretical tool used to explain the variations between SOEs and POEs. However, the assumption that ownership is directly linked with firm internationalization is challenged by findings of the convergence of SOEs' and POEs' internationalization strategies (Estrin, Meyer, Nielsen & Nielsen 2016).

These conflicting arguments are difficult to falsify due to the immeasurable nature of core explanatory constructs (such as agency costs). The dominant hybrid organizational form of SOEs in the 21st century brings further challenges to the resolution of competing logics.

These mixed results and competing arguments are closely related to the conflicting assumptions explicitly or implicitly adopted by researchers, whereby overarching institutional theories are interpreted in different ways to support contradictory empirical results. While state ownership is used as a common proxy to explain or predict firms' action or performance, a top-down application of institutional theory prevails in the discussion of SOEs but does not necessarily add new knowledge or understanding.

1.2 Rationale of this study: A bottom-up approach of institutionalism to understand SOE strategic behavior

The institution-based view is a theoretical perspective that takes into account the role of context in firms' strategic behavior and is recognized as the third most dominant

perspective in strategic management (Peng, Sunny, Brian & Hao 2009). This theoretical thread is followed in this thesis. However, instead of relying solely on a top-down perspective, this research aims to move a step lower to understand how managers make sense of the macro-level institutional context and respond to it.

This corresponds to the call for ‘bring agency back’ into neo-institutionalism (Suddaby 2010), and integrates a micro-level strategic cognitive perspective (Narayanan, Zane & Kemmerer 2011) with the macro-level institutional antecedents of firms’ strategic responses (DiMaggio & Powell 1983; Oliver 1991, 1992). Sensemaking, enabled by two major strategic cognitive structures (organizational identity and strategic frame), plays a major role as a mediator to bridge the macro-level institutional context and firm actions formation to result in the firm’s strategic responses (Weber and Glynn, 2006). This integrated framework offers a theoretical foundation for a bottom-up approach to analyse institution dynamics that drive firm strategic behavior.

This research aims to gather evidence (necessarily partial and specific) to address two theoretical questions that are closely related with the practical concerns of SOEs:

- What salient institutional dynamics drive the strategic responses of SOEs and how is this manifested?
- How do these institutional dynamics and strategic responses resemble or differ between SOEs and POEs?

The answer to these two questions also have important practical implications to the ‘Trump hypothesis’ that is prevailing among western politicians more recently.

1.3 Research method

Based on an integrated micro-macro-level institutional framework, the underlying theoretical assumption of the research method is that a convergent collection of sensemaking content reveals the prominent institutional dynamics in the field (Weber & Glynn 2006). The collective strategic cognitive maps of SOE and POE groups are constructed. Central aspects of sensemaking (i.e. perception-interpretation-solution) are taken as the framework to organize the map construction and the ensuing comparative analysis (Weick, 1995). Macro-level institutional antecedents proposed by Oliver (1991) are used to frame the institutional pressures that firms have perceived.

This bottom-up design contextualizes managers' thoughts in their local institutional setting. How institutions enter into managerial sensemaking and lead to strategic choices is expressed in the map. A textual analysis method that is widely used to understand how people make sense of the world is applied (Botan, Frey & Kreps 2000). The 'management discussion and analysis' section of the annual report is used as the primary textual data source. This is consistent with other studies of strategic cognition (e.g. Kiss & Barr 2015; Marcel, Barr & Duhaime 2011; Nadkarni & Barr 2008).

Casual mapping is the main technique applied to construct and compare collective strategic cognitions for the SOE and POE groups. Compared with conventional content analysis, this map-based analysis is theoretically supported by cognitive psychology, network analysis and artificial intelligence to represent mental models and human cognition (Carley & Palmquist 1992). In order to support the identification of a common or central cognitive map between the SOEs and POEs groups, which thus determines the extent of similarity between them, the toolkit view of culture which is also derived from cognitive theory, is referenced (Swidler 1986; Weber 2005). Several techniques

developed by Weber (2005) are borrowed to facilitate comparison of the extent of similarity or difference between POEs and SOEs

In terms of sampling, China as the main subject of the practical debate is chosen for the country context. As a single industry provides ‘natural controls’ (Peteraf & Shanley 1997, p. 183), this research follows Peng, Tan and Tong (2004)’s work in focusing on one specific industry in China. With respect to benchmarks and sample matching considerations, the ratio balance between the core group of SOEs and POEs in the industry, and the globalized nature of the industry and its relative importance to the national economy need to be taken into account. Based on these requirements, 21 core auto parts firms comprising 12 SOEs and 9 POEs were selected from the Osiris database. The point of redundancy assessment indicates that this sample size is sufficient to exhaust the concepts and concept linkages in the map.

The actual controller reported in the annual report is used to classify firms as either SOEs or POEs. This criterion captures the hybrid organizational form. Since the research program started in 2012, annual reports for the 2011 business year were used as the data source. This cross-sectional analysis is conducted because of the pragmatic consideration that textual analysis is extremely time-consuming, and, as causal mapping technique takes into account the meaning of the text, computer auto processing is not applicable (Carley 1993; Isaac, Dawoe & Sieciechowicz 2009).

1.4 Findings and conclusions

(1) Findings summary

Based on the cognitive map analyses results, it was found that in competitive industries (like auto parts), a core strategic cognitive map exists that is common to listed SOE and POE groups. The strategic mindset of listed SOEs is similar to that of listed POEs,

indicating that, in common with POEs, listed SOEs are organizations predominantly driven by economic goals. In particular, neither group of firms responds to coercive government pressure (e.g. legal enforcement of environmentally friendly policy) directly. Instead, it is the combined pressures from multiple institutional constituents that push the firms to the edge of loss, become the antecedents of a shared strategic solution to upgrade.

Consistent with these findings, the results of the map analysis have several implications for the performance and internationalization literature on SOEs, and answer the theoretical question underpinning it.

- Key findings: SOEs and POEs have convergent strategic mindsets. Rather than being a passive government policy-follower, SOEs are predominantly driven by economic goals within the context of an overall mission of promoting social stability.
- In a competitive industry, ownership per se does not impact SOEs' strategy making. Instead, it is the (path dependent) issue of slack organizational culture impeding efficient strategy implementation, as well as the imposed social burden (e.g. keeping redundant employees) that disadvantage SOEs compare with POEs in market competition.
- In a competitive industry, ownership does not prominently differentiate firms' strategic choice to internationalize.

Both SOEs and POEs are compelled to go overseas due to the uncertain macroeconomic context and combined institutional pressures that lead to economic and resource losses. The motivation for firms'

internationalization is not to conform to government policy (such as ‘go global’), but to escape a negative economic environment and deinstitutionalize their action patterns to deal with a context of predominant threat, i.e. it is an economic and not a political decision to move into new international arenas.

Particularly for the market pressure aspect, instead of exploiting their conventional country-specific advantage, it is the loss of this advantage (e.g. labor costs) that pushes SOEs to go overseas, however, there are countervailing forces as internationalization is discouraged by the large scale of the domestic market.

- Both SOEs and POEs benefit equally from political capital if they synchronize with the government’s economic strategy. This is, however, a general finding for all firms and is not particular to China.

(2) Implications to overall research question

The findings indicate that ownership is less important for Chinese firms’ strategic behavior than is claimed by international (political and economic) critics. In competitive industry, although SOEs still bear social stability burden, both SOEs and POEs have similar strategic responses to government policy, that is, to avoid government policy that is harmful to the firm’s economic performance and its market resources. So the fear of SOEs’ overseas expansion as a manifestation of the China government’s political aims is unfounded. A more accurate interpretation might be that both Chinese SOEs and POEs are operating within the framework of the Chinese economy as other SOEs and POEs do in their own home countries.

(3) Contributions summary

Theoretically, Corresponding to the call to bring ‘agency’ back in neo-institutionalism (Suddaby 2010, p. 17), this research extends the application of neo-institutional theory to the discussion of SOEs’ strategic behavior by adopting a bottom-up approach of institutional theorizing. In general, DiMaggio et al. (1983)’s institutional isomorphism is supported. In a competitive industry where SOEs and POEs coexist, their core strategic orientations are indistinguishable from each other.

While the overall conclusions are consistent with the homogeneity pressures posited by Dimaggio et al (1983), the more detailed results of the map comparisons add a configuration of local institutional antecedents and cognitive underpinnings to the predictive model of heterogeneity proposed by Oliver (1991, 1992). These configurations and cognitive underpinnings partly resolve the contradictions between the two perspectives (homogeneity vs. heterogeneity). Based on the findings, four propositions are derived to delineate how configurations of institutional antecedents and cognitive underpinning are likely to lead to either heterogeneous or homogeneous strategic responses.

Empirically, the map analysis results reconcile the competing arguments in the discussion of SOEs and extend the explanation of SOEs’ internationalization.

Methodologically, this research has demonstrated how to integrate several techniques from cognitive theory-based perspectives to benefit the analysis of firm-level strategic behavior. In particular, the English language-based cognitive analysis is extended into the Chinese language context providing support for future Chinese context-based analysis.

1.5 Thesis structure

In the following chapters, the content included in this introduction is expanded. The research background in Chapter 2 raises the research problem about SOEs in light of the recent international non-academic debate.

Chapter 3 summarizes the macro (top-down) dynamics of institutionalism as related to the discussion around SOEs. It reviews the dominant arguments and explanations about the relationship between ownership and firms' internationalization and economic performance. The issues of conflicting assumptions and the insufficiency of the top-down approach to address institutional complexity are raised.

Chapter 4 elaborate the supplementary bottom-up model of institutionalism. It begins with reviewing the strategic cognition perspective as the micro-foundation of institutional theory in strategy analysis. An interactive model of micro-level sensemaking (enabled by strategic cognition structures) and macro-level institutionalism is built up as a theoretical framework to pave the way for the research design.

Chapter 5 clarifies the philosophical position of this research, as well as elaborating the descriptive research design. In particular, causal mapping techniques, as well as other supporting techniques, are introduced.

Chapter 6 elaborates the first part of the data analysis process for developing collective strategic cognitive maps.

Chapter 7 is the second part of the data analysis. It demonstrates how collective strategic cognitive maps are compared between SOEs and POEs group.

Chapter 8 visually represents, summarizes and discusses the map comparison results. A methodological evaluation that addresses the reliability and validity of the analysis is also demonstrated.

Chapter 9 integrates the findings to arrive at overall conclusions. Theoretical, empirical, methodological, as well as practical implications are provided. The limitations of the research and potential future directions are also briefly discussed.

Chapter 2 Research background: SOE - economics or politics?

“It would rarely be in Australia’s national interest to allow a foreign government or its agencies to control an Australian business”, (Tony Abbott PM Australia) - The Australian (Packham 2012).

At a practical (and implicit) level this research study is partially testing the ‘hypothesis’ that Chinese firms that are majority controlled by the Chinese government are ipso facto arms of that government (the ‘Trump Hypothesis’).

Since the last round of debates concerning SOEs privatisation in the 1990s, the growing influence of the State in economic activity and the increasing presence of SOEs in cross-border activities has stimulated argument from both policy makers and the public (Economist 2012c, 2014; Kurlantzick 2012). The Trump proposition and the Abbott quote (above) are examples of the increasing concerns of Western politicians about Chinese SOEs and the rise of state capitalism in the 21st century.

2.1 SOEs in the global economy in the 21st century

SOEs continue to play an important role in the global economy (OECD 2014). They generate 10% of world GDP, contribute to 20% of global investment and represent 20% of global equity market value (Bruton et al. 2015; Economist 2010, 2012a). In 2010, SOEs FDI reached \$US146 billion, accounting for approximately 11% of global FDI flows (UNCTAD 2011). Approximately 50% of GDP is provided by SOEs in the Middle East and North Africa, 15% in the rest of Africa, 8% in Latin America, and 6% in Asia (Armstrong 2015). Between 2003 and 2010, SOEs FDI made up an average of 32% of total outflows from developing countries (UNCTAD 2011). Even the 34 OECD

countries have 21,111 SOEs valued at over \$US 2 trillion and employing over 6 million people. Norway, France, and Finland have the largest SOEs sectors employing approximately 10% of these nations' workforce (OECD 2014).

Apart from their contribution to the global economy and capital markets, current SOEs have forms of governance that are different from those manifest in the 1970s (OECD 2016). State ownership boundaries are expanding with the implementation of mixed ownership programs. The traditional wholly state-owned model has evolved into a hybrid organizational form combining state and private ownership. Hybrid SOEs make up 80% of the value of the Chinese stock market, 62% of the Russian bourse and 38% of Brazilian listed companies (Musacchio et al. 2014; OECD 2016). Under this new ownership structure, SOEs do not appear as inactive or weak as they did in the 1970s (Buge, Egeland, Kowalski & Sztajerowska 2013). In contrast, considerable growth and increasing global presence has become the hallmark of the SOEs in the 21st century (Gestrin, Biau, Christiansen, Sultan, Capobianco, Chammas & Kowalski 2016).

SOEs growth and power in both domestic and global marketplaces is more evident when viewed in the context of the most influential companies. In many emerging countries and some developed ones, SOEs account for the highest share of the country's top ten companies (see Figure 1) (Kowalski, Buge, Sztajerowska & Egeland 2013). In the global market, 10% of the worlds' 2000 largest companies were identified as SOEs in the business year 2010-11 (Przemyslaw, Max & Monika 2013). Their sales value equals 6% of world GDP and their market value is equivalent to 11% of global market capitalisation of all listed firms. They account for almost 12% of world trade in the

manufacture of motor vehicles, trailers and semi-trailers, and up to 60% of world trade in equipment manufacturing¹ (Przemyslaw et al. 2013).

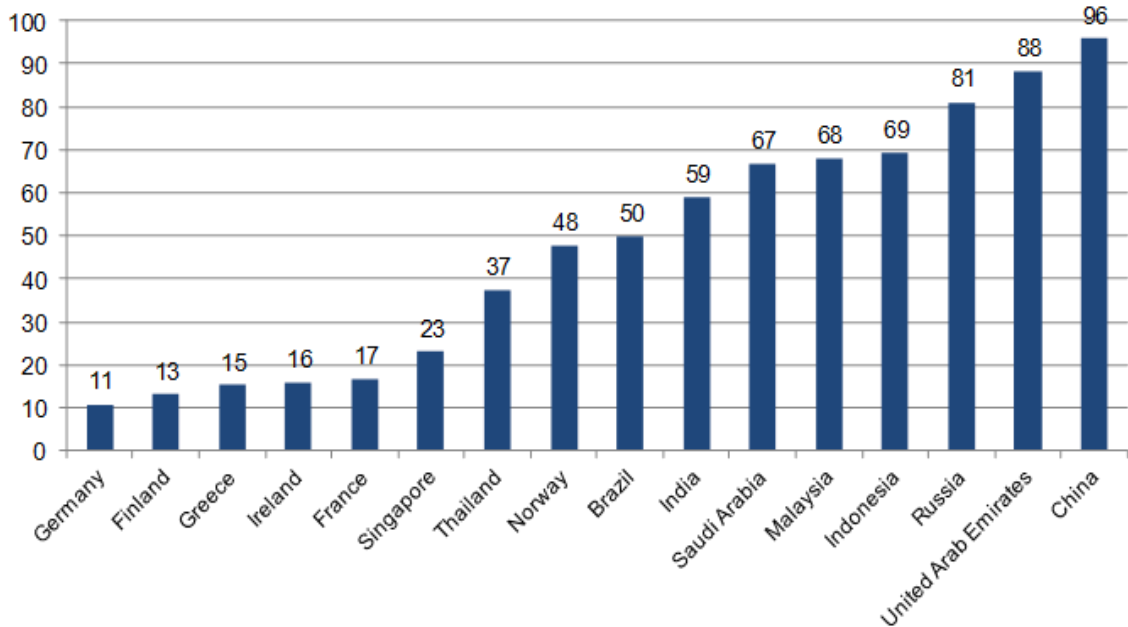


Figure 1 SOE Shares Among Countries' Top Ten Firms (%)

Note: only countries with shares above 10% are shown

Source: Kowalski et al. (2013). OECD Trade Policy Paper

Moreover, although SOEs still only account for a relatively small portion of cross-border M&A they are increasingly appearing as international investors. When global investment dried up during the financial crisis, international M&A (IM&A) by SOEs increased significantly. The share of IM&A by SOEs grew from 3% to a record 21% of

¹ These statistics and sector classification are based on the authors' measurement of SOE shares. The equipment manufacturing sector includes manufacture of fabricated metal products, basic metals, electrical equipment, machinery and equipment, as well as other transport equipment. See Przemyslaw et al. (2013)

the global total in 2008-2009, and continued to grow after the 2011 financial decline (see Figure 2) (Gestrin 2012). The top 10 sources of SOE-led IM&A were mainly from European countries in 1996. By 2013, not only had SOE IM&A increased significantly, but emerging countries had started to join the top 10 list. Among these Chinese SOEs achieved the most notable growth (see Figure 3)(Gestrin et al. 2016).

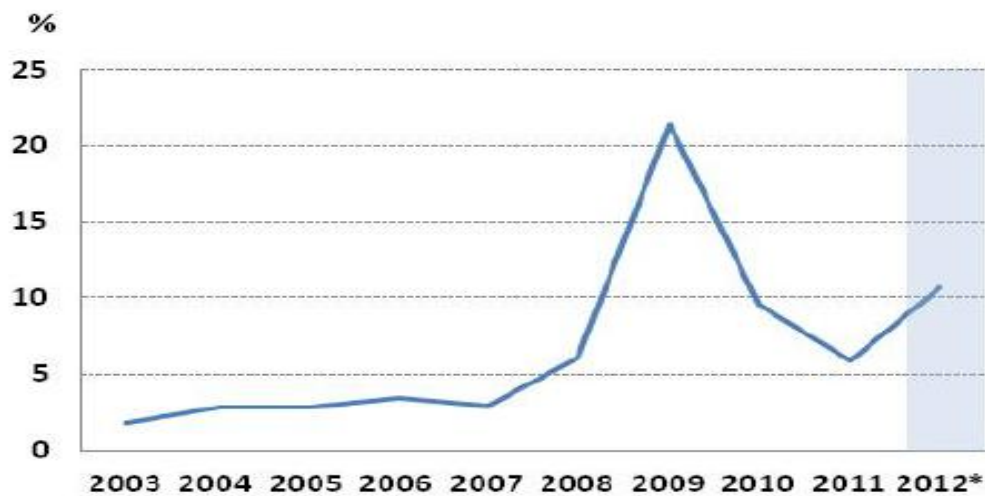


Figure 2 SOEs' share of total IM&As

Source: Gestrin (2012). Investment News: OECD

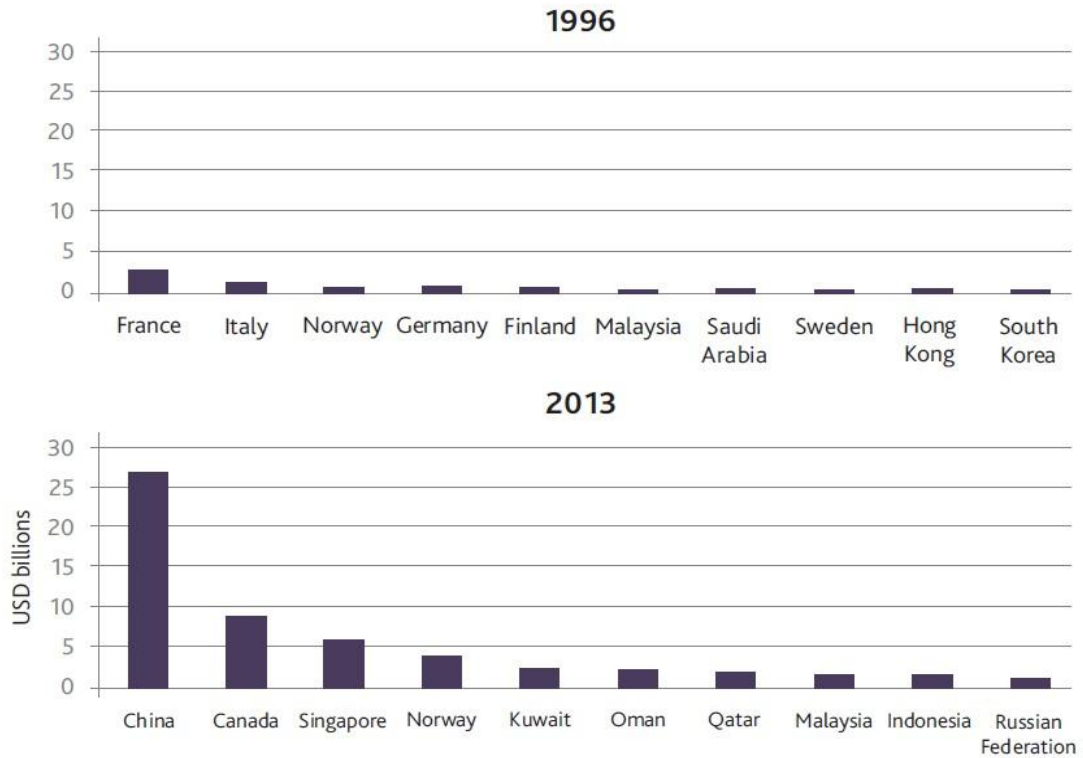


Figure 3 Top 10 acquiring countries, SOE-led international M&As, 1996-2013

Source: Gestrin et al. (2016). OECD, ICTSD, World Economic Forum

The accelerating growth and increased global presence of SOEs has given rise to an increased level of concern about state capitalism (Economist 2012a, 2014). Indirectly this has also contributed to the more recent ‘new nationalism’ advocated by populist political figures in Britain (e.g. ‘Brexit’), various countries in Europe and, most notably, the US president-elect Donald Trump (Economist, 2016).

Z

2.2 Emerging debate closely related with SOEs: State capitalism

The block sale of SOEs to the private sector as a simple privatisation practice was a standard modus operandi for many countries in the 1980s and 90s. However, this now seems a practice of the past (OECD 2009a). On one hand renationalisation has taken

place in various countries for different purposes, but more frequently to respond to the failure of privatised firms, notable examples include the re-establishment of publically owned banks in New Zealand, the establishment of the state-owned Network Rail to replace the privately owned Railtrack in the UK, and electricity in California (Quiggin 2002). The rescuing of the “*too big to fail*” firms such as Bank of America, AIG, General Motors, and Royal Bank of Scotland after the financial crisis (Economist 2012b) is also viewed as a return of the state into the private sphere. Privatisation of SOEs in emerging markets is also faltering due to strong pushback against it (FT 2014; Kumar & Singh 2013; Rai 2006).

On the other hand, as part of the move to retain the benefits of privatisation, public offerings of SOEs are increasingly based on new structures of ownership, entailing a mix of state and private stakeholders with the state retaining important shareholder rights either through majority or minority shares (OECD 2016). In concert with this, SOEs have ceased being marginal players in the internationalisation arena and have stepped into the centre of the globalization stage (Carney & Child 2013; Gestrin 2014).

These phenomena, taken as indicators of the rise of state capitalism (especially in emerging markets, typically China) (Economist 2012a, 2014), have ignited a new round of soul-searching amongst policy makers and the public about the role of SOEs (Economist 2012c, 2015a; Kurlantzick 2012; Schuman 2011a). This of debate is more dimensionally pluralised and politically polarised as hybrid organizations become increasingly prevalent across countries (Bruton et al. 2015; Economist 2014).

Arguments against state capitalism

State capitalism is mainly criticized in terms of the political expropriation of private capital when POEs compete with national champions (SOEs) and where POE activity

is seen to be at odds with the interest of the state. It is also argued to favour big business by intervening in the free market to distort optimal resource deployment (Economist 2014, 2015a; McCarthy 2012).

In international trade, these critiques have triggered a number of WTO disputes. The issues centred on special privileges granted to SOEs, government influence on the direction and extent of investment, and preferential regulatory treatment. For example, the *WTO 2012 US-Anti Dumping and Countervailing Duties* concerned Chinese state-owned banks granting subsidies to companies for selling products in international markets, and *WTO 2014 United States Countervailing Measures on Certain Hot-rolled Carbon Steel Flat Products from India* concerned subsidies provided by India's National Mineral Development Corporation (Kowalski et al. 2015).

In international investment, worries about state capitalism manifest in host countries' restriction of foreign company IM&A activities with national interest and security reasons often being as key reasons for rejecting IM&A proposals. For example, American Fairchild Semiconductor refused the offer from China state-backed buyers (Bradsher & Mozur 2016), the Canadian government tightened investment criteria for foreign SOEs (Investment Canada Act 2012) and Australia rejected bids from Chinese investors for Ausgrid (Rob 2016).

Arguments for state capitalism

In contrast to developed countries, government officials from emerging economies convey greater confidence in the concept of state control (India 2013; Kao 2014). Their arguments in support of the role of proactive government and their justifications for SOE activity are supported by research from international organizations and professional service firms (e.g. Ernst & Young 2015; Kose et al. 2010). Supporting

evidence is based on the economic resilience of countries with a strong systems of state control during global financial crises. Most large emerging economies where state control is the norm (particularly India and China), avoided the recessions experienced in Western countries (see Figures 4 and 5) (De Gregorio 2013; Kose et al. 2010; Lin, Edvinsson, Chen & Beding 2012).

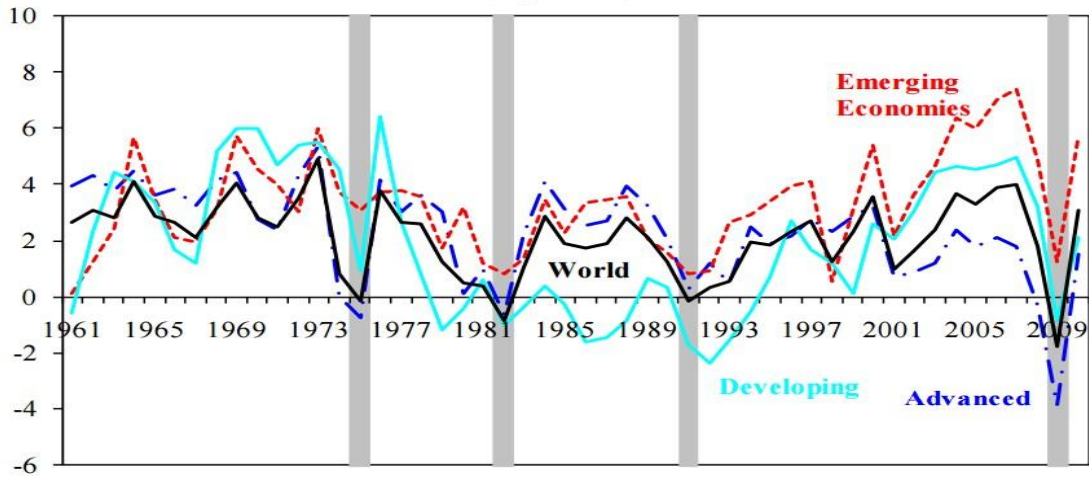


Figure 4 Growth of per capita output of different groups of countries (in percentages)

Source: Kose et al. (2010)

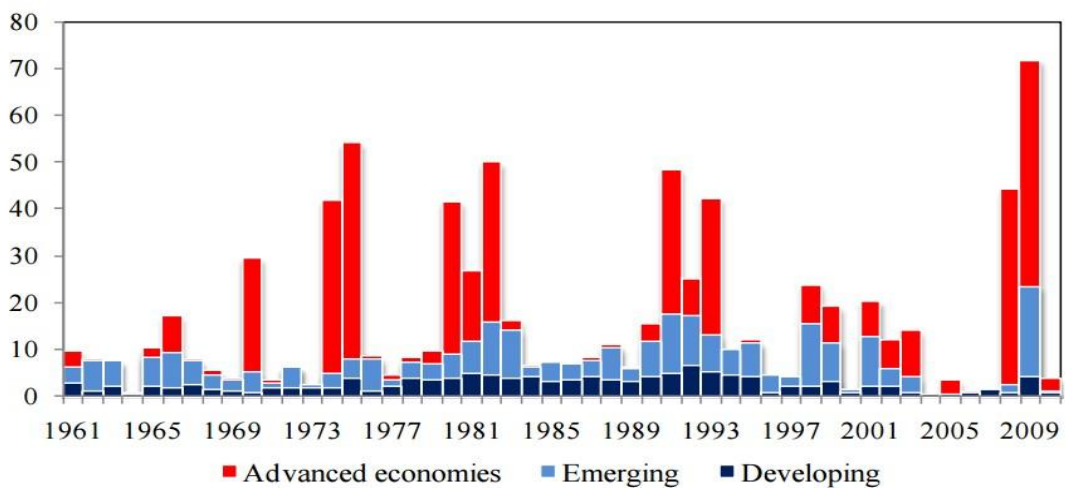


Figure 5 Proportions of countries in recession over time

Note: Each bar corresponds to PPP-GDP weighted percentage of countries in each year

Source: Kose et al. (2010)

The ability of these countries to weather the crisis has been attributed to the advantages of state capitalism. Governments prefer stability and are risk-averse. Hence the state is a patient investor, is more tolerant of losses, and has the capacity to focus on social and economic returns in the long-term rather than resorting to retrenchment and cost cutting to maximise short-term profit/minimise short term loss. The strains of capitalism and globalisation can be mitigated by proactive governments to achieve both growth and stability (Kao 2014). Rather than being inefficient enterprises, the national champions are perceived as having the ability to compete with private multinational corporations abroad without the financial risk associated with a narrow focus on return on capital (Yu 2015).

The Chinese government has suggested that China is unfairly singled out in terms of state ownership and that in fact Chinese SOEs are no more active and dominant than SOEs from developed economies or Chinese POEs. The officials consider that SOE cross-border investment is a global phenomenon reflected in the UNCTAD world investment reports for 2011 and 2015 (UNCTAD 2011, 2015). Not only do developed economies have considerable state-owned multinational enterprises (see Figures 6 and 7) (Fan 2011), but Chinese POEs are increasingly dominant in outward investment compared to their SOE counterparts (see Figure 8) (Min 2016).

Region/economy	Number	Share
World	653	100
Developed countries	285	43.6
European Union	223	34.2
Denmark	36	5.5
Finland	21	3.2
France	32	4.9
Germany	18	2.8
Poland	17	2.6
Sweden	18	2.8
Others	81	12.4
Other European countries	41	6.3
Norway	27	4.1
Switzerland	11	1.7
Others	3	0.5
United States	3	0.5
Other developed countries	18	2.8
Japan	4	0.6
Others	14	2.1
Developing economies	345	52.8
Africa	82	12.6
South Africa	54	8.3
Others	28	4.3
Latin America and the Caribbean	28	4.3
Brazil	9	1.4
Others	19	2.9
Asia	235	36.0
West Asia	70	10.7
Kuwait	19	2.9
United Arab Emirates	21	3.2
Others	30	4.6
South, East and South-East Asia	165	25.3
China	50	7.7
India	20	3.1
Iran, Islamic Republic of	10	1.5
Malaysia	45	6.9
Singapore	9	1.4
Others	31	4.7
South-East Europe and the CIS	23	3.5
Russian Federation	14	2.1
Others	9	1.4

Figure 6 Distribution of state-owned TNCs (transnational corporations) by home region/economy, 2010

Source: United Nations Conference on Trade and Development (UNCTAD) (2011), World Investment Report 2011

SO-MNE	Home economy	Industry	Assets		Sales		Employment		Transnationality Index ²
			Foreign	Total	Foreign	Total	Foreign	Total	
Volkswagen Group	Germany	Motor vehicles	176 656	446 555	72 133	118 561	73 000	147 199	50
Eni SpA	Italy	Petroleum	141 021	190 125	211 488	261 560	317 800	572 800	70
Enel SpA	Italy	Utilities (electricity, gas and water)	140 396	226 006	109 886	152 313	56 509	83 887	67
EDF SA	France	Utilities (electricity, gas and water)	130 161	353 574	61 867	106 924	37 125	71 394	49
GDF Suez	France	Utilities (electricity, gas and water)	121 402	219 759	46 978	100 364	28 975	158 467	40
Deutsche Telekom AG	Germany	Telecommunications	120 350	162 671	50 049	79 835	111 953	228 596	62
CITIC Group	China	Diversified	97 739	703 666	11 127	60 586	25 285	125 215	17
Statoil ASA	Norway	Petroleum	78 185	144 741	23 953	105 446	3 077	23 413	30
Airbus Group NV	France	Aircraft	77 614	128 474	72 525	78 672	89 551	144 061	72
General Motors Co	United States	Motor vehicles	70 074	166 344	56 900	155 427	104 000	219 000	42

Figure 7 The top 10 non-financial state-owned MNEs, ranked by foreign assets, 2013 (Millions of dollars and number of employees)

Source: UNCTAD (2015), World Investment Report 2015

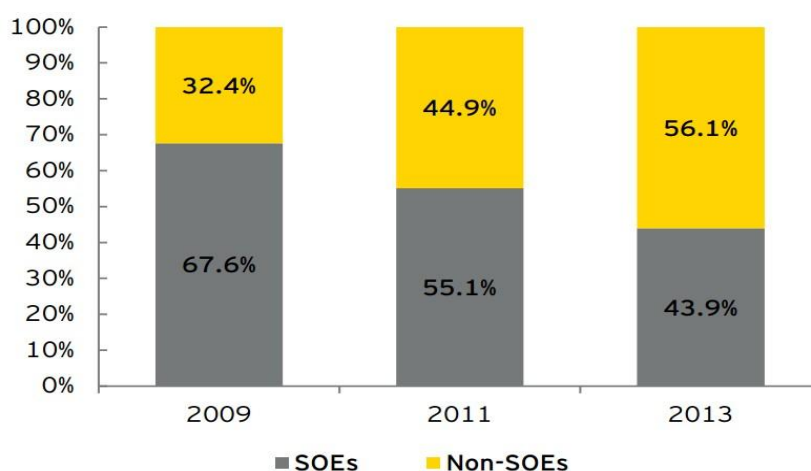


Figure 8 FDI outflow of Chinese non-SOEs outruns that of SOEs, taking up half of the total

Source:Ernst & Young (2015).

Typical case: Chinese state capitalism

China is expected to be the largest outward direct investor by 2020 (Anderlini 26 June, 2015). It is perceived to be a leading exponent of state capitalism and has been accused of ‘new colonialism’ (Tiffen 2014) as well as harbouring ambitions for ‘taking over the world’(Schuman 2011b). The country’s strong image of state capitalism has been cited as one of the main reasons for its exclusion from the Trans-Pacific Partnership (Gowans 2015).

Critics about state capitalism also appear within China. Not only has controversy about *Guo Jin Min Tui* (expanding state sector and shrinking private sector in national economy) vs. *Guo Tui Min Jin* (expanding private sector and retreating of state sector in national economy) arisen, particularly after the financial crisis (Wines 2010; Xie, Li & Li 2012), but the privatisation of Chinese state-owned banks, prescribed by World Bank experts, ignited strong protests from independent scholars in China (NBC News 2012).

2.3 Research problem

As a topic that is closely related with economic and political reform, SOEs discussion has received plenty of attention in the 20th century. The necessity to privatise SOEs is the main focus of current discussions, as SOEs are generally seen as inefficient according to most scholars (Djankov & Murrell 2002; Megginson et al. 2001).

The considerable growth of SOEs in the 21th century is recognized as one of the important signs of change to state capitalism. The ensuing debate about this rise of state capitalism has brought the SOE issue back to centre stage. As distinct from the theme

of the SOE debate in the 20th century, the current SOE debate is focused more on the extent to which politics more than economics are the drivers of SOE (at least China SOE) strategy.

Corresponding to this change of practical concern, the dynamics of SOEs strategy behaviour is an area that needs a more in-depth investigation. The significant theoretical issue examined in prior studies “*Does ownership matter for performance*”, will need to expand to a more essential issue “*Does ownership matter for firms’ strategic orientation*”.

Previous literature has accumulated empirical evidence for both issues, however, mixed results and conflicting assumptions reveal an insufficient understanding of the dynamics behind firm strategy behaviour. Following the theoretical thread of previous studies, this research tries to incorporate new perspectives of institutional theory and method, to explore the emerging SOEs issues in 21century.

The specific theoretical questions to address the research problem are:

- What salient institutional dynamics drive the strategic responses of SOEs and how are these manifested?
- How do these institutional dynamics and strategic responses resemble or differ between SOEs and POEs?

Chapter 3 Literature Review: the macro (top-down) dynamic of institutionalism as related to the discussion of SOEs

In contrast to the current political debate, the academic discussion around SOEs in the 21st century is more diffuse with academics showing relatively little interest² (*Bruton et al. 2015*). The themes underpinning the academic discourse concentrate on two main areas:

1. The continuation of the conventional discussion concerning relative performance, i.e. how does state ownership impact performance compared with private ownership? (Estrin, Hanousek, Kočenda & Svejnar 2009; Megginson & Netter 2001); and
2. More recently, a focus on internationalization initiatives, i.e. how does state ownership impact outward-Foreign Direct Investment (OFDI) (Cuervo-Cazurra, Inkpen, Musacchio & Ramaswamy 2014).

Although these two areas focus on different outcomes both fit under the umbrella of the macro (top-down) dynamics of the institutional paradigm. Mixed empirical results, as well as the use of the common proxy of ownership to approximate the institutional concept (but under differing assumptions), indicate the insufficiency of the conventional top-down approach to address the overall institutional complexity to which the firm must adapt.

² According to Bruton and his colleagues, only 39 articles focus on SOEs in the Financial Times' top 45 management journals from 2000 to 2014.

Based on this insufficiency, the micro-foundations of institution theory (Powell & Colyvas 2008) need to be taken into account and linked interactively with the macro-level institutional dynamics to understand firm strategic behavior.

3.1 Research stream one: Does ownership matter for performance?

The definition of privatisation varies between countries. From the perspective of the World Bank, privatisation is the *transfer of ownership of assets to the private sector* (Shirley 1991), while the OECD defines it as *any material transaction by which the state's ultimate ownership of corporate entities is reduced* (OECD 2009a). In practice, privatisation has been a prevailing phenomenon throughout the world in the 20th century (OECD 2016). Examples include the wide ranging privatisation implemented by Britain's Thatcher government in the 1980s, as well as the massive privatisation program in Russia during the "shock therapy" economic reforms in the 1990s. While there is no generally accepted conclusion about what a successful privatisation is, some privatisation programs are regarded as failures³ (Black, Kraakman & Tarassova 2000; Burawoy 1996; Guriev & Rachinsky 2006; Megginson et al. 2001).

3.1.1 Mixed empirical results in comparisons of performance

Privatisation is a subset of an abundant academic literature on economic ownership and the role of government in the economy. Many empirical studies have examined the effects of privatization in transition economies as well as in developed economies. These studies focus mainly on comparison of performance, i.e. comparison of profitability and efficiency between SOEs and POEs, or before and after privatisation. Despite some negative results from both developed economies and transition economies, the general

³ As reflected in parameters such as a dramatically increased wealth gap and worsened soft-budget constraints.

overview of the findings of such research is argued to be that POEs are more efficient and profitable than SOEs (Djankov & Murrell 2002; Megginson et al. 2001),

However, studies looking at non-fast-privatizing reform economies, especially China, have offered more mixed and nuanced conclusions.

- Following share issue privatization (SIP) positive effects (e.g. Chen, Firth, Xin & Xu 2008; Jefferson & Su 2006), negative effects or no effects coexist (e.g. Jia, Sun & Tong 2005; Jiang, Yue & Zhao 2009; Sun & Tong 2003; Wang, Xu & Zhu 2004)
- Corporate governance reform without the block sale of the firm has improved firm performance (e.g. Aivazian, Ge & Qiu 2005; Lin, Ma & Su 2009; Wang, Guthrie & Xiao 2012).
- Firms affiliated with different state agents (state asset management bureaus, central governments, local governments) have differing levels of performance with some types of state ownership outperforming POEs (e.g. Chen, Firth & Xu 2009).
- Chinese SOEs that focus on the domestic market are less productive, but international market-focused SOEs considerably outperform POEs and foreign-owned firms (Elliott & Zhou 2013).

Such mixed results are consistent with more recent empirical reviews about privatisation in transition economies. For example, Estrin et al. (2009) concluded that while privatisation is positive in central Europe, the effect of non-state ownership on total factor productivity is diverse in the case of China.

3.1.2 Embedded theoretical logic in the privatisation debate

Arguments underpinning the SOE/POE performance differential generally follow a new institutional economics paradigm, among which institutional environment and governance are the mainframes.

(1) Logic of the privatisation argument

Government as an institutional constituent: Assumption of government self-interest. As addressed by Shirley and Walsh (2001), key divergences exist between privatisation supporters and their opponents concerning assumptions about the motivation of politicians. They highlighted the issue that a self-interested government operating in inefficient political markets has more scope for intervention in SOEs than POEs in order to gain political benefits for itself at the cost of SOE efficiency.

Principle-agent conflict (agency theory). Resting on the assumption of government self-interest, this argument considers that there is a double-agency problem in SOEs. In the double-agency structure, that is, state-to-politicians and politicians-to-managers, politicians lack incentives to maximize the owners' (i.e. the state's) utility above their own and oversee managers who have a similar utility clash. With an increasing number of layers in the principle-agent structure, the agency costs of SOEs are higher than that of POEs which leads to the higher inefficiency of SOEs (e.g. Rodríguez, Espejo & Cabrera 2007; Sheshinski & López-Calva 2003).

Soft-budget constraint syndrome (SBC). SBC refers to the phenomenon that when SOEs incur losses, the state normally cannot refrain from bailing them out by providing additional subsidies or credits (Kornai 1986). In consequence, such enterprises have no incentives to act in efficient or non-profligate ways because they know that they have an ever-present safety net to soften/prevent any fall (Robinson & Torvik 2009). Due to SBC, SOEs' managers are not concerned about competition and responding to the

market, for example, they fail to develop new technologies at sufficient pace (Kornai, Maskin & Roland 2003; Qian & Xu 1998) and do not learn from POE management even in highly competitive environments (Goldeng, Grünfeld & Benito 2008).

Based on the SBC phenomenon and the agency mismatch, scholars predict SOEs to perform worse than POEs and suggest privatisation as an efficiency enhancing solution.

(2) Logic of the anti-privatisation argument

Even when property rights and agency theory prevail, there are researchers who question the simple attribution of poor firm performance to ownership. Estrin et al. (2009) review concluded that privatisation *per se* does not guarantee performance improvement. Corporate governance, access to know-how, and market, legal and institutional systems all matter. The mixed result of Chinese SIP is also considered as evidence that a developed capital market with a sound market governance system is required to ensure the success of SOE reforms (Jiang et al. 2009). There are several strands to the logic of the anti-privatisation argument.

The role of government as an institutional constituent: The real cause of SBC-policy burden. SBC is a phenomenon that is regarded as one of the central reasons for SOE inefficiency. However the problem of SBC continued following East European structural reforms, i.e. rather than eradicating SBC, more subsidies are being provided by the state post-privatization (World Bank 2002). This undermines a simple link between SBC and (state) ownership. Based on China's reform experience, Bai, Li, Tao and Wang (2000) have suggested a multi-task explanation, i.e. while SOEs assume the requirement for efficient production at the same time they are a vehicle for the maintenance of employment and a social safety net for the unemployed. Due to this 'social burden', SOEs have lower incentives to be profit-maximizing and governments are forced to continue with subsidies (Bai, C-E & Xu, LC 2005; Rödler & Zhang 2005).

Based on Russia's economic reform, Lin and Li (2008) extended the social burden argument further by proposing policy burden as an explanation for a cause of SBC. They argued that the government often implements a 'comparative advantage defying' (CAD) strategy⁴ where the country is not suitably endowed with the relevant factors of production⁵. This gives rise to low efficiency in firm production.

In these circumstances, market competition cannot optimally function as the means to reveal managerial effort and reduce information asymmetry. Being specific to SOEs, this country level strategy burden puts them in a disadvantaged position with respect to local or international market competition (Lin, Cai & Li 1998). Again, it is difficult for the government to verify whether performance loss results from managerial discretion or policy burden (Lin & Tan 1999). With this information asymmetry, the expansion of managerial autonomy of SOEs will worsen the agency problem. More importantly, under conditions of policy burden and increasing market competition, privatisation will only aggravate the soft-budget constraint syndrome as POEs will demand more ex-post subsidies from the government (Lin et al. 2008). Therefore, the key to solving the soft-budget constraint syndrome is to remove the policy burden, not simply convert state ownership to private ownership (Lin et al. 2008).

Principle-principle conflict (agency theory). As a relatively new perspective in corporate governance, the principle-principle perspective concentrates on conflicts between the controlling shareholders and the minority shareholders of firms in developing countries (Young, Peng, Ahlstrom, Bruton & Jiang 2008) as well as in developed economies (La Porta, Lopez-de-Silanes, Shleifer & Vishny 2002; Porta, Lopez-de-Silanes & Shleifer 1999). This perspective is characterized by concentrated

⁴Lin indicates that this CAD strategy of socialist and developing economies is extremely biased towards the development of heavy industries. But heavy industry is capital-intensive.

⁵This indicates a lack of physical capital, and a relative abundance of labour supply.

ownership (Dharwadkar, George & Brandes 2000), extensive family ownership and control (Claessens, Djankov & Lang 2000), pyramid control (Porta et al. 1999), business group structures (Peng & Delios 2006a), indicators of weak governance such as poor firm valuations (La Porta et al. 2002), stock prices that contain less firm-specific information (Morck, Yeung & Yu 2000), and inefficient strategies (Filatotchev, Wright, Uhlenbruck, Tihanyi & Hoskisson 2003). Researchers have noted that, due to institutional voids in emerging countries, i.e. lack of effective external legal mechanisms to protect minority shareholders' interests and lack of efficient enforcement of arm's-length agency contracts, privately controlled firms are more easily subject to the risk of expropriation by majority shareholders (Chen et al. 2009; Mutlu, Peng & van Essen 2015). However, the government as a minority shareholder could increase the value of the firm due to the benefits of there being less chance of "agency distortions" and more long-term fixed investment support (Inoue, Lazzarini & Musacchio 2013).

The beyond property rights argument - the role of market competition. Evidence from developed economies that privatisation alone, is insufficient as a driver of firm efficiency and that competition affects productivity, raised market competition as an important explanations of SOE performance (Estrin & Perotin 1991). Martin and Parker (1997) assessed the pre- and post-privatisation performance of a selected group of enterprises in the UK's privatisation program in the 1980s. Consistent performance improvement was not identified in all cases especially in monopolized markets. These mixed results together with other competition-focused discussions (e.g. Ramaswamy 2001; Ros 1999) spurred the emergence of the beyond property rights argument.

Theoretical logic posits that a monopolistic market structure makes a comparison with other companies in the same sector more difficult or not feasible. Managers have an information advantage concerning their organization's optimal performance that cannot

be overcome by like-for-like comparison as in more competitive markets⁶. Competition makes organizational performance transparent compared to peers, no matter who the owner is (Estrin et al. 1991). Privatisation may have no influence on market competition as the monopoly power can be sold off wholly or left largely intact. Therefore, conceptually, while a positive effect of competition on performance is relatively uncontroversial in economic theory, the effect of ownership *per se* is unclear (Martin et al. 1997).

This beyond property rights argument is further extended by research on the reform of transition-economy SOEs, in which the role of government is incorporated.

Macro-institutional environment transition and alignment of managers' strategic attitude. Some management research takes into account strategy adaption to the changing institutional environment in the China context. Although such research does not address the privatisation debate, findings indicate that the attitude of SOEs' managers toward strategy evolves with changes in the macro-institutional environment without privatization. The primary research in this area is the longitudinal study carried out by Tan and colleagues (Peng et al. 2004; Tan 2007; Tan & Tan 2004; Tan & Tan 2005). While defender strategies and prospector strategies were found to be adopted by SOEs and POEs respectively in 1993, the second phase survey in 2002 indicated that SOEs' managers were more willing to commit to future growth and market, were more innovative and made more risk-oriented decisions than they did before the adoption of such strategies. In particular, newly founded SOEs were found to be more risk oriented and innovative compared to those from the pre-1990 era (Tan 2005; Tan et al. 2005). Such SOEs are more entrepreneurial than would be predicted were they merely

⁶ The psychology literature might also add that in the absence of comparison data the managers' benchmarks and performance criteria might be more self-delusional than self-interestedly Machiavellian (e.g. Nickerson 1998).

satisfying the demands of state planners. This change in strategy orientation was also linked to improvement in SOE performance (Tan 2007).

Closely related to managerial strategic orientation, Ralston, Terpstra-Tong, Terpstra, Wang and Egri (2006) compared the organizational cultures of SOEs, POEs and Foreign Owned Enterprises (FOEs) based on survey data collected from 435 managers in China between 2002-2003. They concluded that the culture of Chinese SOEs has substantially transformed to approximate a configuration desired by the Chinese government when it began reforming SOEs a decade ago in order to make them globally competitive.

While monopoly power and government preferential treatment are taken for granted in much of the SOE-related discussions, these findings add the managerial role as another potential explanation for the improvement in SOE performance.

3.1.3 Summary - implication of privatisation literature for “does ownership matter?”

The privatisation debate has a long history. The significant value of such debate is its actual influence on government policymaking incorporating the reforms and restructuring of SOEs.

However, the claim that (state) ownership directly impacts how a firm behaves, and that this process is directly reflected in firm performance outcomes, faces the following challenges.

(1) Empirical challenges with respect to isolating ownership effect on performance

In their review Megginson et al. (2001) pointed out that lack of data, omitted variables, endogeneity and selection bias are all potential problems for empirical work in this area. The endogeneity issue is particularly confounding. As ownership structure itself is endogenous to a system which is itself subject to government political or economic goals,

research focusing on performance evaluation can become trapped in a circular logic, i.e. is it government ownership and control that leads to firm performance variance or is it the impact of firm performance on local economics that leads to changes in government control? Another difficulty is how to determine an appropriate set of comparison firms or benchmarks, especially as the private sector is relatively limited in developing countries (Megginson et al. 2001).

There are also problematic issues relating to performance evaluation. Even though it is the most used firm measurement criteria, there is little agreement on the definition and determinant of performance in general management (Barney & Education 1997; Cuervo & Villalonga 2000). Questions include what measurements to choose, how to exclude other firm levels and when do external environmental factors affect the relevance of such factors? The answers to these are all difficult to clarify. As pointed out by Shirley et al. (2001), Villalonga (2000) and Megginson et al. (2001), all privatisation empirical studies display a substantial degree of heterogeneity with respect to methodology and choice of empirical context. Moreover, the continuous and systematic change of political, economic and social environments in transition economies makes this research even more difficult.

(2) Theoretical application challenge to justify the necessity of the impact of state ownership on performance

A major difficulty for this research stream is the coexistence of multiple, unfalsifiable, competing explanatory theories. The privatisation argument is challenged by competing explanatory logics that emerge from observation in real world practice (e.g. policy burden). Clarification of the critical effect of ownership and falsification of competing

explanations is difficult due to the immeasurable features of the core explanatory constructs in the privatisation debate.

For example, as the dominant explanations in privatisation, agency theory offers significant insights. However, such theories might only be beneficial in instructing the design of government governance institutions (this is beyond the scope of this discussion) rather than in explaining SOE performance⁷. Further, the power of the theory to explain real world phenomena is constrained by its descriptive nature. That is, the core explanatory construct of the theory, agency cost, cannot be measured. The theory has to be tested in an empirical context by proxy. The quality of the proxy will then decide the accuracy of the agency theory explanation. However, state ownership as a proxy already assumes that state-affiliation stands for bad corporate governance structure. Thus, researchers do not test agency theory in this research stream, nor do they falsify the competing explanatory logics or come to understand the extent to which agency theory could explain the differences in performance.

This issue is more prominent when hybrid ownership becomes dominant as the modern trend. Not only are state and private enterprises joining the list of firm shareholders, but so too are institutional investors, foreign enterprises, and sovereign wealth funds (SWF) (Musacchio et al. 2014). The boundaries of property rights is becoming increasingly diffuse. This co-existence of multiple interest groups further challenges the validity of the suggestion that SOEs have higher agency costs than POEs (regardless of purely private or hybrid ownership).

⁷ For example, the state-owned Assets Supervision and Administration Commission (SASAC) emerged as the key institution governing firm ownership in China. This governance institution arrangement has been found to positively influence firm performance. See Wang, J et al. (2012).

Another challenge is the long-standing, unresolved theoretical discussion about the validity of agency theory itself. There are ongoing debates in the agency literature about the role of the board, e.g. whether the board is simply a “rubber-stamp” or actually involved in firm strategies (Hambrick, Werder & Zajac 2008), and the effect of ownership concentration on firm performance, i.e. closely held firms outperform because they can curb opportunism by agents vs. principle-principle conflicts in which majority owners use their power to exploit and expropriate the business (Miller, Breton-Miller & Lester 2011).

Alongside the unresolved theoretical debate, the realistic predictive power of agency theory with respect to corporate performance has also been questioned. Stout (2007) summarized that most studies fail to find any strong relationship between particular governance practice and corporate performance. In the review on the strengths and weaknesses of firm-level corporate governance indices, Bhagat, Bolton and Romano (2008) concluded that,

“There is no one 'best' measure of corporate governance: the most effective governance institution depends on context, and on firms' specific circumstances. It would, therefore, be difficult for an index or any one variable to capture nuances critical for making informed decisions” (p. 1808).

This again emphasises the problem of an endogenous relationship between governance and performance. Levinthal (1988) also clearly addressed the issue of the agency model application:

“Agency theory setting actually is a decision theoretic...It is not industriousness of top management that is the issue, but the noncooperative game rather than qualitative nature of the decisions managers make. Emphasis on the effort aversion on principal–

agent research literature is excessive... We have succeeded in developing analytic structures that correspond to causal empiricism, but can these models withstand the sterner test of actual data?" (p.182).

Therefore, for empirical studies to continue with this explanatory logic, no matter what the result, clarifying the exclusive relationship between ownership and performance is a challenge. Since experiments are almost impossible in business research, it cannot simply be concluded that "ownership matters for firm performance" by just continuing to test "which type of firm ownership performs much better". This is because it is not purely an issue of a statistical significance test, but a conflicting, immeasurable issue of underpinning theory.

(3) Practical implication challenge

Over two decades of discussion, the empirical research on performance comparison in transition economies has developed as a separate field. The themes of the empirical study on SOEs focus predominantly on comparisons of firm economic performance (typically, directly relating ownership with firm economic profitability and efficiency). However, stereotypes of SOEs are showing signs of change due to the rise of state capitalism and the hybrid organization form in the context of globalization. Based on this configuration of ownership and performance, conventional research on SOEs might need to expand its boundaries and incorporate a much broader and more open environmental context.

This consideration is taken into account by international business researchers whose attention is being drawn to the internationalization of SOEs. As an expansion of the SOE-centred discussion, this research stream has begun to focus on SOEs' internationalization behavior.

3.2 Research stream two: does ownership matter for firm Outward-FDI (OFDI)?

3.2.1 Summary of general Emerging Country Multinational Enterprises' (EMNEs) OFDI

SOEs' OFDI investigation is embedded in the ongoing debate on EMNEs' OFDI discussion. As Guillén and García-Canal (2009) have summarized, the internationalization of EMNEs is characterized as accelerated OFDI into developed and developing countries, as well as the use of alliances and acquisitions to expand abroad. Considering that such behavior seems different from that of MNEs, whether a new theory is needed to explain such behavior has been the subject of debate (Dunning 2006; Mathews 2006). The main dispute is over the source of ownership advantage (firm-specific competitive advantage/resource-based view) of EMNEs. This extends to whether the dominant O-L-I paradigm is still able to explain EMNEs' OFDI behavior (Hennart 2012). This paradigm suggests that a firm will be more likely to conduct FDI if it has **O**- a firm-specific **Ownership** advantage, **L**-a favourable firm **Location** to exploit its advantage, and **I**-the net benefits of being able to **Internalize** cross-border transaction costs. After several years of debate, scholars have reconciled the discussion and proposed that the analysis of EMNEs extends beyond existing theory (Ramamurti 2012). The reconciled explanation for EMNEs' OFDI can be summarized as follows:

Source of firm competitive advantages. Considering EMNEs are from less developed countries, they do not have the same firm-specific competitive advantages (i.e. technology, brand) as MNEs from developed economies. Instead, they might become MNEs by using other ownership advantages, such as efficiency processes (Lessard & Lucea 2008) and business model innovations (suggested by Cuervo-Cazurra 2012). EMNEs have developed the ability to manage high transaction costs and political

influences, and are more resilient to environmental instability (Khanna & Palepu 2013). They also enjoy country-specific advantages, i.e. low-cost labour, bank financing, natural resources, economic scale (Bhaumik, Driffield & Zhou 2016; Rugman 2010). At the same time, globalization speeds up EMNEs' OFDI path (Dunning 1982). This can be observed from their integration into global value chains (Kumaraswamy, Mudambi, Saranga & Tripathy 2012), and this internationalization along with market reform in the home country have helped EMNEs improve performance (Cuervo-Cazurra & Dau 2009).

Motivation and intention. Two views co-exist on the motivation of EMNEs' to internationalize. One view focuses on the 'pull' factors, that is, EMNEs are attracted by host country factors such as rich natural resources, large markets, agglomeration economics or knowledge externalities (Jindra, Hassan & Cantner 2016; Kolstad & Wiig 2012). EMNEs both leverage/augment assets (exploit firm-specific advantages) and seek assets (resource seeking, foreign-market seeking, efficiency seeking, strategic-asset seeking) overseas (Deng & Yang 2015; Dunning 2006; Kang & Jiang 2012; Mathews 2002). Another view emphasises 'push' factors or escape motivation, that is, EMNEs might invest abroad to escape poor regulation of institutions in their home country that disadvantage their competition with global rivals (Cuervo-Cazurra & Ramamurti 2015; Stoian & Mohr 2016; Witt & Lewin 2007). Strategic exit from the home country rather than strategic entry into the host country is the main motivation of EMNEs' internationalization (Boisot & Meyer 2008).

Additional explanations for internationalization of EMNEs. Several internationalization models have been added since the OLI paradigm to explain EMNEs' internationalization and the process. Some of these explanations begin to address the influence of the home country's environment on EMNEs' overseas expansion. These

explanations are based on the premise that EMNEs' cross-border activities originate from the economic goals of the firm.

- LLL paradigm. EMNEs internationalize via **linkage** (acquiring advantages externally via strategic asset access), **leverage** (connecting to partners to obtain resources and using networks), and **learning** (upgrading via repetition and improvement) to gain a new competitive advantage rather than purely exploiting existing internal resources and capability (Mathews 2006).
- Comparative institutional analysis and a springboard perspective (Luo & Tung 2007). EMNEs as latecomers onto the global stage 'leapfrog' traditional internationalization phases via aggressively acquiring or buying critical assets in developed markets rather than adopting a stepwise approach⁸ (Li 2003). This unique pattern of internationalization is related to the prominent institutional voids (e.g. lack of legal protection and effective law enforcement) and informal institutional hazards (e.g. corruption and taxation evasion) in their home country (Luo & Wang 2012; Witt et al. 2007). Under this home country institutional context, EMNEs use internationalization as a springboard to acquire strategic resources and escape the institutional constraints in their home country (Luo et al. 2007).

To summarize the arguments above, Figure 10 is used to demonstrate the main reference logic of the discussion on EMNEs' OFDI. Researchers consider that the economic and institutional context of the home country such as the legal system and other institutional

⁸ This stepwise approach is typically described by the Uppsaala model, which emphasises organizational learning and global experience. The firm is considered to gradually intensify its activities overseas: the firm first gains experience from the domestic market, then starts foreign operations from culturally or geographically close countries, and gradually moves to culturally or geographically more distant countries. The starting operational strategy in the foreign market starts from traditional exports and then gradually adopts a more intensive operational mode such as subsidiaries, etc. See (Johanson & Vahlne 1977)

voids, and informal institution hazards such as corruption (e.g. Cuervo-Cazurra 2006; Cuervo-Cazurra et al. 2015) could push firms to go overseas, The economic context of the home country, such as the economic growth rate and competitive pressure, etc. is considered relevant as well (Luo et al. 2012). Basically, the motivation and intention of EMNEs' OFDI is economically driven. Also, EMNEs possess their own specific capability which is different from that of MNEs, especially their home country-specific advantages (Ramamurti 2012) such as low-cost labour (Rugman 2010) and economic scale (Bhaumik et al. 2016), which can help facilitate their OFDI. Globalization of the value chain also expedites their internationalization (Kumaraswamy et al. 2012).

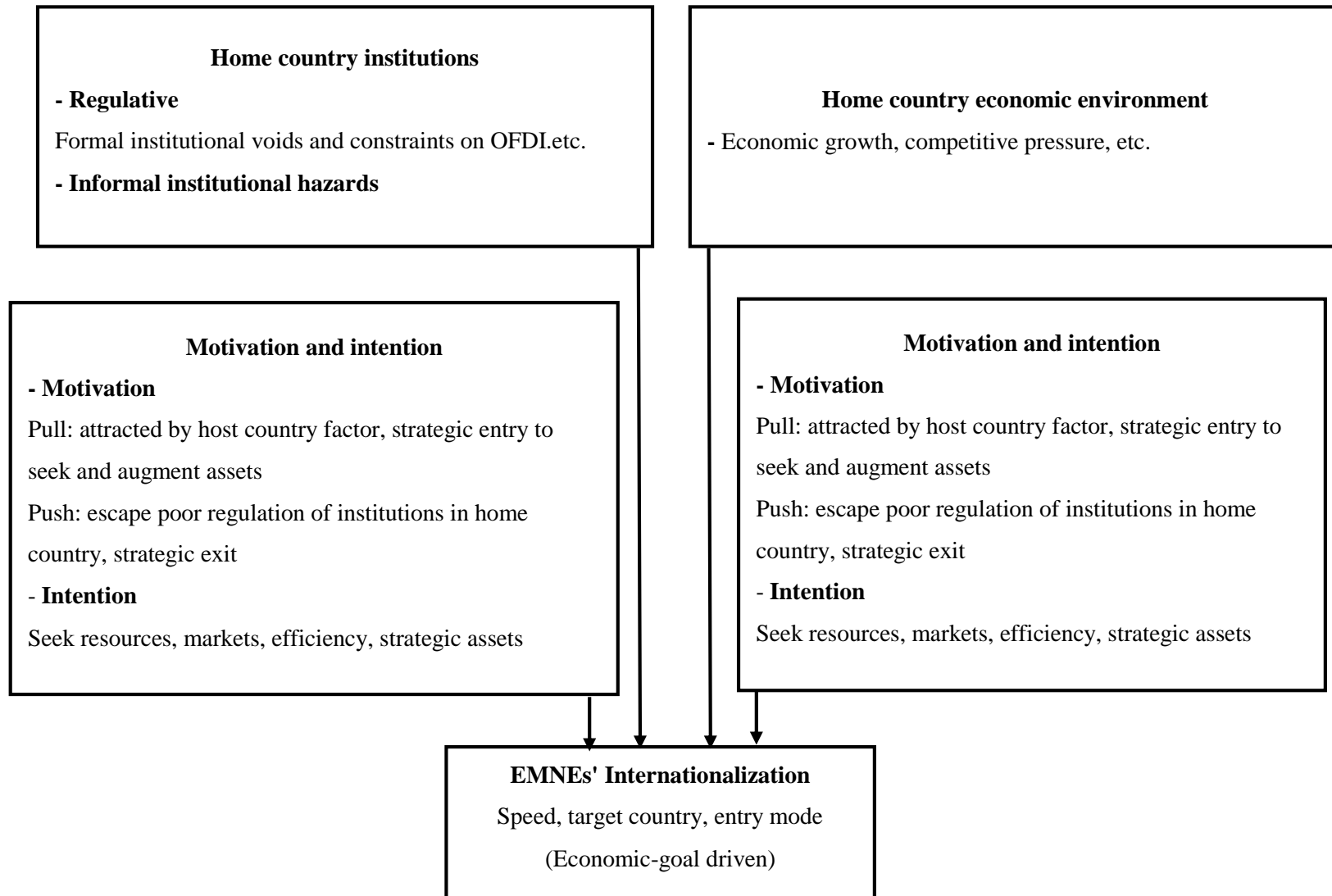


Figure 9 Dominant inferential logic of EMNEs' OFDI

3.2.2 Discussion on SOEs' OFDI

As a specific sub-group of EMNEs, state-owned multinational enterprises (SO-MNEs) have recently received closer attention from scholars, but the majority of these discussions are about Chinese SO-MNEs (Bruton et al. 2015). This group of studies generally adopted the strategy tripod proposed by Peng and Delios (2006b) to explain EMNEs' internationalization strategy. This perspective emphasises the impact of institutional conditions and transition, firm-specific resources and capabilities, as well as industry-based competition. Researchers have taken theoretical perspectives on the motivations that lead to OFDI and then empirically examined the different choices of entry mode, especially the choice of subsidiary ownership form (joint venture vs. sole) and establishment method (greenfield vs. acquisition) in EMNEs' internationalization processed. The logic of this discussion as follows.

Motivation and intention. The dominant understanding of the SOEs' internationalization motivation is that, due to their dependence on domestic government resources to obtain monopolistic advantage in their home market (Rugman & Li 2007), SO-MNEs are pressured to conform to home regulatory restrictions, i.e. official approval for high-risk FDI projects (Cui & Jiang 2010; Cui & Jiang 2012). At the same time, depending on the level of government they are affiliated with, central government-affiliated firms have to fulfil policy responsibilities such as steady provision of natural resources, raw materials, technologies, and energies while local government-affiliated firms are given more freedom to achieve revenue objectives (Li, Cui & Lu 2014). The motivation of central government-affiliated firms is partly supported by the exploratory studies on Chinese MNEs' choice of location. State-controlled firms are attracted to countries with large sources of natural resources and risky political environments (Amighini, Rabellotti & Sanfilippo 2013), while private firms are more market seekers and strategic-asset

seekers (Ramasamy, Yeung & Laforet 2012). Moreover, institutions of the host country will differentially create pressures on foreign investors who they perceive as pursuing an ideology inconsistent with the dominant ideology of the host society (Cui et al. 2012; Meyer, Ding, Li & Zhang 2013).

Source of competitive advantage. Domestic government financial support of OFDI increases tangible assets for Chinese firms (Cui et al. 2010). However, because of government affiliation, SO-MNEs have preferential access to resources (Meyer et al. 2013). In particular central government-affiliated SO-MNEs enjoy cheap access to credit from banks, while such privileges are not afforded to other firms including local SO-MNEs (Li et al. 2014). SO-MNEs also have the advantage of dealing with host country expropriation due to the political influence of their home government (Duanmu 2014).

Choice of entry mode. In contrast to POEs, SOEs are more likely to be discriminated against by the host country due to their political image, and tend to conform to their home country's regulations on OFDI. Thus, SO-MNEs are more likely to choose joint venture as the form of subsidiary ownership (Cui et al. 2012). Also, due to the preferential access to resources as well as the political objectives of SOEs (to align with national strategy to acquire national resource, technology, and brands), SOEs are more likely to choose acquisition rather than greenfield entry as the method of establishment (Meyer et al. 2013).

To summarize the arguments above, Figure 11 (below) illustrates the main logic of the discussion on SOEs' internationalization. As most of the studies are about Chinese SOEs, Chinese SOEs are used to demonstrate the logic. Due to their dependence on government resources, SOEs' internationalization is motivated to fulfil government policy. The primary policies that SOEs conform with vary according to their level of

government affiliation. Central government-affiliated SOEs conform to national strategy policy, such as resource security, while local government-affiliated SOEs conform to economic policy, i.e. generation of revenue (Li et al. 2014). When the home country government constrains SOEs outward FDI with regulatory restrictions and necessary official approval (Cui et al. 2010), government affiliation also endows SOEs with political capital (Duanmu 2014) and preferential access to resources for cross-border activities (Meyer et al. 2013). Also, due to their political image, SOEs are subject to different institutional pressures from the host country compared with POEs (Cui et al. 2012). Because of their different levels of institutional pressure from both the home and the host country, central SOEs, local SOEs and POEs have different choices of entry mode.

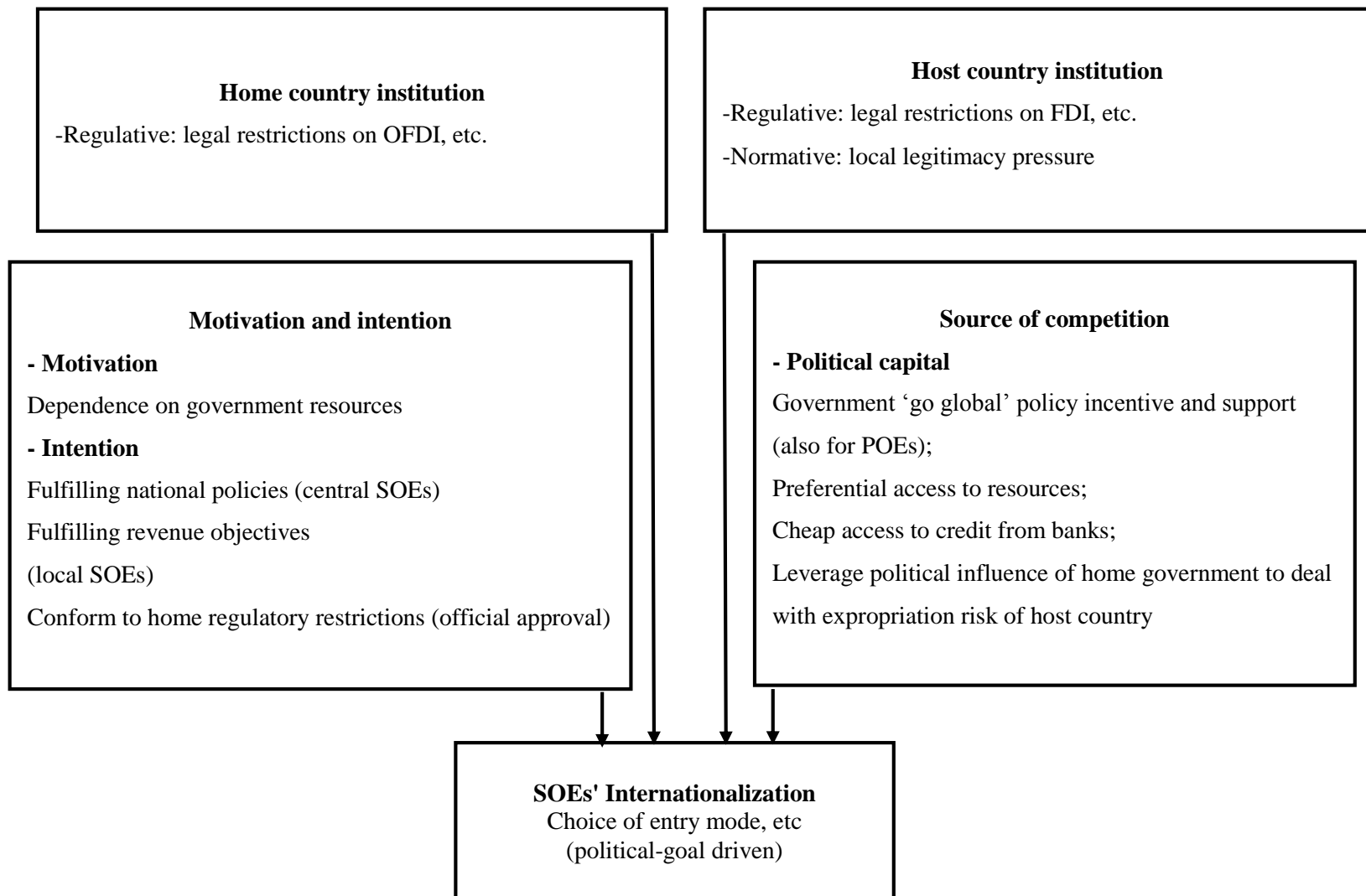


Figure 10 Dominant logic of SOEs' internationalization

3.2.3 Summary of research on SO-MNEs under general EMNE OFDI

The research on SO-MNEs' internationalization is still in its early stages (Cuervo-Cazurra et al. 2014) and such research focuses mainly on Chinese firms (Bruton et al. 2015). State ownership or the level of government affiliation (e.g. central vs. local government) is normally taken as a focal indicator for the varied intentions of firm OFDI (e.g. Li et al. 2014). This then leads to different choices of globalization mechanisms and mode of firm entry (e.g. Liang, Ren & Sun 2014), in which institutional theory emerges as one of the major theoretical underpinnings (Peng, Wang & Jiang 2008). SOEs are considered to be different from POEs due to the different institutional constraints that result from resource dependence on domestic government. Thus, SOEs conform to domestic government regulation (official approval of FDI, government 'go global' policy) and preference the achievement of government political goals over firm economic efficiency. At the same time, SOEs must conform to host country regulation more than POEs due to their political image (e.g. Meyer, Ding, Li & Zhang 2014).

Although research on EMNEs does not specifically focus on SOE internationalization, studies on both EMNEs and SO-MNEs share the same logic. This is illustrated by Ramasamy and colleagues' summary of three types of research on China's OFDI (Ramasamy et al. 2012). The first type is based on descriptive evidence and provides some justification for the country's OFDI or institutional dynamics at different periods of time to support the inference of factors that have an impact on firm internationalization (e.g. Hong & Sun 2006; Liang et al. 2014). The second type uses interviews or case studies of well-known firms to explain the motivation behind the internationalization strategy (e.g. Cui et al. 2010; Deng 2009). The third type uses macro-level statistical data, such as host country GDP growth, to reveal SO-MNEs'

choice of location and their motives for internationalization (e.g. Cheung & Yin-Wong 2008; Kolstad et al. 2012).

However, this stream of research mainly describes the political affiliations of firms and the consequences of such affiliations. What and how the home country's institutional environment influences firm internationalization strategies is not fully investigated yet. In particular, the logic behind SO-MNEs and general EMNEs' internationalization faces theoretical and empirical challenges which require a more fine-grained understanding of the home country context (Hoskisson, Wright, Filatotchev & Peng 2013).

(1) Challenge to the theoretical logic - oversimplification of institutional mechanisms

Institutional theory is prevalingly operationalised at the level of state-ownership affiliation (state-share ratio or central vs. local government control) by researchers (e.g. Li et al. 2014), and such theory suggests that state ownership directly impacts firm internationalization (e.g. Cuervo-Cazurra et al. 2014; Liang et al. 2014). However, a cross-country analysis by Estrin et al. (2016) revealed that this influence is *conditioned* by the institutional environment. Based on a matched sample of 153 majority state-owned and 153 wholly private-owned listed firms from 40 different countries (including both developed and developing countries), the study confirmed that the internationalization strategies of listed SOEs and POEs converge when home country institutions enable effective control. This suggests that the internationalization of listed SOEs' is not idiosyncratic to a specific institutional context (e.g. China and India) but driven by certain common institutional features that impose constraints and provide opportunities from the home country.

This outcome suggests that using ownership as a proxy for institutionalism is an oversimplification when explaining the firm strategic action. Being defined by North (1990)

as the “*humanly devised constraints that shape human interaction*” (North 1990, p. 1), and by Scott (1995) as “*regulative, normative, and cognitive structures and activities that provide stability and meaning to social behavior*” (Scott 1995, p. 33), institutions covers a wide range of formal and informal, external and internal contexts that create both the stimuli and constraints for decision makers. (Mike et al. 2009). Due to these features, the complexity of institutional pressure which firms experience can be underestimated or misinterpreted due to the limited scope of measurement and possibly biased context interpretation by researchers (Greenwood, Raynard, Kodeih, Micelotta & Lounsbury 2011).

This complexity of institutional pressure is more pronounced in transition economies, in which external market-oriented institutional reform (Redding & Witt 2008), as well as corporate-governance reform towards SOEs (Liao, Liu & Wang 2014; Zhang 2006) are changing the landscape of SOEs’ operational context. What specific institutional pressure is taken into account by SOEs and how SOEs react to such pressure, especially in terms of path-dependent organizational routines that could possibly impede firm response, needs to be investigated (Vergne & Durand 2011).

Therefore, rather than assume that state affiliation means a different kind of institutional pressure, it might be necessary to go one step back and understand what institutional pressure firms are facing with, whether this pressure differs between SOEs and POEs, and how firms respond to such pressure.

(2) Empirical investigation challenge – institutional environment measurement and justification for firm motivation

First, how can institutional theory be made more accessible? Institutional dynamics have been well recognized as direct determinants of firm strategy formulation and implementation more than merely background conditions (Peng & Heath 1996; Peng,

Sun, Pinkham & Chen 2009). Despite this, there are no congruent measurements for the institutional environment due to the highly abstract theoretical concepts involved ('rules of the game'). As the first and third types of research on EMNEs or Chinese firm OFDI dominate the literature, empirical studies in this research stream normally operationalize institutionalism at a state-affiliated level (e.g. Wang, Hong, Kafouros & Wright 2012), or use survey-based measures framed by researchers (e.g. Cui et al. 2012; Estrin et al. 2016). While these measurements are a good proxy for what and how institutions impact the firm's choice of strategy, they do not allow an understanding of the institutional context that firms experience, because both measurement approaches rely on researchers' interpretation.

Secondly, the firm's motivation for globalization and its relevant choice of strategy needs to be investigated. Government, as part of the institutional environment, tends to be the focus of discussion. However, as most empirical studies are based on quantitative tests, how firms interact with the government of the home and host countries is not revealed. Some scholars are aware of this limitation (e.g. Cui et al. 2012). The complexity of this institutional pressure is simplified as SOEs conform to home-country government-policy goals and host-country pressure while POEs do not. Due to the special type of ownership of SOEs, researchers tend to link SOEs' motivation for internationalization with the motivation of their owner, i.e. government (e.g. Li et al. 2014). However, the motivation of the government itself needs to be investigated. Considering governments have SOEs for various reasons⁹ (Cuervo-Cazurra et al. 2014, p. 921), the issue of how to justify government motivation and then clarify the impact of this on firm strategies in a convincing way is challenging.

⁹ Cuervo-Cazurra et al. (2014) suggest that the existence of SOEs arose from various government economic ideologies or political strategies – communism, nationalism, social and strategic.

3.3 SOE literature summary

3.3.1 Institution theory as common theoretical underpinning

Although empirically these two streams of SOE literature focus on different outcomes of firm ownership, both have adopted an institutional perspective as their theoretical underpinning and applied this theory in a top-down manner.

(1) Institutional context as macro-level antecedents of economic output and firm strategic action

Both streams of SOE literature explicitly or implicitly use ownership as the common proxy for institutionalism.

For the performance-centred discussion, the theoretical logic is consistent with the central argument of New Institutional Economics, that is, that institutions matter for economic performance (Furubotn & Richter 2014). The four levels of institutional analysis outlined by Williamson (2000), i.e. agency theory (emphasizing incentives), transaction cost economics (emphasizing governance structure), economics of property rights/positive political theory (emphasizing formal rules like bureaucracy and the judiciary), and social theory (emphasizing informal rules like customs and norms), generally cover the variety of explanations of SOE performance.

For the internationalization discussion, the dominant theoretical logic is that of neo-institutionalism, which emphasize how institutions shape organizations' behavior (Powell & DiMaggio 2012). The motivation for firms' strategy is to acquire social acceptability or legitimacy, thus firm strategy is dependent on the nature of the institutional pressure they are confronted with (Oliver 1991). A conformity response towards institution pressures is often predicted in SOEs' internationalization strategy (e.g. Meyer et al. 2013). The institutional pressure experienced by SOEs and their

responses to that pressure are predicted to be different to POEs due to the different extent of resource dependence on the home country government and the perception of their political image by the host country government and local stakeholders (e.g. Li et al. 2014; Meyer et al. 2014).

Although based on different version of the institutional theory, both streams of SOE literature recognize institutional context as macro-level antecedents for both firm performance and internationalization strategies. Whether it be at the level of performance or internationalization, researchers recognize that institutions directly determine the direction of the formulation and implementation of the strategy (Ingram & Silverman 2002; Peng 2012; Sun, Peng, Lee & Tan 2015; Wu & Chen 2014).

(2) Top-down interpretation of macro-institutional context

With ownership as a proxy for the institutional context in which firms are embedded or are faced with, what and how the institutions influences SOEs and POEs differently is generally based on individual researchers' interpretation of the different levels of institutional effects¹⁰.

For example, on the one hand, privatisation arguments view organizations as institutional forms, see organizational governance structures (state-owned vs. private-owned) as constraints on utility-maximizing agents, and agent conduct as a “rational” response to given incentive structures (higher agency costs for SOEs). On the other hand, anti-privatisation arguments and research on SOEs' internationalization choose to incorporate a higher level of institutional analysis, take into account the country-level institutional context, i.e. formal and societal “rules of the game” and their effects on economic form and process, and view organizations as “players” who respond to higher-

¹⁰Except for a few studies such as Cui et al. (2012).

level institutional pressure. This multi-level interpretation of institutionalism and different views of organizations are addressed by Scott (2013).

Interpreting institutions at different levels and treating organizations differently reflects a common approach to the analysis of institutional effects, i.e. a top-down approach. Institutions are portrayed as explicitly given forms that provide a higher-level context that constrain and shape the actions of lower-level organizations or actors. Furthermore, there are clear consequences for defiance through mechanisms of sanction and socialization (Scott 2013).

However, the mixed empirical results from the privatisation debate, and evidence that ownership does not directly impact firm internationalization both indicate that the prevailing top-down approach is insufficient for understanding SOEs strategic behavior. Also, top-down theorizing is based mainly on individual researchers' interpretation and hence the institutional context in which firms are embedded or to which they respond is not clearly understood. These issues all manifests in challenges to current SOE research.

3.3.2 Challenges for current SOE research

The two streams of SOEs literature have explored the general question “does ownership matter” by examining the effect of ownership on firm performance and cross-border strategic action. Both have provided insightful arguments to help understand ownership issues. However, the top-down application of institutionalism provides a confusing picture about SOE behavior. In particular, the risk of fallible inferences from both empirical evidence and theoretical reasoning is a challenge for the ongoing SOE discussion.

(1) Risk of fallible inference based on empirical evidence: contrary assumption

Comparison of the explicit and implicit logic underpinning the two streams of SOE literature, reveal contrary embedded assumptions (see Table 1 below). Since most of the studies are based on deductive reasoning that links ownership and control, the contrary assumptions indicate researchers' varied interpretation of the causation of SOE behavior. For example, when privatisation research generalizes that state ownership is the cause of poor firm performance, managers (agents) are seen as active opportunists who maximise self-interest and lack supervision due to the fact that there are no real owners of the firm. Alternatively, SOE internationalization studies suggest that SOE managers are simply conforming to government goals due to dependence on government resources.

Table 1 Contrary assumptions for SOE behavior in the literature

Assumption dimension	SOE internationalization	Privatisation debate
Managers' response model	Simple conformity model: Passively implement government policy and political goal	Rational choice model (privatisation argument): active opportunist, maximization of self-interest soft-budget constraint leads to the inactive agent
Source of firm advantage	SOEs have preferential access to resources (political capital)	SOEs have no advantage or viability (privatisation), and have to assume policy burden (anti-privatisation)
Politician motivation	National interest	Self-interest (privatisation) vs. people-interest (anti-privatisation)
Government role in firm strategy behavior	Drive and actively provide support to facilitate implementation of firm strategy that aligns with national strategy objectives	Inactive (privatisation) vs. Frequently intervene in firm decision-making process and impose policy burden in order to achieve social or political goal (anti-privatisation)

However, although the causal interpretation of SOE behavior is different, the foundation of the researchers' argument is very much the same. That is, ownership is used as a

proxy to determine a managers' thinking model (or mind-set) and for the institutional pressure that firms respond to. It is also assumed that this pressure is different between SOEs (including both central- and local-government controlled) and POEs. Further research on SOEs can continue these two streams of research by adopting a similar approach and adding to the previous literature to support one perspective or the other. Thus far, however, research has not resolved the debate or added new knowledge to the understanding about SOEs, as mixed results abound. Furthermore, falsifying either side of the argument is not possible due to the theoretical concept being immeasurable.

Under the same approach, although a clear result might seem to be attained, conclusions based on researchers' interpretations of theory and using ownership as a proxy are fallible due to invalid inferences. This leads to a relationship of association rather than a real causal explanation. Several scholars have addressed this theoretical interpretation issue. For example, Gomez Mejia, Wiseman and Dykes (2005) criticize the application of agency theory in diverse institutional contexts and argue that:

“The danger of extending institutional theory too broadly, however, such that each institutional context is different, is that our application of the theory becomes a-theoretical, leading us down a path toward highly stylized idiosyncratic examples that prevent the development of a generalizable theory of the firm... relying on stylized descriptions of idiosyncratic situations lacks sufficient degrees of freedom to determine whether it does or does not reflect a given theory” (Gomez Mejia et al. 2005, p. 1512).

Babbie (1998) stresses the causal interpretation issue for social science practice in general - *“There is always a danger that a researcher will interpret people's behavior only in ways that make sense from the researcher's own points of view... ultimately then, scientists use imperfect indicators of theoretical concepts to discover imperfect associations that are open to imperfect interpretations”* (Babbie 1998 p 82-83).

Particularly as the hybrid organization, which mixes sources of ownership and control, increasingly becomes a dominant organization form, the assumption of a direct relationship between ownership and control may be unwarranted (Bruton et al. 2015).

Thus the real challenge in continuing empirical study of SOEs is not to derive a statistically significant relationship between ownership and firm action or outcome, but how to clarify the validity of the causal interpretation of SOE behavior and reflect such interpretation in a specific theory.

(2) Risk of fallible inference based on the institutional perspective: insufficiency of the top-down approach in addressing institutional complexity

No matter whether it be the performance-centred discussion or the internationalization literature, the overarching characteristics of institutional theory (Scott 1995), especially the complexity of ‘institution’ (Greenwood et al. 2011) seem to have not received sufficient attention. At least three aspects of the application of institutional theory to SOE issues, have received insufficient attention and might result in fallible theoretical inferences.

First is the **multiplicity** of the institutional factors. With regard to the prediction of individual firm-level strategic behavior, Oliver (1991) suggests five institutional factors with ten dimensions that can possibly determine a firm’s tendency to conformity, that is, cause - why this pressure is being exerted (dimension: social fitness / economic fitness), constituents - who is exerting this pressure (dimension: multiplicity/dependence), content - what this pressure is (dimension: consistency with organizational goals / constraint), control - how or by what means this pressure is exerted(dimension: legal coercion / voluntary diffusion), and context - where this

pressure occurs (dimension: uncertainty / interconnectedness). A firm's strategic response is considered to range from acquiescence, to compromise, avoidance, defiance, and manipulation, representing conformity measures from high to low, respectively. The principle idea underpinning the prediction model is that the likelihood of a firm's conformity to pressure depends on the level of their resource dependence on another entity. However, instead of assuming that the institutional environment is monolithic, this model incorporates a contingent element, such that the nature of institutional pressure could result in different types of demands even when exerted by the same institutional constituents.

Second is the **interaction** of the institutional factors. Except for the contingent element in Oliver's prediction model, different configurations of institutional factors could form varied requirements or norms that reinforce or neutralize each other, and lead to heterogeneous firm strategic responses (Greenwood, Díaz, Li & Lorente 2010) that are not consistent with researchers' interpretation and prediction.

Third is the **contradiction** that exists in macro-level institutional prediction models. Some SOE literature takes into account the long-standing tension between the heterogeneous and homogeneous processes in firm responses to institutional pressure. This is the challenge for neo-institutionalism (Suddaby 2010). Typically, this historical tension manifested in the contrary depiction of firm responses to institution pressure in the classical works in neo-institutionalism of Oliver (1991, 1992) and DiMaggio et al. (1983).

In terms of firms' collective behavioral patterns, both Oliver (1991) and DiMaggio and Powell (1983) identified similar institutional antecedents, but their predictions of firms' responses diverge. Oliver (1992) puts forward three types of institutional antecedents to

predict firms' deinstitutionalization, which emphasises a heterogeneous process: political, functional and social pressures. Political pressures are associated with the shifts in underlying power distributions that support existing institutional arrangements; functional pressures are those arising from performance related utility problems, which may be tied to broad environmental change such as intensified competition; social pressures are associated with changes in social expectations or laws (Oliver 1992). These three institutional antecedents are consistent with DiMaggio et al. (1983)'s description of the three mechanisms that lead to isomorphic firm activity and action, yet they underscore the process of homogeneity: coercive pressure from resource dependence, mimetic pressure from standard responses to goal ambiguity and environmental uncertainty, and normative pressure from professionalization.

Therefore, this institutional complexity indicates that a top-down application of institutional theory is insufficient. As suggested by Scott (2005), institutional complexity demands theorizing institutionalism in a more interactive way. In particular, multiple levels of actors need to be taken into account, and "*it was important to specify who-which actors held the beliefs or were enforcing the norm, and actors subject to institutional influences are capable of responding in a variety of ways*" (p.13).

In sum, the contrary assumptions within and between the two streams of research, as well as institutional complexity indicate that scholars cannot solve the problem "does ownership matter" by just taking an outsider's view and adopting reductionism-based causal reasoning, i.e. taking ownership as a focal proxy to explain or predict firm performance or strategic action. Either a more approximate measurement of the theoretical concept (such as agency cost) or a new perspective is needed to extend the understanding of SOEs' strategic behavior.

Following the thread of empirical and theoretical challenges, the corresponding gap in empirical tests and theoretical applications are elaborated in the next section.

3.4 Gap spotting

3.4.1 Empirical gap: firm strategy making as the missing intermediary between macro-institutional context and firm actions and outcomes

Two issues are still not clear at this stage of discussion about SOEs.

Firstly, a fine-grained understanding of the institutional context in which firms are embedded or to which they respond is needed. The contrary assumptions identified earlier reveal the problem of researchers' varied causal interpretations of SOE behavior. Typically, privatisation arguments focus mainly on firm economic function and firm internal governance, and do not differentiate the context of the home country. Although international business research has taken into account the globalization context and where the firm comes from (MNEs vs. EMNEs vs. SO-MNEs), this context is based mainly on researchers' stylized descriptions that reflect theory. This issue corresponds to the recent review by Hoskisson et al. (2013), who suggests developing a more fine-grained understanding of home-country context.

Secondly, managers' motivation with respect to strategic action is not clearly understood. Under the explanatory framework based on researchers' interpretation of institutional context, the institutional elements that firms are seen to respond to remain dependent on the interpretation of researchers. However, actions are goal-directed processes, and different actions may be undertaken to meet the same goals (Nardi 1996). Particularly with the hybrid-organizational form becoming increasingly dominant, the interests of multiple shareholders are involved in firm practice. How managers of SOEs make

strategic choices when faced with conflicting interests and norms, and what “rules” or values underpin their decisions (Hutzschenreuter & Kleindienst 2006) might not be so easily interpreted by researchers.

In sum, the explanatory paradigm of institutionalism has different rules and interest groups on one side of the equation, which is operationalized as ownership, and firm economic outcome or cross-border activity on the other side. A gap remains in the linkage - the firm strategy process. The inferential logic and the arguments from the two streams of research are incorporated in Figure 12 to illustrate this empirical gap.

As Figure 12 shows, there is a broken link between objective environmental factors and firm action and performance. The firm strategy process is a black box. This process includes both strategy-making, in which managers’ and key shareholders’ motivation are reflected, and strategy implementation and control, where corporate governance and firm operational processes are manifest. Corresponding to Mike et al. (2009)’s suggestion to connect micro- and macro-institution by focusing on a firm-level strategy, as well as Bruton et al. (2015)’s proposal to integrate micro-level institutional- managers’ strategic mindset into the discussion of firm strategic behavior, this study focuses on the articulated outputs of managerial strategy making for both SOEs and POEs.

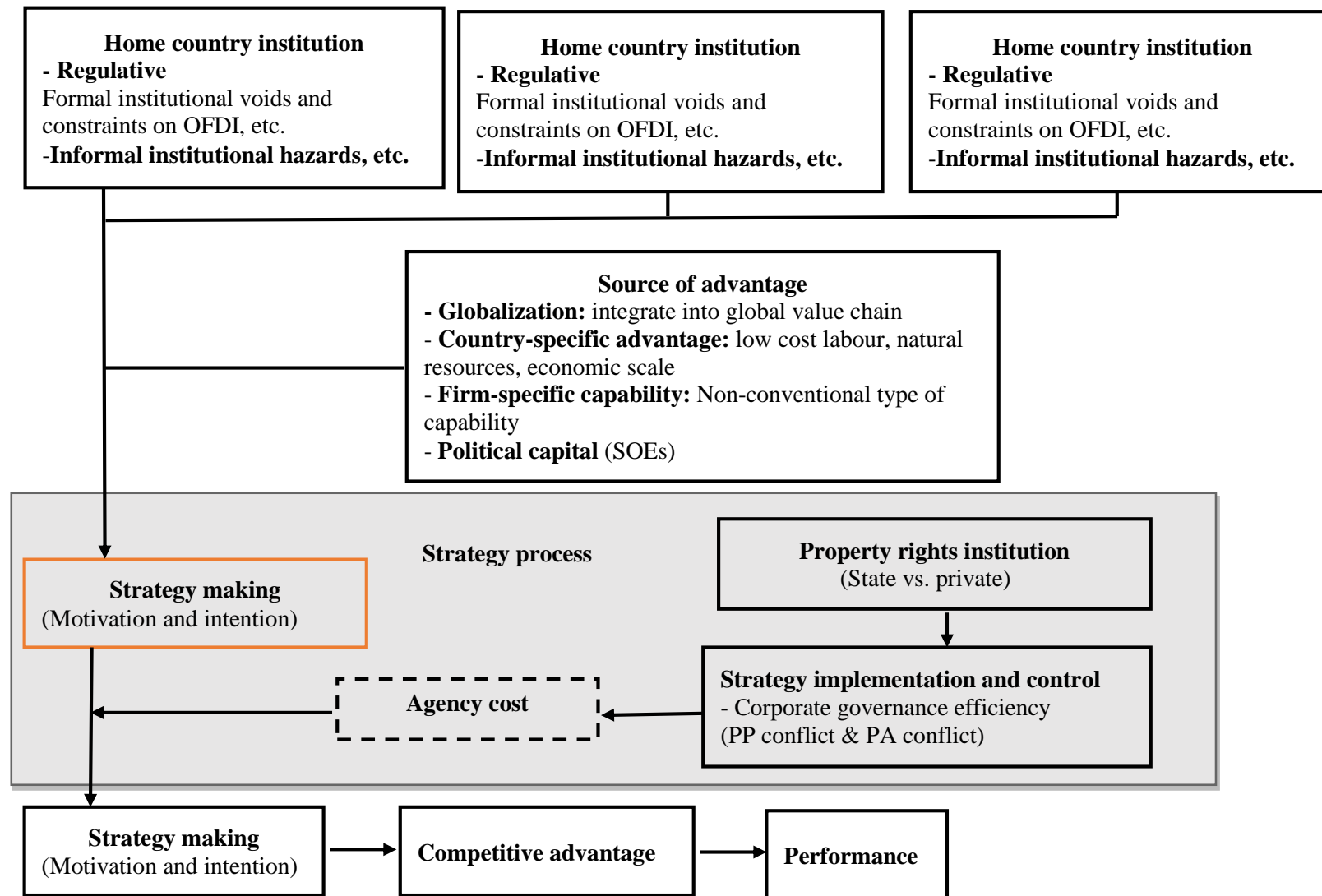


Figure 11 Summary of general inferential logic of the two research areas

Note: the dashed boxes are the theoretical concepts not measured in the inference ladder

3.4.2 Theoretical application gap: bottom-up approach of institutional theorizing

To address the insufficiency of the top-down approach of institutional theorizing, a bottom-up mode of institutionalism is needed to supplement the understanding of institutional dynamics.

The prevailing top-down model originated from DiMaggio et al. (1983)'s revisit of the "iron cage" paper - the seminal work that flagged organizations as passive recipients of institutional pressure (Weber 1958, pp. 180-181). More recent developments in neo-institutionalism recognise that individuals have largely disappeared from institutional analysis, and call for bringing 'agency' back (Suddaby 2010, p. 17), that is, to understand how institutions operate through the influence and agency of individuals, in which language, meaning, cognition, interpretation etc. play the role. Under the recent neo-institutionalism analytic framework, scholars (e.g. Kerstin, Royston, Christine & Roy 2012; Lawrence, Leca & Zilber 2013; Scott 2010; Suddaby, Seidl & Lè 2013) re-examine the relationship between agency and institutions, and emphasize the following premises and claims.

First, there is a clarification of the rationality myth. In neo-institutionalism perspectives, actors are intentionally rational, but only bounded so, because they lack complete knowledge and have a limited attention capacity which is structured by the organization (Ocasio 1997). 'Bounded rationality' is recognized as the most influential and clearest statement of the micro features and functions of neo-institutional forms (DiMaggio & Powell 1991 p.15-26):

"In accepting organisational membership, individuals are expected to adopt organizational value premises as a guide for their decisions; factual premises-beliefs about means-ends connections are also commonly supplied in the form of

organizational rules, procedures, and routines. Behavior is rational in organizations because choices are constrained and individuals are guided by rules... Indeed, the rational individual is, and must be, an organized and institutionalized individual” (Simon 1945, p.111).

Under the bounded rationality assumption, institutions both *constrain* and *empower* actors (Glynn 2008). The extent to which behavior is informed or constrained will rely on the extent to which knowledge is constructed, codified and “taken-for-granted” (Green Jr & Li 2011). Underlying all decisions and choices are socially constructed models, assumptions and schemas, and all decisions are admixtures of rational calculations and non-rational premises (Scott 2013).

Therefore, individual behavior reflects external definitions rather than internal intentions (Scott 1995). In particular, interest does not originate from natural “economic man” nor is it exogenous to the analysis framework. Instead, interests themselves need to be investigated. They are endogenous, arise within a social context, and vary by institutional context (Scott 2008).

Secondly, there is no rigid distinction between ends and means. Ends are not fixed as the top-down approach has depicted. Instead, means-ends is an ongoing activity, and sometimes means can become ends (Olsen & March 1989). Institutionalization and institutional change are enacted in the everyday by actors. Actors from multi levels reproduce their roles, rules and at the same time they also challenge, modify, and disrupt them (Lawrence, Suddaby & Leca 2011).

Thirdly, ‘institution’ is a meaning system that is multi-level and reciprocal. By going back to Meyer and Rowan (1977)’s emphasis that ‘institution’ is a broader structure of meaning but not deterministic, the earlier work of isomorphism is recognized as not a

mindless, structurally determined process but an effortful accomplishment by human actors (Lounsbury 2008). The institution then is portrayed as a distributed meaning system, in which multiple actors operate at different levels, do various contradictory and complementary institutional work, and each actor embedded in the system will need to respond to each other's effort (Lawrence et al. 2011). Thus, 'institution' becomes a dynamic reciprocal process and includes both a top-down process in which a higher-level order constrains and shapes the actors' behavior, and a bottom-up process in which lower-level actors reproduce and change the context within which they operate (Scott 2010).

Fourthly, the ideas (symbolic systems) that mediate between environmental conditions and action (Scott 2010) are the focus of study, rather than products or outcomes of institutional influences on the organization (Suddaby 2010). This is because constituents of activity are not fixed but can dynamically change as conditions change. However, the symbolic system that includes categories, typification, schemas, frames, language, etc., "carries" the institutions (Scott 2003), and persists and stretches across activities through time and space (Nardi 1996).

Following this trend, the content of 'institution' is akin to a coherent symbolic code that prompts human actors to collectively perform certain practice (Scott 2003; Weick, Sutcliffe & Obstfeld 2005). The idea that shared conceptions constitute the nature of social reality (Berger & Luckmann 1967), and how the organization acquires meaning and continuity whereby language, categories, work and aesthetics play a role, become a locus to understand the motivation of firm-specific practice adoption (Suddaby 2010).

Last but not least, 'institution' as a meaning system needs to be interpreted by actors. As meaning arises in interaction, it is employed by the actor to make sense of what is happening, and empowers actors to influence others. Emphasizing 'institution' as a

meaning system indicates that any action needs to be understood or explained by taking into account both objective conditions and actors' subjective interpretation of those conditions. That is, actors should not be dichotomized as either institutional puppets that just passively conform to institutional pressure, or hyper-muscular supermen dedicated to resisting institutional pressure. They play a role as agency, residing between the context and response, and participate in the "*interpretive process whereby choices are imagined, evaluated, and contingently reconstructed by them in the ongoing dialogue with unfolding situations*" (Emirbayer & Mische 1998p. 966). Therefore, institutional rules, social networks and culture structures do not affect behavior directly, but need to be mediated by meanings given to them by actors (Beckert 2010; Dequech 2005).

Based on these main premises and claims, this study borrows from the bottom-up approach, in which selective attention, interpretation, sensemaking, and identity as a micro-level foundation of the institution (Powell et al. 2008) are incorporated. Rather than refute the arguments of previous discussions on SOEs, this bottom-up approach is used to supplement the previous work.

It is hoped that this effort will extend our understanding of the institutional dynamics behind the collective strategic behavior pattern of the organizational population (in this case, the SOE group and the POE group) rather than what drives specific firm action.

In next chapter, the bottom-up approach to bridge macro-level institutionalism and micro-level firm strategy making processes are elaborated as the theoretical framework, which paves the way for the research design.

Chapter 4 Theoretical Framework: the micro (bottom-up) dynamics of institutionalism

The recent development of neo-institutionalism depicts the institution more clearly as a context of symbolic meaning that is dependent on the interpretation and enactment by individuals. In this sense, the institutional material is commonly pulled down by individuals and translated to guide actions in the organization (Powell et al. 2008). Hence, a theoretical linkage between macro-level institutional context and how it enters into and operates at micro-level organizational behavior is needed.

In firm strategy studies, a distinct school in the broad behavior strategy area – the strategic cognition perspective (Powell, Lovallo & Fox 2011), has elaborated the role of cognitive structure (mainly strategic frame and organizational identity) and sensemaking as the pivotal activities in converting context into firm actions. This viewpoint provides the micro-foundations of institution analysis.

Also, by referring to the work of some neo-institutionalism scholars, particularly that of Weber et al. (2006), the linkages between the macro-institutional context and micro-level strategic cognition and sensemaking are built up. This micro-macro linkage is the theoretical framework that underpins a bottom-up approach for analysing the institutional dynamics of firms' collective strategic behavior.

This theoretical framework paves the way for a research design based on collecting the convergent content of sensemaking to reveal the institutional dynamics that drive firms' collective strategy behavior.

4.1 Micro-level institutional view of firm-level strategic behavior: the strategic cognition perspective

4.1.1 Definition of strategy: strategy as pattern of activities

As Mintzberg, Raisinghani and Theoret (1976) have suggested, the strategy can be defined as a pattern made up of both intended and unintended elements in a stream of decisions. This view stresses the discrepancy between what managers hope to do, i.e. the *intended strategy*; and what actually happens, i.e. the *realized strategy*. The ongoing interaction between the intended and realized strategies includes the deletion and addition of strategy components as well as the possibility that managers learn from realized strategy and then transform this learning to the intended strategy (Mintzberg 1978). The interplay between the intended and unintended, and realized strategy is depicted in Figure 13.

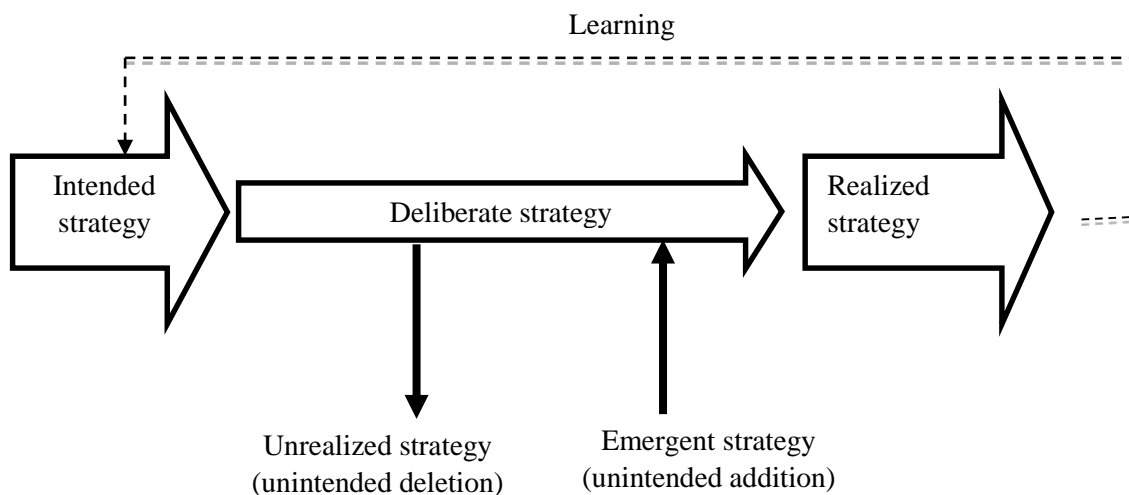


Figure 12 Types of strategies and strategy pattern generation

Note: The dash line loop indicates managers might learn from the realized strategy. As this is a possibility, dash line rather than solid line is used.
Adapted from Mintzberg (1978) and Huff (1982)

The differentiation of intended and unintended elements suggests that strategy is a regular pattern of activity of deletion and addition of elements into the deliberate strategy. Most previous research on SOEs' internationalization is situated within the realm of the observed (realized) strategy rather than the originally intended strategy. The motivations and intentions behind this strategy have not been fully investigated.

From the strategic cognition perspective, variations in a stream of strategy decisions can be viewed as the outcome of changes in strategic cognition (Huff 1982). Therefore one of the keys to understanding the strategic behavior of a firm lies in understanding the strategic cognition of its managers

4.1.2 General introduction of strategic cognition perspective

Derived from the Carnegie School's behavioral decision theory (Simon 1959), the strategic cognition perspective adopts the assumption of bounded rationality (Simon 1947) and the enacted environment view (Smircich & Stubbart 1985). It focuses on cognitive perspectives as complements to rational analytical models. Located in the broader behavioral strategy area where fewer inhibiting assumptions about decision rationality exist (Powell et al. 2011), this perspective details the links between cognition and sensemaking (Weick 1995), strategic diagnosis (Dutton, Fahey & Narayanan 1983) and strategic decision-making (Hambrick & Mason 1984; Lyles & Schwenk 1992). Porac, Thomas and Baden - Fuller (1989)'s paper "Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers" was a forerunner in directing strategy management towards acknowledging the role of managerial cognition. After almost three decades of development, this body of work is mature and constitutes a distinct school in the area of strategy management (Narayanan et al. 2011).

Represented by the strategic frame studies, Narayanan et al. (2011) summarize this school of research as reflecting the evolution of three interrelated streams of thought in strategic management. The first is about strategic choice (Child 1972). The original thoughts suggested that strategic choice is limited by external constraints, while later, managerial cognition is included as an internal constraint. The second stream is about the increasing focus on the conception of the enacted environment i.e. the organization and its environment are co-created through the social and cognitive interactions of human actors (Smircich et al. 1985). The third related orientation suggested that strategic cognition research should depart from behavioral decision theory and go back to Dill (1958)'s assumption that firm behavior toward external stimuli is mediated by managers' cognitive representations of those stimuli (Porac & Thomas 2002).

Aligning with these three evolutions, the strategic cognition perspective suggests that an understanding of how organizations respond to their environmental stimuli must rely on understanding managers' mental representations of the stimuli (also named as mental models, cognitive maps, schemas, etc.) of those stimuli. This means that a key difference between the strategic cognition perspective in strategy research and other research streams is that it focuses on the managerial cognitive structures and processes in strategy, rather than the external stimuli or perceived environment per se. As summarized by Narayanan et al. (2011), "*strategic cognition ascribes causal importance to structure and process of cognition in the explanation of firm strategy and hence, the competitive advantage of firms*". (p. 307).

This research applies strategic cognition at the organization level, in which organization is taken as a set of interpretation systems (Daft & Weick 1984). Figure 14 depicts the theoretical logic of the strategic cognition perspective at the organization level. As is shown, strategic cognition plays the role of a set of lenses that filter and translate the

objective environment into a perceived one. Organizations respond to the environment they pay attention to and make sense of. The outcome of their actions provides feedback to allow them to reflect on the previous decision and hence a learning loop may occur¹¹.

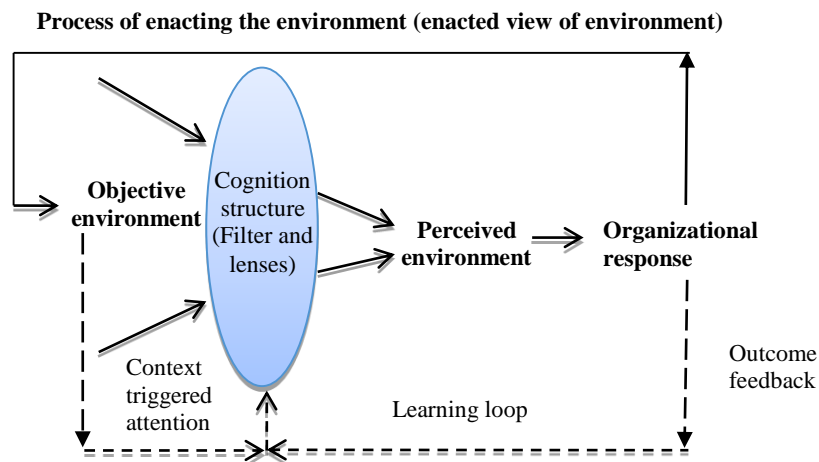


Figure 13 General logic of strategic cognition perspective

In sum, the strategic cognition perspective helps to explain the micro-level dynamics of firm strategic behavior by incorporating managers' thinking and perception into the explanation of strategic outputs. To clarify how strategic cognition is connected with the macro-level institutional context, the two interrelated and heavily emphasized cognitive structures, strategic frame and organizational identity, are important in structuring the micro-level foundation of analysis and its links with the macro-level context.

¹¹ Scholars have identified the existence of cognitive inertia that inhibits learning, but cognitive inertia research is still in its infancy, therefore, a dashed line is used for the learning loop in Figure 15. For the same reason, 'attention' as part of the strategy frame system is triggered by context, but how this happens is still in the early stages of study. Therefore, a dashed line is used.

4.1.3 Cognitive structure one: organizational identity as normative and expressive logic

If strategy addresses the question “where are we going and how do we get there?”, then organizational identity answers the key question “who are we?” Organizational identity is taken as the organizational members’ collective understanding of the features presumed to be central and relatively permanent, and that distinguishes the organization from other organizations (Albert & Whetten 1985). As it is socially constructed, and maintained by conversation within the organization, organizational identity is described as narratives to convey the firm’s identity (O'Connor 2002, 2004). Due to this conversational feature, scholars also use terms such as language and rhetoric (Fiol 2001), narrative texts (Chreim 2005), and stories (Martens, Jennings & Jennings 2007) to address organizational identity.

Organizational identity as a sense of organizational self-definition is critical because of its potential to influence and shape (and be shaped by) strategic choice and action (Ashforth, Harrison & Corley 2008). In particular, the pivotal activity in strategic diagnosis, sensemaking, is shaped by organizational identity and its influence on who people think they are in the context. What events to pay attention to, how decision maker(s) interpret and take action towards those events is directed by organizational identity (Watson 2009; Weick 1995; Weick et al. 2005). Rowley and Moldoveanu (2003) argued that interests are not enough to drive actor’s action because the action can be motivated by both the desire to express an identity as well as to protect interests. Also, action can be affected by the degree of membership overlap across multiple stakeholder groups (i.e. identify overlap) (Rowley et al. 2003).

Therefore, organizational identity is critical for firm strategy formulation because it is the “root construct” under which manager situate the cognitive and sensemaking process

(Ashforth et al. 2008). This filtering role is expressed in the way that issues perceived as vital or relevant to a firm's core values and beliefs (primary content of organization identity) will be prioritized by managers, and issues perceived as irrelevant to a firm's identity will be ignored or considered as subordinate (Ashforth 2001; Ashforth & Mael 1996). In this sense, organizational identity implies a rule of exclusion and prioritization. It plays a role of normative logic to constrain managers' attention to certain external stimuli as well as expressive logic to direct managers' decisions to display and convey the conception of the organizational "self" (Bundy, Shropshire & Buchholtz 2013). Similar to individual self-identity, an organization also has a pattern of cognitive processes and a form of organizational identity orientation that relies on the organizational members' collective conception and understanding of the features of the organization (Brickson 2005). It has powerful implications for individuals' social motivation, which guides individuals to focus on certain issues and ignore others, and thus shape firm behavior (Brickson 2007; Kogut & Zander 1996).

Due to this filtering role of organizational identity, scholars deem that the centric characteristics of broad issues perceived by managers as expressive salience could capture firm relationships with stakeholders and reflect social values advocated in the organization (Brickson 2005, 2007). For example, if a firm defines its organizational identity as customer oriented, this mission is going to shape the concerns of managers when processing and responding to external issues. Any concern raised by customers is likely to be perceived as consistent with firm identity and thus be given priority consideration. Similarly, managers improve labor welfare in response to employee advocates to maintain a 'humanity' identity (image)¹², and managers reduce emissions

¹² Scholars argue that there is a reciprocal interrelationship between identity and image; see (Gioia, Schultz & Corley 2000).

in response to environmental stakeholders' advocates to maintain an 'environment-friendly' identity (image).

This social aspect mechanism explanation of how managers' perception of organizational identity influences their attention and interpretation of external stimuli is an important theoretical insight into the exploration of SOEs' strategic behavior. Closely related to government motivation to control SOEs, how the government defines the mission(s) of SOEs constitutes the organizational identity that situates and guides managers' attention and interpretation of external issues. Based on this logic, the characteristics of the issues perceived by SOEs' managers as expressive salience are a reflection of the social values advocated by the government.

In addition, when organizational identity facilitates the sensemaking process and reflects the mission of the organization, it also severely constrains interpretation, actions, and the potential for change (Pratt & Foreman 2000). As Fiol (2002) pointed out, on the one hand, organizational identity binds people together, but on the other hand, it blinds people to issues that are inconsistent with the current identity. Particularly in a constantly changing environment where rapidly evolving technology and globalization prevail, the premise that it is possible to gain a sustainable advantage based on any particular core competency might not hold (Fiol 2001). Multiple and changing identities are necessary to have adaptive capabilities in a changing context because a rapid change in firm behavior needs to acquire meaning through the lenses of identities in order to appropriately contextualize the new behavior (Fiol 2001).

This barrier feature of organizational identity also manifests its importance in understanding SOE behavior. Except for the higher-level organizational mission that defines the primary identity of SOEs, the sub-organizational identity that is closely

linked with the mission could possibly be different or even out-dated compared with POEs in the market. This might also explain the negative performance cases in some of the previous SOE literature.

4.1.4 Cognitive structure two: strategic frame as instrumental logic

If organizational identity reflects how firms define themselves and carry out their purpose, then a strategic frame is the instrumental tool managers use to interpret issues and guide firm action and thus translate that purpose into strategic action (Bundy et al. 2013).

A strategic frame is defined as the knowledge structure on which managers can base their strategic decisions, and the cognitive template actors impose on the symbolic world to give it meaning and enact the environment (Walsh 1995). A strategic frame is basically an abstract representation of things or events that are embedded in people's thoughts (Weick 1995). It is developed over time through experience, learning and interaction with others (Fiske & Taylor 1991). As another filter that mediates between the objective environment and the perceived environment (Smircich et al. 1985; Weick 1995), a strategic frame is also one of the lenses through which individuals view the world and take action in their environment.

The central role of a strategic frame in understanding firm behavior is the same as organizational identity, that is, enabling the pivotal activity in firm strategic diagnosis, the sensemaking process, which involves the reciprocal interaction of scanning, interpretation, and action (Bogner & Barr 2000). During the strategic diagnose process, managers carry out sensemaking activities in order to give meaning to observed ambiguous data, based on which action can be taken (this process is summarized in Table 2 below). Therefore, in contrast to the rational model, where the actor calculates

the best option, the strategic frame emphasizes the “pattern” of cognitive structure and process that relies on managers’ past experience or analogy¹³.

Table 2 Role of strategy frame in sensemaking process

Sensemaking component	process	Role of strategy frame
What is noticed (perception)		Making some stimuli more salient than others
Understanding what is noticed (interpretation)	is	Provide rules and relationships, categorizing to simplify information
Solution (action)		Suggest what actions should be taken

Integrated from Weick (1995) and Bogner et al. (2000)

Five attributes of strategic frame elaborate how it influences firm strategic behavior.

First, the strategic frame classifies an issue and determines its level of priority (attention), which then impacts firm action. Managers have limited attention capability and limited knowledge of the scope of available alternatives and the range of consequences of their actions. Hence they need to focus on the domains they deem to be most relevant in order to deal with a vast amount of information that exceeds their cognitive processing capacity (Ocasio 1997; Simon 1991). So in the real world, where information is excessive and ambiguous, for any issue to be considered salient, it must first fall within the realm of a manager’s strategic frame and stand out from other stimuli. In particular, to be labeled as a strategic issue, the stimuli must be interpreted as potentially relevant to the organization’s strategic goals (Bundy et al. 2013). Thus, characteristics of the

¹³ Simon (1979) makes this point from the study of chess players’ decision-making and problem-solving processes. Better chess players could remember more “patterns” of previous games, and chess players actually made decisions based on experience or “what worked before”, not on the basis of some best strategy or optimizing procedure.

broad issues perceived as being instrumentally salient are a reflection of the organizational goals set by managers.

Secondly, a strategic frame helps managers to apply causal reasoning to understand the context and resolve the issue (causal logic). Strategic frame studies claim that context and the firm's relationship with the context are the primary basis for managers' strategic diagnosis (Dutton et al. 1983; Huff 1990)¹⁴. Drawing on the field of cognitive science, the strategic frame research assumes actors construct a simplified working model of reality (a 'mental model'), which in turn acts as a basis for strategic decision-making. This model consists of concepts about aspects of the decision-making environment and beliefs about cause and effect relationship between them. This relational statement of cause-effect allows the decision maker to impose logic on the context to understand and resolve the issue. In this way, the issue is framed and then solutions are suggested with the aid of the managers' strategic frame. Due to this relationship-based assertion of managers' cognition structure, a causal map (also known as a cognitive map) is suggested to correctly represent the managers' belief system where critical assumptions, normative logic, and instrumental logic are manifest (Axelrod 1976; Eden, Ackermann & Cropper 1992; Huff 1990; Loewenstein, Ocasio & Jones 2012; Nadkarni & Narayanan 2007a).

Thirdly, a strategic frame aids the cognitive process of categorizing. This underlies managers' conceptualization of strategic issues and organizational action (categories). These cognitive categories are important because they help managers efficiently store information and aid communication (Dutton & Jackson 1987). The main assertion of categorization theory is that people create cognitive categories based on their

¹⁴ These arguments are supported by cognitive neuroscience; see Forstmann and Wagenmakers (2015).

observations of the features or attributes of issues (Mervis & Rosch 1981). Strategic cognition scholars integrate this with psychological perspectives such as prospect theory (Kahneman & Tversky 1979) and the threat-rigidity hypothesis (Barr & Glynn 2004; Staw, Sandelands & Dutton 1981) to explain firm strategy wherein the threat/opportunity (T/O) interpretation category, a facet of sensemaking, is frequently used (e.g. Barr et al. 2004; George, Chattopadhyay, Sitkin & Barden 2006). Such scholars identify three attribute dimensions that differentiate threats from opportunities. These are positive/negative, gain/loss, control/little control¹⁵, and suggest managers interpret the environment by labeling and categorizing strategic issues into either threat or opportunity. This categorizing activity eventually influences organizational action (Chattopadhyay, Glick & Huber 2001; Dutton et al. 1987).

The recent linguistic turn in organizational research further extends the application of categorization theory. These researchers consider that managers' conventional use of words in communication produces a vocabulary system of categories. Smaller clusters of these categories collectively indicate schemas, or mental representation of managers' structured knowledge (Loewenstein et al. 2012; Markman & Makin 1998). Larger configurations of these categories shared by managers in the same field can collectively indicate higher-order principles – the fundamental tenets that organize managers' schemas¹⁶ (Loewenstein et al. 2012; Ocasio, Loewenstein & Nigam 2015).

Fourthly, closely related to the second and third mechanisms, the cognitive bias that exists in a managers' strategic frame will manifest itself in their causal attributions of specific events, which in turn impacts future firm action and performance (attribution).

¹⁵ As suggested by cognitive scholars, the 'control/little control' dimension arguably has a similar meaning as the 'gain/loss' dimension, and some literature suggests these two dimensions should be merged together; see George et al. (2006).

¹⁶ These tenets are considered to be a cultural repertoire of institutional logic in the field; see Weber, Patel and Heinze (2013).

Differing from the prospective form of interpretation like categorizing theory, causal attribution research focuses on the retrospective form of interpretation of the issue, primarily on a change in firm performance. This work is mainly based on annual report analyses. Researchers continuously find similar attribution patterns of performance (self-serving bias), that is, good performance is attributed to management actions while poor performance is often attributed to external factors (Powell, Lovallo & Caringal 2006). Researchers propose two possible explanations for the self-serving attribution pattern. One explanation is that it could be managers conscious attempt to manage the impressions of others (Salancik & Meindl 1984; Staw, McKechnie & Puffer 1983). Another explanation is that this pattern accurately reflects an actual, subconscious bias in the managers' sensemaking process (Clapham & Schwenk 1991; Huff & Schwenk 1990).

Empirically, the second explanation has attained support. From a direct investigation, Clapham et al. (1991) compared attribution patterns in the annual reports of 20 public utility firms over five years. They found that attempts at impression management through self-serving attribution are less likely in both heavily regulated industries (where the primary audience is more knowledgeable) and non-regulated industries. As they conclude, if self-serving attributions were simply an attempt to manage the perceptions of stakeholders, it is unlikely that executives would persist in these patterns of attributions in the face of the fact that they do not have positive effects on the stakeholders and future earnings. General results of the empirical test indicated that, when managers attributed a decline in firm performance to external environmental factors, a lower level of strategic change was undertaken by the firm to improve performance.(Weiner 1979). On the contrary, the firm was more likely to make strategic changes when managers attributed a decline in firm performance to internal factors (e.g.

Nottenburg & Fedor 1983; Thomas, Clark & Gioia 1993). Researchers also found that self-serving attributions in annual reports were negatively related to future firm performance (Clapham et al. 1991; Schwenk & Tang 1989). Based on these findings, causal attribution became one of the important dimensions of strategy frame analysis.

Lastly situational context plays a role as a trigger to evoke a partial strategic frame (multiplicity). Strategic cognition scholars find that managers may hold multiple strategic frames and organizational identities (Corley 2004; Gilbert 2006). Therefore, Narayanan et al. (2011) suggested researchers can only get a partial glimpse of a strategic frame or identity. The theoretical position of the strategic frame (and organizational identity) research is the assumption that a number of strategic frames/identities are domain specific and partially linked together to aid managers' decisions. Which frame or identity emerges is dependent on various triggers (Gilbert 2006; Louis & Sutton 1991).

In sum, the concept of strategic frame offers another important perspective through which to explore SOEs' strategic behavior in providing an approach to understanding managers' strategic knowledge structures that constitute their subjective world.

4.1.5 Interrelated organizational identity and strategic frame in firm strategic behavior

(1) Enabling sensemaking and manifest in output of strategic diagnosis

Both organizational identity and strategic frame have been recognized as important concepts in strategy. These two cognitive structures can be reciprocally coupled, either reinforcing one another or creating a bias on one another in organizational sensemaking activities (Bundy et al. 2013; Dutton & Penner 1993; Gioia & Thomas 1996).

These interrelated effects of organizational identity and strategic frames were elaborated by Bundy et al. (2013). On the one hand, organizational identity typically anchors itself to organizational mission and is hence developed as a highly abstract belief. To express this identity, the organization needs a strategic frame to provide a means for action guidance. When a wide range of issues could possibly be considered as relevant to organizational identity, the strategic frame further filters the issues into the area relevant to organizational goals and within the domain of managerial knowledge structure. At the same time, it offers a solution to guide actions. On the other hand, when there are multiple issues that are considered pertinent to organization goals and/or different solutions to ensure the achievement of such organization goals, organizational identity is indispensable in restricting attention to the issue that has a relationship with organizational value, and narrowing the available solutions to the area that matches the mission of the organization.

As a result of the interrelated interpretation, several patterns can manifest in sensemaking. One of the patterns is issue priority. Issues interpreted as related (either consistent or conflicting) to strategic goals will receive attention and consideration for a solution. This is termed instrumental salience. Issues that are interpreted as pertinent (either consistent or conflicting with oriented stakeholders' advocates or with the values or beliefs advocated by the organization) to the definition of organizational identity will receive attention and consideration for a solution. This is termed as expressive salience. By combining both interpretation effects, Bundy et al. (2013) inferred that *“the issue with only expressive or instrumental salience will result in only a moderate level of salience, but the issue with instrumental salience that also allows for identity expression will be given the highest priority by managers”* (p. 2013).

This interrelated interpretation effect can be illustrated by adding organizational identity into Dutton et al. (1983) and Fahey and Narayanan (1989)'s insights about the organizational strategic diagnosis process, in which sensemaking is the central activity in the process (See figure 15).

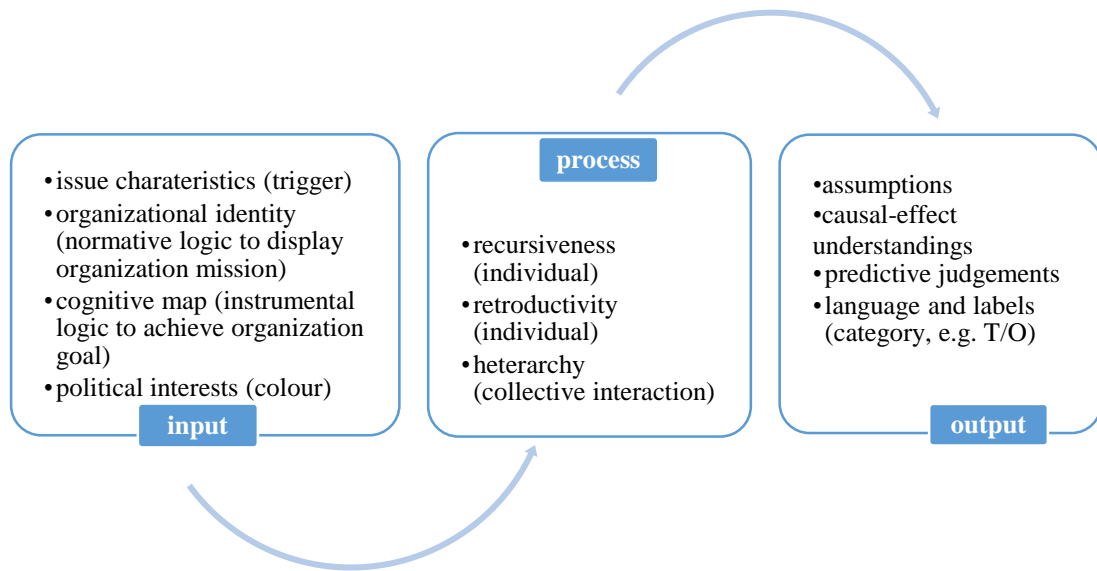


Figure 14 Input, process and output of strategic issue diagnosis (sensemaking)

Adapted from Dutton et al. (1983)

Based on the strategic issue diagnostic process and the above discussion about the joint mechanism of organizational identity and strategic frame, organizational identity is added as an input. This diagram thus elaborates on how the organizational strategy emerges through the cognitive process of managers:

Input

- *Organizational identity*. Participants refer to a broader organizational mission to filter and select certain aspects of an issue as the focus of and guide for the choice of action.

- *Cognitive map (strategy frame)*. Participants use a strategic frame as an interpretive scheme to filter and select certain aspects of an issue as the focus that is considered relevant to the organizational goal, and link the focused issue to a certain action concept;
- *Political interests*. Participants tend to influence the interpretation process to suit their own purposes. This attempt is manifest in the distortion or selective control of data in order to create a particular direction and focus in the diagnosis. Therefore, individual self-interest is reflected in the diagnosis area. The bargaining and negotiation process within the organization is competition between conflicting cognitive maps under the broader organizational identity in order to determine the diagnosis output.
- *Issue characteristics*. Issue characteristics refer to the internal and external strategic information and domain in which strategic diagnose process applies. These issues attended by the organization represent the domain within which political interests are focused, and which are pertinent to organizational identity and/or organizational goals.

Process

- *Recursiveness*. Managers' interpretation is a successive process in which earlier interpretation can be replaced and revised by new interpretations as new data appear. This process can be driven by predictions based on the managers' cognitive map of action-outcome linkage, and also by stimulus-response learning to revise a previous cognitive map.
- *Retroductivity*. The sensemaking process comprises both deductive and inductive modes of reasoning that rely on a cognitive map (Weick 1995). In order to reduce information overload and ambiguity and facilitate understanding

of a complex situation, individuals have to adopt deductive reasoning beginning with a set of explicit assumptions from which logical reasoning may emerge. The ambiguous and incomplete nature of a strategic issue also forces individuals to draw inferences to fill any gaps in disparate data, which then requires inductive reasoning. The assumptions generated by deductive logic also rely on the knowledge gained inductively through past experience and learning. Therefore, except for data availability, the various interpretations around the strategic issue and the resulting conclusions among different individuals can originate from differences in their cognitive maps.

- *Heterarchy*. A decision might be made by just one individual, but a firm-level strategic issue is normally diagnosed collectively. Therefore, the output of strategic diagnosis emerges from the interaction of multiple organizational actors' differing cognitive maps, political interests and contexts under the guidance of a broader organizational identity. The finalization of a strategic diagnosis can achieve cooperation within the organization but does not necessarily imply consensus among participants. The output might not be a shared understanding of the context, but the dominant one.

Output

- *Assumptions*. As one of the outputs of diagnoses, taken-for-granted conditions or attributes are held by managers in order to simplify and reduce the complexity of the context they are in. Only in this way can a solution be achieved. These assumptions also impact on the range of alternatives that managers will consider.
- *Causal-effect understandings*. It refers to the structure of causal inference made by managers to make sense of the situation. In this way, the situation is framed

and influences subsequent action. It is revealed to the world by managers during the process of public exposure.

- *Predictive judgments.* In contrast to causal-effect understandings, predictive judgments assess future occurrences in the context.
- *Symbolic output - language and labels (category).* The language and labels are the available repertoires of categories managers use to make sense of the environment, such as opportunities and threat. The language and labels reflect managers' understanding of a strategic issue and might affect and mobilize action in a particular direction, such as exploration of issue parameters, involvement, commitment, and risk-taking behavior.

This strategic diagnosis mechanism indicates that the output from the process is a result of the political process with different participants' cognitive maps competing under the guidance of a broader organizational identity. The dominant (shared or reconciled) cognitive structure within the organization is embodied in the assumption, causal-effect understandings of the situation and solutions, predictive judgments, as well as language and label (category) revealed to the world.

(2) Consequences of strategic diagnoses output: proximal predictors of firm strategic action

The output of strategic diagnosis affects ensuing phases of strategic decision making (Dutton et al. 1983). This makes the organizational identity and strategic frame, which manifest in the output of strategic diagnosis, the proximal predictors of strategic action (Narayanan et al. 2011).

For example, Eggers and Kaplan (2009) investigated the impact of CEO attention on the timing of incumbent entry into radical new technology market. They found that CEO

attention toward emerging technology and the affected industry is associated with the faster entry, and CEO attention toward existing technology is associated with the slower entry.

Nadkarni et al. (2008) examined the mediating role of causal logic in industry velocity and speed of firm strategic response. They found that speed of strategic response was positively related to proactive causal logics but negatively to deterministic causal logics.

With respect to cognitive categorizing, research on the threat/opportunity categorizing test was generally consistent with the conclusion that interpretation of threats led to defensive-type responses, while the interpretation of opportunities triggered offensive-type responses (e.g. Bateman & Zeithaml 1989; Thomas et al. 1993).

In terms of organizational identity, Tripsas and Gavetti (2000) investigated Polaroid's failure in the face of the ongoing shift in technology. They found that it was strong managerial beliefs in technical excellence and the razor blade business model that restricted and directed firm search activities to technology, and further influenced the accumulation of new firm capability.

4.1.6 Summary of micro-level institutionalism and firm strategic behavior

By incorporating the strategic cognition perspective, in which cognitive structure (organizational identity and strategic frame), and cognitive process (sensemaking in strategic diagnose process) are included, the organization is taken as an interpretation system (Daft et al. 1984) and has its own schemas to make sense of the environment and respond to it. Managers' strategic cognitions (or mindset) play the role of a micro-level institution (Wicks 2001) that both constrains and enables the organizational sensemaking process.

The mechanism of the micro-level institution in firm strategy behavior indicates that the output of strategic diagnosis reveals the interrelated organizational identity and strategic frame, which reflect the organizational mission and goals respectively. This is an important implication for understanding SOEs and POEs strategic behavior, because a close study of the output of strategic diagnoses could get closer to the origin of firm strategic activity, i.e. the dominant strategic cognition of the organization, rather than just the product of it.

Nevertheless, in the same way that the pattern of strategic activity is the product of strategic cognition, both organizational identity and strategic frame are products of social construction and influence. As Mead (1934) pointed out, social process precedes individual mind and the self. Managers' sensemaking in the strategic diagnosis process is never a context-free activity, but a process embedded in a social space and time (Taylor & Van Every 1999). The evidence that multiple strategic frames and identities might exist also indicates that a situational context is needed to evoke the corresponding partial strategic cognitive structure (Narayanan et al. 2011). Therefore, a broader institutional context is necessary to explain a firm's revealed strategic cognition and the consequential strategic actions (Lounsbury & Glynn 2001).

4.2 Bridging micro- and macro- level institutions in firm strategic behavior

Recently neo- institutionalism scholars have suggested that micro-level theories that focus on interpretation and translation could link with the macro-level institutional context to support institutional dynamic explanations of organizational behavior (Powell et al. 2008). In this regard, individual and organizational sensemaking is the pivotal activity that converts the situation into action (Jennings & Greenwood 2003).

Weber's works are among the few studies that juxtapose sensemaking and institutionalism (e.g. Weber 2005; Weber & Davis 2003; Weber et al. 2013). In particular, Weber et al. (2006) address how the institutional context is a necessary part of sensemaking by explaining the mechanism of how macro-level context enters the sensemaking process. This paves the way to posit sensemaking that is enabled by revealed strategic cognition, as a mediator between institutional antecedents and firms' strategic responses.

By referring to and modifying their explanation of firm strategy, the theoretical framework that guides the research design of this research is established (see Figure 16).

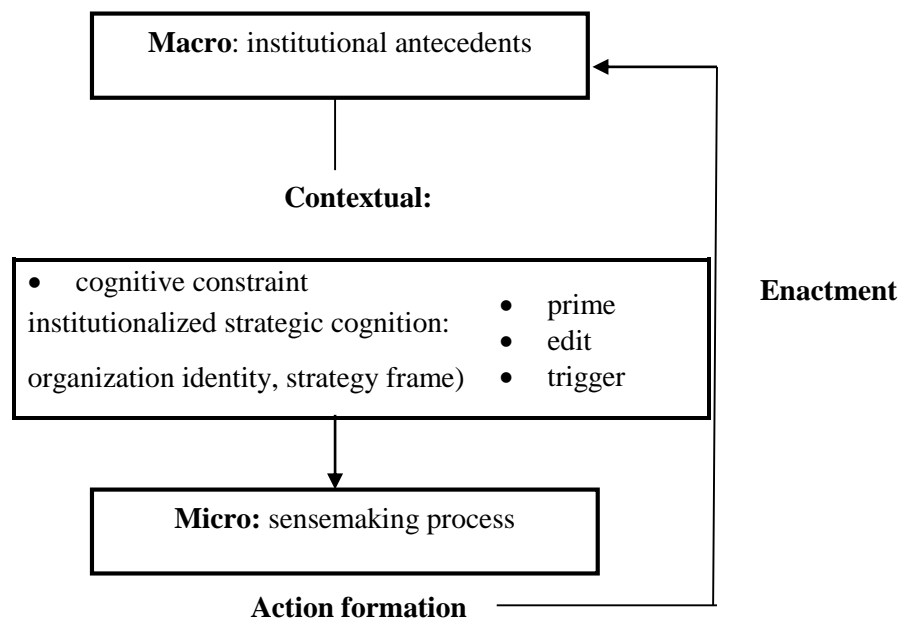


Figure 15 Bridging micro- and macro-level institution in strategy analysis

Adapted and modified from Weber & Glynn 2006 (Figure 1.p.1641)

(1) Institutions as taken-for-granted cognitive constraints in sensemaking

The dominant top-down mechanism considers institutional contextual sensemaking as imposing cognitive constraints on actors. The cognitive constraints are the shared

conception of social reality and enter into sensemaking in the form of institutionalized identities (typified actors), frames (typified situations) and actions (typified actions). These form the concepts of situational roles (actors-in-situation) and situational scripts (actions-in-situation) (Weber et al. 2006). The situational roles and scripts are internalized by actors through the socialization process in the context (Berger et al. 1967) and embodied in actors as habits and encoded into action scripts (Barley & Tolbert 1997). Therefore, this top-down mechanism emphasizes the straightforward cognitive constraints and institutionalization of cognitive structures that make the alternatives literally unthinkable (Zucker 1983, p. 5).

The institution in this sense is a key source of meaning structure that is akin to a coherent symbolic code (Barley 1983). It supplies substance and raw material to answers the two key questions with respect to sensemaking, i.e. 'who am I?', and 'what is going on here?' (Weick 1995). Sensemaking is then the practice of using the code and is affected by the availability of the institutional material. So the content of sensemaking largely mirrors the content of institutions (Weber et al. 2006).

The analogy of this mechanism in firm strategic behavior are the cognitive constraints of organizational identity and the strategic frame. Each is institutionalized during the process of interacting with powerful actors in the field (Lounsbury et al. 2001). These actors include shareholders, government, competitors, key customers, interests group etc. Through the internalized organizational identity and strategic frame, institutional pressure shapes firm strategy by guiding managers to conduct expected sensemaking activities. Hence, the content of sensemaking reflects the content of institutional antecedents.

(2) Institutional context primes, edits and triggers sensemaking

Cognitive constraint mechanisms explain the automatic process of action formation, in which institutionalized identity and frame plays the role of a perceptual filter. However, multiple identities and frames might exist, then the actor has to activate the one corresponding to the situation. Also, as discrepancies between institutional demand and the actual rule enacted by the firm could arise, a *post hoc* justification is needed to make sense of the discrepancies. These two processes are not captured by the automatic process in cognitive constraint mechanism. Therefore Weber and Glynn (2006) add the mechanisms by which institutions prime, edit and trigger sensemaking.

- **Prime**

Cognitive constraint suggests behavior is taken-for-granted and insensitive to context. However, the prime mechanism emphasizes the role of local situational context. Local context provides immediate social cues over the larger-scale macro-institutional setting, this primes (guides) the identification of the appropriate identities, frames, and actions to follow in the sensemaking process.

- **Edit**

The institution as a context enters into the dual cognitive process of deductive and inductive sensemaking. Initially, the institutional context primes sensemaking with social cues to evoke certain situational roles and scripts internalized by actors and prompts their actions to enact the rules. The enactment will be tested in the following social interaction process. Some enactments become more successful than others. Actors check the institutional demands against their understanding of situational roles and scripts. Then they modify their understanding and actions through social feedback.

Hence rather than a linear model of institutional cognitive constraint, institutional sensemaking is an ongoing cycle of revision and retrospection as it is continuously edited by a social feedback loop.

- **Trigger**

When the institutional context is dynamic and complex wherein contradiction (e.g. different institutional demands suggest different identities and frame) and ambiguity (e.g. different identity or frames could correspond to the same institutional demand) arise and actors experience a loss of meaning, actors conduct more sensemaking activities in order to restore meaning.

This additional mechanism of the institution indicates that the institutional context does not influence action directly, but is mediated by the meaning interpreted by actors. Therefore, a fine-grained examination of institutional dynamics can be conducted through a convergent collections of sensemaking content to reveal the salient institutional type in the field, and *‘a closer study of sensemaking entailing industry or field-level institutions could offer ideas to identify the constitutive role of discursive dynamics in the field and status order in the market’* (Weber et al. 2006, p. 1656).

Adding this additional mechanism to firm strategic behavior suggests that multiple institutional pressures enter into organizational strategic diagnosis processes and provides cues on what organizational identity and strategic frames are to be to be activated. When these institutional pressures interact with each other and form a complex institutional context, the organization deliberately puts more effort into making sense of the situation and responds according to its interpretation. Therefore, the institutional dynamics that predominantly drive firms’ collective strategic response can be revealed in the output of their strategic diagnosis.

Chapter 5 Research methodology and design

Chapter 4 introduced the theoretical framework to guide the research design. Based on the integrated micro-macro-level institution framework, the underlying theoretical assumption of the research design is that a convergent collection of sensemaking content reveals the prominent institutional type in the field (Weber et al. 2006). The answers to the research questions then hinge ultimately on how managers make sense of the demands of stakeholders and institutional players such as government and non-government agencies, and the interactions of those demands with other relevant players such as suppliers, customers, competitors etc.

Therefore, the methodology applied in this research is to investigate and compare the collective perspectives of managers to enterprise value-centric outcomes within the context of the macro-institution dynamics (economic change, social development, political disturbance, etc.) common to all firms.

5.1 Philosophical positioning

5.1.1 Ontology

The assumption of this research is that organizational reality is an enacted outcome of the interactions between key decision makers and the internal and external contexts in which they operate. Hence it is positioned in the constructivist domain, which posits that social reality is a socially created symbolic world (Crotty 1998). An implication of this perspective is that while outsiders (e.g. researchers) can observe how actors collectively perceive and enact within their environment, the mechanisms of how the external environment is co-constructed by actors is beyond the knowledge of the actors themselves (Bhaskar 2013).

5.1.2 Epistemology

Managers have multiple strategic cognitions that are subject to contextual triggers (Narayanan et al. 2011, p. 338), and sensemaking is not a context-free activity (Taylor et al. 1999, p. 275). Following these assumptions, the epistemological position of this research is grounded in the concept of contextualism, which emphasizes that people's actions, utterances or expressions occur in context, and can only be understood relative to that context (Powell et al. 2011; Weick et al. 2005).

5.2 Descriptive research purpose and qualitative methodology

Babbie (1998) identified three major purposes of social research - exploration, description, and explanation (Table 3).

Table 3 Characteristics of different types of research

	Exploratory Research	Descriptive Research	Explanatory Research
Degree of uncertainty	Highly ambiguous	Partially defined	Clearly defined
Degree of problem Definition	Unaware of problem (Key variables are not defined)	Aware of problem (Key variables are defined)	Problem clearly defined (Key variables and key relationships are defined)
Key research statement	Research question	Research question	Research hypothesis
Usual research approach	Unstructured, flexible design, could address all types of research questions	Structured, answer the question “what is going on?”	Highly structured
Example of possible problem; Situations	What kinds of new products are customers interested in?	What product features are most important to customers?	Which of two advertising campaigns is more effective?
Nature of results	Suggestive rather than definitive, discovery oriented, often need further research	Can be confirmatory although more research is still needed; provokes “why” question by providing detailed facts of the phenomenon as the basis for generalization	Confirmatory oriented. Fairly conclusive results are obtained; Fallible inferences could be an issue due to causation being not observable

Adapted from Babbie (1998), Zikmund William (1984) and Zikmund, Babin, Carr and Griffin (2013)

As reviewed in chapter 3, different levels and aspects of institution theory have been applied to explain SOE’s performance and strategic action such as internationalization. These explanations are based on various assumptions but the relationship between ownership and firm strategic behavior is not clearly defined. This lends support for research biased more towards hypothesis testing (explanatory). However, the hybrid organization form adds further complexity in explaining firm strategic choice as more conflicts might exist for managers in SOEs compared to POEs in deciding which

principle's interests to serve (Bruton et al. 2015, p. 98). Hence, as this research explores an 'is there a difference' question without the presumption of a difference, it is positioned in the 'descriptive' category. At a practical (and implicit) level, it is partially testing the 'hypothesis' that Chinese firms, that are majority owned by the China government, are ipso facto arms of the China government (the Trump Hypothesis) however at the academic level the orientation remains more modestly descriptive.

This research aims to understand how SOEs and POEs make sense of their institutional context. It investigates, without presumption, "what is going on?" from the organization's point of view. To understand a problem from the perspective of the subjects/organizations involved without specifying outcomes in advance orients research towards a qualitative approach. (Mack, Woodsong, MacQueen, Guest & Namey 2005).

5.3 Research design

5.3.1 Research method: textual analysis

Textual analysis is a method used to describe and interpret the characteristics of a record or visual message in order to understand how people make sense of the world around them (Botan et al. 2000). These characteristics can be the content, structure, and function of the message contained in the record of archival materials, transcripts of communications, or any other visual record (Botan et al. 2000).

As applied to macro-level cultural studies, textual analysis was originated by the French structuralist Roland Barthes in the 1960s. He believed that any cultural product could be decoded by reading the signs within its text (Bainbridge, Goc & Tynan 2008, p. 224). Language is viewed as a window on culture, and the textual pattern is the most common type of analysis to examine culture. As McKee (2003, p. 1) puts it, "*textual analysis is*

a way for the researcher to gather information about how other human beings make sense of the world. It is a methodology - a data gathering process - for those researchers who want to understand the ways in which members of various cultures and subcultures make sense of who they are, and how they fit into the world in which they live”.

For micro-level human cognition and processes, Weick and Carley have been highly influential in addressing the relationship between vocabulary structure in text and individual cognition. Weick (1995) claimed that there is an expansive linkage between vocabulary and sensemaking, stating “*the content of sensemaking is to be found in frames and categories that summarize past experience, in the cues and labels that specify present experience, and in the way these two settings of experience are connected*” (Weick 1995, p. 111). Carley demonstrates that a portion of an author’s mental model is contained in the text when it is composed, thus the conceptual pattern in the text, represented as a concept map, is an effective approach to extract samples of the author’s mental model (Carley 1993; Carley et al. 1992; Kaufer & Carley 1993).

In terms of the interplay between larger culture or institution and human cognition, Carley (1994) showed that one of the textual analysis techniques, map analysis, can not only be used to extract and analyse culture, but also to examine the relationship between cognition and culture. The recent views of Loewenstein et al. (2012) about a vocabulary structure approach also support the proposition that, analyzing vocabulary structure in the text to capture different aspects of vocabulary use, can offer an opportunity for theoretical integration and advance work on institutional analysis.

5.3.2 Unit of analysis

The unit of analysis refers to what or who is being studied (Babbie 1998 p.97). Previous studies used the firm as the unit of analysis, in which firm ownership is used as a proxy to explain or predict either a varied firm strategic action and performance (e.g. Arocena & Oliveros 2012; Clò, Florio & Florio 2014; Li, Xia, Long & Tan 2012; Meyer et al. 2014), or a varied strategic orientation between managers (e.g. Peng et al. 2004). This research also uses the firm as a primary unit of analysis. However, this is done at the aggregate level of group membership (POE/SOE), whilst textual data on the individual group member (the individual firm) is derived from the formal articulations of its managers in the form of a micro analysis of the annual report.

As stated by strategy frame scholars, the core groups of firms in an industry display relatively consistent strategic approaches over time (Huff 1982; Reger & Huff 1993). Such firms are not idiosyncratic and have a relatively mature understanding of strategy and stable decision routine (Nadkarni et al. 2007a). Therefore, the core group of firms in the same industry can be selected as primary samples as representative of strategic choice.

As a single industry provides ‘natural controls’ (Peteraf et al. 1997, p. 183), this research follows Peng et al. (2004) work in focusing on one specific industry in China¹⁷. With respect to benchmarks and sample matching considerations, both the ratio balance between the core group of SOEs and POEs in the industry, the globalized nature of the industry and the relative importance of the industry to the national economy need to be taken into account. These latter two characteristics are expected to give government more incentives to be active ‘shareholders’.

¹⁷ Peng et al. (2004) examined SOEs’ and POEs’ managerial perceptions regarding environment, strategy orientations and performance of their firm in the Chinese electronics industry.

5.3.3 Sampling

With these criteria as guidance, Chinese-listed company data from the Osiris database were filtered to search for an applicable industry and core group of firms in that industry. The global industry classification standard (GICS) was used as the search standard for industry filtering, and if the firm's dominant ultimate owner (DUO) was marked as the State-owned Assets Supervision and Administration Commission (SASAC) or a government department was referred to, these were used as the initial criteria to differentiate SOEs from POEs in order to evaluate the ratio of SOEs and POEs in the industry.

In the end, the auto parts industry was selected (GICS code 25101010), with 62 firms in total being obtained from the database. This industry is appropriate for analysis in this research, because it is highly competitive and emphasized by the Chinese government as one of the major economic priorities in national economic development (Bill & Morrison 2013). Not only does the Chinese government allow 100% foreign ownership in the auto parts sector but also, attracted by the huge market and increasing needs¹⁸, almost all well-known global auto parts manufacturers have invested in China. The percentage of FOEs' supply in the Chinese market increased from 17.9% in 1999 to 31.5% in 2005 (Chu 2011).

After the initial sample filtering, each firm was categorized by ownership structure (i.e. SOE vs. POE). In order to take into account the mixed-ownership structure that is now highly prevalent, some previous studies have used the criteria of more than 50% of equity held directly or indirectly by a state entity to classify firms as SOEs (Estrin et al. 2016). This classification is simple to make for Chinese-listed firms as it is compulsory

¹⁸ China replaced the US as the world's number one auto market in 2009 with an annual growth rate of 24.6%. See Sturgeon and Van Biesebroeck (2011).

on the Chinese stock exchange for each listed firm to report the actual controllers (实际控制人) and shareholding relationships (see OECD 2011). Reporting the actual controllers enables the tracing of the identity of the ultimate dominant shareholder, which may be the state, individual or foreign enterprises. Actual controllers that are reported as central or local SASAC or local government are classified as SOEs, while other entities are classified as POEs. This classification of SOEs more accurately captures the hybrid ownership structure, as the dominant shareholder is traced to the ultimate controller who might not be a direct shareholder of the firm but controls firm voting power (Porta et al. 1999). See Figure 17 below for an example of this hybrid-ownership structure with the state as an actual controller.

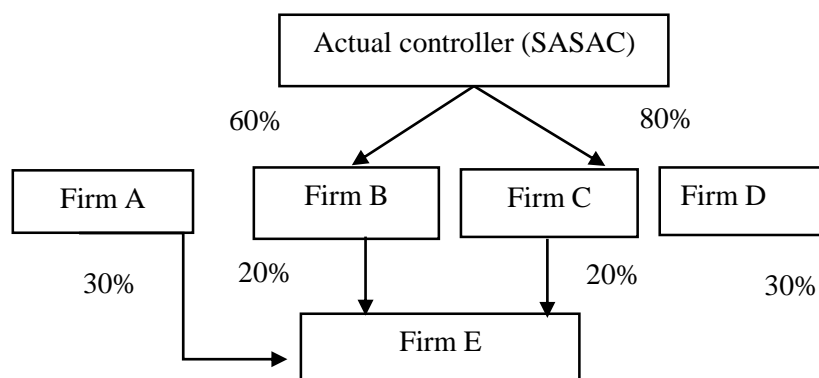


Figure 16 Illustration of actual controller (SOE example)

In accordance with this classification, 15 SOEs, 43 POEs, and four other types of firms (including FOEs and joint venture of FOEs with SOEs or POEs¹⁹) were identified. These types of firms were excluded to SOEs and POEs as the sample pool.

¹⁹ A joint venture is defined as a 50%-50% control structure from both a domestic entity of the state or individual and a foreign-owned enterprise.

To further filter and collect a sample of the core group of firms, firms that were more than 10 years old, had not been acquired by another company, and had been listed on the stock market for at least 10 years²⁰ were selected. These selection criteria are based on considerations of maturity and transparency and are consistent with previous strategic cognition research that has also used annual report as data sources (e.g. Nadkarni et al. 2008; Nadkarni & Narayanan 2007b). In the end, 21 firms consisting of 12 SOEs and 9 POEs were selected from the database. (See Appendix I for the sample list.)

5.3.4 Data collection

(1) Annual report as data source

Textual analysis of public corporate documents such as annual reports is supported by empirical studies as an effective assessment of managers' or firm's revealed strategic cognition (Clapham et al. 1991; Huff et al. 1990) and also as appropriate for the study of intrinsic cognitive issues (Fiol 1995). The annual report is argued to be a legitimate source of data for several reasons.

Firstly, a pertinent strategic belief system is intensively incorporated. The annual report provides an important medium, through which the firm directly communicates with its shareholders. Managers have to formally articulate an interpretation of the factual happenings and actions of the firm, as well as its relationship with the surrounding environment. Therefore, a rich source of causal statements is embedded in the narrative (Barr 1998; Kiss et al. 2015). At the same time, the annual report also imposes limits on what managers can think and furnish, as the core meaning has to be carefully extracted

²⁰ Since data collection of this research starts from 2014, firms listed in the stock market before 2005 are selected.

and clearly expressed. (Fiol 1989). This gives an extra advantage for eliciting core strategic cognitions of the firm from such documents.

Secondly, the authority of the annual report increase confidence in its reliability and validity as a means of assessing the managerial belief system. Narayanan and Fahey (1990) pointed out that, with respect to public discourse where there are penalties for obfuscating linkages, a closer correlation between public expression and true causal maps is expected. The annual report has mandated reporting requirements and is oriented towards important stakeholders that managers will expect to monitor the veracity of claims made (Fiol 1989). Not only shareholders but financial analysts, institutional investors the business media, etc. will scrutinize the report closely. Therefore, no matter who prepares the annual report, the document is of such high importance that managers are forced to give close attention to both the data presented and the wording²¹ (Barr et al. 1992; D'Aveni & MacMillan 1990; Kaplan 2011).

Thirdly, the annual report is appropriate for understanding organization-level cognition. Since the document represents the institution rather than the individual, managers have to explain and justify actions the firm has taken, and address important issues regarding the position of the firm rather than the individual (Bettman & Weitz 1983). Therefore, the annual report is evidence of the dominant strategy belief of the organization (Crilly & Sloan 2012; Tripsas et al. 2000). In practice, although the firm strategy is the domain of top management teams, their cognitive interpretation is influenced by shareholders

²¹ Except for empirical examination, researchers also provide direct or indirect evidence to support the reliability and validity of annual reports to assess strategy beliefs. For example, Barr mentions that his informal conversation with executives indicated that they spend considerable time in preparing communications with investors, especially during a poor performance period (Barr, Stimpert & Huff 1992). Fiol (1991) found that annual reports and internal company documents are similar in terms of broad strategic issues and strategic facts. Kaplan (2011) observes the impact that the change of CEO has on the length, style and content of letters, and the significant shifts in tone and approach. These changes are signals to show that executives put their imprint on letters to shareholders.

or other group members within the organization (David, Bloom & Hillman 2007). Negotiation and other political activities within and between different stakeholder groups are activated in the organizational strategic diagnosis process to accomplish final strategy decisions (Rowley 1997). The practical influence of different stakeholder groups is included in the annual report. In this sense, the annual report represents the organizational interpretation that reflects reconciled or dominant cognitive representations within the organization. This aligns with the hierarchy feature of strategic diagnoses depicted by Dutton et al. (1983) and the organization-as-an-interpretative system view by Daft et al. (1984)²².

Fourthly, previous empirical studies provide important linkages between managerial cognition and organization adaptation, outcome and industry/ competitive dynamics. In these studies, the annual report has been used as a prime source from which to derive cognitive constructs and the strategic belief system of the organization (Barr & Huff 1997; Cho & Hambrick 2006; Marcel, Barr & Duhaime 2010; Osborne, Stubbart & Ramaprasad 2001; Tyler & Gnyawali 2009).

Allied to the above, the annual report has been argued to have several advantages over interviews and surveys.

- It captures the belief structure in use, closer to the moment in which organization action occurs (Kiss et al. 2015). The annual report is written and published periodically, compared with open-ended surveys and interviews, the inherent

²² Referring to Hedberg (1981), Daft and Weick (1984) consider organizations to have cognitive systems and memories. Individuals join and leave the organization, but organizations preserve knowledge, mental maps, norms and values over time. Perception and cognition maps are shared among managers who constitute the interpretation system. Managers may not fully agree with respect to these perception and cognition maps, but the thread of coherence among managers is the feature of the organization interpretation system. See Hedberg (1981).

retrospective bias in managers' recall of information from the past can be avoided (Barr 1998; Osborne et al. 2001).

- The post hoc analysis of the annual report circumvents the issue of managers' consciously imposing order on recollected events during interviews, which might end up with everything being linked together (Huff, 1990).
- Nonintrusive. Data from the annual report suffers no bias from researchers' demands compared with interviews (Bowman 1984).
- It is replicable data source of access to managers' collective cognitive structure (Kabanoff 1994).
- It is open to the public. The annual report is easy to access, and allows the researcher to compare the cognition representation of a relatively large number of entities.

Increasing empirical evidence about corporate information disclosure behavior of China stock exchange listed firms supports the authority of Chinese annual reports as primary data. In particular, mandatory disclosure compliance is prominent for domestic Chinese listed firms (Xiao 1999). Larger firms, firms with better reputations, as well as FOEs and SOEs are more willing to voluntarily disclose strategic and financial information (Ferguson, Lam & Lee 2002; Li & Qi 2008; Wang, O & Claiborne 2008; Xiao, Yang & Chow 2004). Disclosure behavior is also related to a firms' market value - the higher the market value of the firm the more transparent is corporate information (Cheung, Jiang & Tan 2010).

(2) Using management discussion and analysis

‘Letters to shareholders’ in the annual report are the most frequently used documents from which to analyse the CEO, top management team and firm-level strategic cognition structure (Kaplan 2011; Narayanan et al. 2011).

In Chinese annual reports, the same content as the ‘letters to shareholders’ in Western companies is discussed in ‘management discussion and analysis’ (管理层讨论与分析/董事会讨论与分析).

(3) Time frame of the study

As this research is mainly interested in comparing SOEs’ and POEs’ interpretations and responses to institutional pressure, the differentiating context is dependent on ownership rather than the external environment. The external environment only plays the role as stimuli in evoking the organization sensemaking activities. To use quantitative terms, the independent variable is ownership, the dependent variable is the content of sensemaking, and the control variable is the external environment. Therefore, cross-sectional data analysis is adequate to explore this pattern.

Studies of attribution patterns in annual reports suggest that statements explaining the past represent the actual, subconscious bias in managers’ sensemaking process (Clapham et al. 1991; Fiol 1995; Huff et al. 1990), This bias is important to tap managers’ interpretations and adaptation processes (Barr 1998). Therefore, the analysis for this research focuses on the review and discussion of what has happened in the past.

Since this research project formally started at the end of 2012, the latest annual report available was from the year 2011. Therefore, this research focuses on the year 2011 as the time frame in which to collect annual reports.

5.3.5 Data analysis techniques

A wide range of techniques has emerged for gaining insight from the analysis of text. Benefiting from methodological developments in cognition research and in studies examining the relationship between cognition and culture, this research applies a causal mapping technique.

(1) Causal mapping technique as the main approach for constructing and comparing revealed collective strategic cognition.

Content analysis vs cognitive (causal) mapping

Among the set of textual analysis approaches, content analysis that emphasizes frequency counts of concepts within and across texts has been dominant in textual analysis and has been extensively used for cultural studies (Dunn & Jones 2010; Weber 1984; Zvi Namenwirth & Weber 1987). However, due to the lack of a strong theoretical foundation, content analysis is not very successful in the understanding of individual cognition and culture (Carley 1994; Weber 1984).

In contrast, the advances in artificial intelligence, cognitive psychology, and network analysis provide the theoretical foundation for using cognitive mapping to represent individual cognition or mental models (Carley et al. 1992). This map analysis has been systematically demonstrated by Carley to be an effective approach for extracting, representing, analysing and comparing individual mental models, team mental models and cultures, as well as examining the relationship between cognition and culture (Carley 1993, 1994, 1997; Carley et al. 1992).

In strategic cognition research, the cognitive map is extensively applied causally to analyse managerial cognition (Narayanan et al. 2011). This causal mapping technique is also known as ‘revealing the causal map’, which is defined as the interconnected assertions of causality which managers choose to reveal to the world around them

(Fahey et al. 1989). Both cognitive mapping and causal mapping try to isolate key assertions within a text and focus on causality, existence of concepts and categorization in the document (Huff 1990).

Inspired by the causal mapping technique proposed by (Axelrod 1976) and a wide array of methods for mapping strategic thoughts presented by Huff (1990), revealed causal mapping is extensively applied in strategic cognition research to represent an entity's (individual, firm or organizational population) evoked, domain-specific, inductively derived 'theory' (Dutton et al. 1983; Huff 1990; Narayanan et al. 2011).

In this research, 'causal mapping' refers to the analytic technique, and 'strategic cognitive map' refers to the thoughts that have been mapped out. As sensemaking is enabled by strategic cognition, the content of sensemaking is included in the map.

Theoretical stance of casual mapping technique

Referring to Carley's work on cognitive mapping and Nadkarni and Narayanan (2005)'s summary and assessment of causal mapping, four major assumptions or theoretical stances underlie the use of text-based causal mapping to represent managers' strategic cognition in this research.

First, a revealed casual map represents managers' subjective perceptions of the world rather than the actual concrete reality that is external to them (Carley et al. 1992).

Second, managers' strategic cognition can be represented as a network of concepts and captured by both the existence of the concepts and inter-relationships among the concepts in the text (Carley et al. 1992).

Third, the meaning of a concept for a manager is embedded in its relationship to other concepts in the manager's conceptual network (Axelrod 1976; Carley et al. 1992; Eden et al. 1992).

Fourth, the social meaning of a concept is not defined in a universal sense, but expressed through the intersection of managers' cognitive maps (Carley 1997; Carley et al. 1992). In other words, multiple maps can be combined by creating a union or intersection map. The intersection map represents the shared mental model and convergent strategic thoughts (Carley 1997; Nadkarni et al. 2007b). The higher the degree of sharing of the map, the closer the mental models (Carley 1997), and the higher the cultural consensus (Carley 1986).

Advantages of revealed causal mapping technique

As revealed causal mapping is rich in descriptive detail and depicts managers' thoughts and subjective knowledge about the environment in operational terms, the most salient advantage of this technique is acknowledged to be that it is one step lower on the 'ladder of inference' (Argyris 1982, p. 180) and thus closer to accessing the thoughts of the entity. It also offers one means to tap managers' intentions (Fahey et al. 1989).

Moreover, the true causal map resides in managers' minds and is virtually impossible to capture. The strong assumptions regarding awareness, exhaustiveness, and accuracy constrain any approach to assessing the true causal map, however, causal mapping techniques are considered to be able to partially circumvent these constraints (Narayanan et al. 1990; Nelson, Nelson & Armstrong 2000b). They allow the researcher to construct detailed concept linkages about managers' thoughts and validate these linkages while gaining understanding of the phenomena, which another approach, such as a case study, cannot (Barr et al. 1992).

Application of causal mapping technique

The revealed causal mapping technique is normally applied as shorthand to describe the lenses through which managers filter data and the means through which data are interpreted (Narayanan et al. 1990). It aims to capture both the structure and content of managers' strategic thoughts in a relatively direct fashion (Hodgkinson, Bown, Maule, Glaister & Pearman 1999). In contrast to the classical content analysis method in which some chosen unit of text is counted and quantitatively analysed (Weber 1983), it is the relationship between cognitive elements (conceptual patterns) that is studied in the revealed causal mapping technique rather than just concepts themselves.

Usually, the map is stated in the managers' own words and displayed as a complex web of elements that encompasses overlap and redundancy (Axelrod 1976). In order to understand and compare managers' thoughts, researchers need to translate the map into a language that is underpinned by a theory. So an explicit conceptual scheme shaped by a specific theory is necessary to accomplish this translation.

Based on the theoretical framework that links micro-level sensemaking and macro-level institutional context, two layers of conceptual schemes are applied to organize the causal map:

The first layer conceptual scheme is used to organize the micro-level of strategic cognition for individual organizations. As the macro-level institutional context enters into the micro-level institution (managerial cognition) by being intricately woven into the actors' sensemaking process (Weber et al. 2006), the central framework of sensemaking, i.e. perception-interpretation-solution (Weick 1995), is used to frame the individual causal map.

- **Perception** aspects contain the environmental domains that receive attention. Each of these domains has its own rules and causalities. This aspect represents the institutional environmental elements that have triggered managers' sensemaking activity, i.e. 'What have I noticed?'
- **Interpretation** contains the appraisal of what the attended environment element means for the organization. This shifts the "objective" perspective of the environment to "subjective" from the organization's perspective, i.e. 'What does that mean (for me)?'
- **Solution** contains the strategy repertoires the organization considers. i.e. 'What am I going to do about it?'

The second layer of conceptual scheme is used to identify categories that constitute each aspect of the sensemaking framework in the collective map. The category elements that constitute the institutional context and enter into strategic diagnosis (sensemaking) process is identified by clustering the basic level concepts. Also, in order to examine the salient institutional dynamics that prompt collective strategic response, and to compare the distinctiveness of the institutional antecedents and responses between SOEs' and POEs', the conceptual scheme used for clustering cannot be a pre-defined 'ideal type' but must allow for grounded observation.

Taking into account these considerations, Oliver's (1991, 1992) institutional antecedents are used as a conceptual scheme to frame the **perception-interpretation** aspects of sensemaking. In particular, the five institutional factors contain ten dimensions (see Table 3 in Chapter 4) that allow different dimensions of the institution to emerge and configure with each other to constitute the institutional context as experienced by the organization.

For the **solution** aspects of the sensemaking framework: as strategic activities and processes are plural and changeable, particularly in countries in transition and emerging countries where the environment is more turbulent and necessitates continuous searching and experimentation (Li & Peng 2008), strategic action concepts are inductively clustered and categorized.

(2) Supporting technique from toolkit view of culture for group map comparison

As suggested by Carley, the existence of a common or central cognitive map between different individuals represents their cultural consensus (Banks & Carley 1994; Carley 1986). This indicates that identifying and evaluating the common (central) elements in SOEs' and POEs' cognitive maps can be used to determine the extent to which SOEs and POEs are similar. Hence a supporting technique is needed that is capable of comparing and examining these cognitive maps in a relatively comprehensive manner rather than only focusing on selected elements.

Derived from the integration of cognitive theory in cultural studies, a toolkit view of culture shares the same theoretical underpinning as this research and the analytical techniques developed in the toolkit view of culture also meet requirements.

Theoretically, the toolkit or repertoire view of culture (Swidler 1986; Weber 2005) is consistent with the micro- and macro-institutional linkages employed and modified from Weber et al. (2006). As characterized by Lizardo and Strand (2010), the toolkit view of culture is also based on cognitive theory, and assumes that higher level culture are too "cognitively costly" Whitehouse (2004, p. 58), to be coherently and systematically internalized by actors. Instead of culture providing values to direct human actions, culture supplies actors with the tools for solving practical problems and

navigating their environment (Weber 2005). Actors experience the culture as disparate bits of information and as schematic structures that organize this information (DiMaggio 1997).

Methodologically, the toolkit or repertoire view emphasises studying more comprehensive sets of cultural elements rather than selective elements. Corresponding to this requirement, Weber illustrates a set of qualitative and quantitative analytical strategies to help structure the process of constructing the concrete cultural elements and compare the cultural toolkits in use by different actors in a larger field (Weber 2005; Weber et al. 2013).

Two of the analytical techniques developed by Weber to support the collective cognitive map comparison between the SOE and POE groups are used here. The first technique is a graphical representation of repertoires by using repertoire profile plots (Weber 2005). The degree of similarity of the repertoire is shown in the degree of overlap between the two shapes.

The second technique lies in measuring the extent to which repertoires are similar by using the descriptive properties of the map. Network descriptive statistics that correspond to the key dimensions of the meaning systems (represented as causal maps) are calculated, i.e. cohesiveness (interrelations of categories), complexity (scope of the meaning system), internal structure (centralization of categories), and distinctiveness (similarity of category and category relationship) (Weber et al. 2013). Detailed results are provided in the next chapter.

5.3.6 General analysis procedure

The data analysis process is divided into two parts, the collective strategic cognition construction, and the collective strategic cognition comparison between the SOE and POE groups.

(1) Collective strategic cognition map construction

In the collective strategic cognition constructions stage, the causal mapping technique is used to construct individual organizational cognitive maps. This is the initial process to capture the causal logic included in the text.

Based on the constructed individual cognitive map, the causal linkage in each individual map is firstly clustered under the sensemaking paradigm: perception (the attended environment issue) - interpretation - solution. This is the first layer of clustering aimed at framing the individual organization's causal logic into the same form in order to prepare for the second layer of clustering based on the collective causal map.

Following from this, the basic-level concepts under each aspect of sensemaking are further clustered into more general concepts or categories. The clustering in perception aspects takes into account Oliver (1991)'s institutional antecedents as a categorization scheme. It delineates different levels of actors and their activities in the field that have a particular impact on the organization. It then clusters these elements into institutional environmental domains.

The interpretation aspects connect these objective environmental elements (perception aspects) with the organization's subjective evaluation of the context. This evaluation appraises what the attended environmental elements mean for the organization, therefore it frames the situation in which the organization sees itself and what action is considered as appropriate and necessary by the organization. The interpretation

categories found are categorised into the dimensions of threat and opportunity (T/O) as identified by Dutton et al. (1987).

The solution aspects cluster strategic activities which the organization has taken into account. These activities are inductively clustered into higher level strategic action categories.

After this process, the individual cognitive map is coded at the category level, and is capable of being aggregated into the collective cognitive map for the SOE group and POE groups respectively. An adjacency matrix and network analysis program (Ucinet 6.493 and Netdraw 2.136) are used to help construct the collective cognition map.

(2) Collective strategic cognition map comparison

The theoretical foundation for comparing the collective strategic cognition maps between SOEs and POEs is the fourth theoretical stance of the causal mapping technique. The intersection map represents a shared mental model and convergent strategic thoughts (Carley 1997; Nadkarni et al. 2007b). The higher the degree of sharing of the map, the closer the mental models (Carley 1997), and the higher the cultural consensus (Carley 1986). Also, if the content of statements included in intersection map accounts for over 50% of the aggregated map, then there is a common or central mapping between actors (Banks et al. 1994; Carley 1997), which indicates they have cultural consensus (Carley 1986).

Considering that collective cognitive maps are too complex to compare directly, the core-periphery strategic cognition map for both the SOE and POE group are detached then the congruent and idiosyncratic core-periphery cognitive map or elements are extracted.

Since the collective map is constructed based on perception-interpretation-solution linkages, the interpretation categories are taken as the key indicator from which to detach core, periphery and idiosyncratic mapping. In data analysis of this research, coreness is the extent to which the category is centrally located in the cognitive map. More central interpretation categories and the concepts linked with that category are taken as the core map, less central categories and the concepts linked with those categories are taken as the peripheral map, a peculiar category and the concepts linked with that category are taken as the idiosyncratic map. This analysis is applied to both SOEs and POEs, and differentiate the core strategic cognition map, peripheral strategic cognition map, and idiosyncratic cognition map for both. A network analysis program is used in this process to extract the congruent core-periphery cognitive maps and the idiosyncratic maps.

To further validate the comparison result from the network analysis, repertoire profile plots, Jaccard binary similarity coefficients and descriptive statistics of the collective cognitive map are also used to provide extra evaluative information about the extent of similarity between the two groups.

After making the above comparisons, the result is shown in two parts. The first part summarizes and represents the congruence between SOEs and POEs in the form of a congruent core strategic cognition map and a congruent periphery strategic cognition map. The second part represents the differences between SOEs and POEs in the form of an idiosyncratic strategic cognition map, as well as a summary of idiosyncratic strategic cognition elements and emphasis distinctions.

5.3.7 Addressing reliability and validity

Textual analysis tends to be extremely time-consuming, especially the causal mapping technique that takes into account meaning which means that computer auto-processing is not applicable (Carley 1993). This brings in challenges of reliability and validity in the analysis of revealed strategic cognition.

As a relatively new qualitative methodology in managerial cognitive and strategic analysis (Nelson, Nadkarni, Narayanan & Ghods 2000a), scholars have proposed certain criteria for evaluating the application of the causal mapping methodology, and corresponding steps and guidance on how to meet these criteria for reliability and validity (see Axelrod 1976; Huff 1990; Nelson et al. 2000a; Nelson et al. 2000b). Since a text-based causal mapping approach is the main method employed in this study, these criteria are used to derive the steps and techniques to address reliability and validity. These include using multiple raters and a stipulated point of redundancy to determine the adequacy of the sample to exhaust the concepts and linkages in the map, as well as adjacency matrix based map structure analysis.

The data analysis process is demonstrated in the next two chapters (chapter 6 and 7), followed by the result and an elaboration of the methodological evaluation criteria and how these are met in chapter 8.

Chapter 6: Data analysis part one: collective strategic cognitive map construction

This chapter elaborates the first part of textual data analysis process for map construction, and delineate the map based on the techniques introduced in Chapter 5.

It is organized into two sections. The first introduces how the elements of strategic cognitive are identified from the ‘management discussion and analysis section’ in annual reports, and are then organized into an individual organization’s strategic cognitive maps. The second explains how the cognitive maps of individual firms are aggregated into collective strategic cognitive map for the SOE group and the POE group, respectively.

Table 4 (below) defines and describes the causal mapping terms used in this and subsequent chapters.

Table 4 Causal Mapping Terms

Terms	Explanations	Examples
Raw Phrases	Explicitly articulated cause or effect ideas elicited from causal statement in text	Raw phrase: competition in the industry is increasing Basic level concept: increasing domestic market competition Raw concept: industry competition
Basic level concept	Relative abstract expression of the phrases extracted from causal statements	
Raw concept	This level is built up by aggregating basic level concepts to a higher level that is more implicit or tacit. The point of redundancy is calculated based on this level of concept.	
Coding scheme	A coding scheme is constructed during the process of clustering basic level concepts into raw concepts. Basic level concepts that have similar meanings are grouped together and given standard concept names. The purpose of a coding scheme is to structure the clustering process and avoid misclassification of basic level concepts (Nelson et al. 2000a) (see Appendix IV).	
Data saturation	Criteria for sample size decision: evidence should be provided to support the proposition that the sample size is large enough to exhaust the concepts available in the field. (Nelson et al. 2000a).	
Point of redundancy	A way to calculate the adequacy of the sample size necessary to reach data saturation (Axelrod 1976). In this research, it is based on the calculation of raw concept accumulation. If new raw concepts continuously emerge during the raw map construction process, then it is necessary to collect annual reports from more firms.	
Category scheme	A category scheme is developed after the individual raw causal map is constructed based on basic level concepts. In this research, the category scheme only clusters the content that is pertinent to managers' narrative of past experience. The purpose of the category scheme is to move the basic level concept into more generalized concepts. This increases the level of comparability across the resultant maps and avoids misclassification of concepts due to peculiar wording on the part of individuals (Nelson et al. 2000b).	
Centrality of a concept/ category (coreness)	The total number of concepts to which a specific concept in the map connects (Eden et al. 1992). The centrality extent represents the coreness/importance of a concept in managers' subjective knowledge network.	
Repertoire profile plots	A visual demonstration of the pervasiveness with which a concept/category is used and emphasized throughout the sample firms (Weber 2005)	
Jaccard binary similarity coefficient	A statistic to compare the similarity extent of sample sets. It is defined as the size of the intersection divided by the size of the union of the sample sets. It was introduced by Weber (2005) to compare the similarity extent of corporate cultural toolkits between two groups of firms. This statistic is used to compare the similarity extent of context evaluation and solution toolkits between SOE and POE groups. Banks et al. (1994) criteria are used to determine the existence of common or central maps between two groups, i.e. over 50% overlap of the mental maps.	

6.1 Identify and structure revealed strategic cognitive elements from text analysis

6.1.1 Stage One: Construct individual raw causal map

Following the procedure introduced by (Axelrod 1976), a revealed causal map was constructed from annual reports in four steps (see Appendix II for an illustration). Before the formal analysis, a pilot study was conducted to form the coding protocols.

(1) Pilot study

Although the causal mapping technique has been well developed in the English context, little research exists for the Chinese language context. In order to evaluate the feasibility, time, and cost, and also to construct the protocols for the analysis, a pilot study was conducted. Annual reports from 5 firms were used for the pilot study.

Referring to causal mapping procedures introduced in previous studies, the researcher and two raters²³ undertook the analysis independently. This process helped the researcher and coders become familiar with the specific language of the auto parts industry. Most importantly, the comparison between different raters and discussion to achieve consensus formulated the *coding protocol*, which was then used to guide the following formal analysis. As suggested by Huff (1990), this coding protocol formation is important for coding reliability, because it refines the steps to construct the foundation of the revealed causal map and clarify the circumstances under which a certain coding rule applies. In this way, the possibility that raters' own interpretive frames might contaminate the coding process is reduced (Huff 1990 p. 409) (See Appendix III for the frame of the coding protocol).

²³ Two Master's students majoring in commerce from one of the prestigious universities in China were hired. Due to the geographical distance, the discussion of coding protocols and the training process was conducted through online meetings.

Before the pilot study, the researcher spent one week training the raters in how to analyse the data in Nvivo, which is a useful program with which to organize causal analysis data and convenient for checking inter-coder reliability.

(2) Formal analysis

Step One: Identify causal statements

Based on the coding protocol formulated in the pilot study, two raters (not the author) independently identified causal statements about the firm strategy-related discussion from the management discussion and analysis (管理层讨论与分析/董事会讨论与分析) part of the annual report. Previous strategic cognitive studies use explicit key prepositions that express *logical causality*, such as “because”, “so”, “due to” etc. to identify the casual statements (e.g. Kiss et al. 2015). Referring to Huff (1990)’s work, this study also incorporated prepositions that express *timely* and *necessarily* causal direction, such as “in the wake of”, “by virtue of”, etc., as well as *verbs* that denote positive or negative effects such as “facilitate”, “advance”, “increase”, “hinder”, “impede” etc. as indicators to facilitate causal statement identification (see coding protocol in Appendix III).

Nvivo was used to analyse the text. The ‘coding comparison query’ function in Nvivo can conveniently check inter-coder reliability. Kappa coefficient²⁴ and percentage agreement are both chosen to assess the agreement levels. For causal statement analysis, the Kappa coefficients of all the annual report samples is above 0.5 and percentage agreement is above 95%. This means there was a good level of agreement between the

²⁴ Cohen’s Kappa coefficient is a statistical measure of inter-rater reliability which many researchers regard as more useful than the percentage agreement figure. Nvivo calculates Kappa coefficients individually for each combination of node and source. A Kappa value below 0.4 indicates poor agreement between coders, a Kappa value between 0.4 and 0.75 means fair to good agreement, a Kappa value over 0.75 suggests excellent agreement.

two raters. A third rater²⁵ was included to independently recheck the two raters' causal statement analysis. Any disagreement between raters was resolved by using majority rule (Carley et al. 1992).

Step Two: Construct preliminary raw causal maps

The same two raters separated causal statement into cause and effect phrases to construct raw causal maps. They were asked to use the original words in the text to name the phrases as far as possible and also retain the keywords in the phrase. For example, if the effect phrase was about firm action, the key verb and content of the action were retained.

Because the aim was to attain comprehensive perception-interpretation-solution categories across firms based on the toolkit (Swidler 1986; Weber 2005) or repertoire (Tilly 1992; Weber et al. 2013) view of institution analysis, both the past and future discussions in annual reports were analysed. This was in order to accumulate rich phrases to form a text corpus that could be aggregated into the concept level and then to construct a concept level map in the next step. Also, since annual reports are written with a fixed structure, in which the past and future discussion are separately discussed, two raters were asked to highlight the past analysis to prepare for the next stage of analysis.

For Step Two, the inter-coder reliability check showed Kappa coefficients of all samples above 0.5, and percentage agreement above 90%, again showing a good level of agreement between the two raters. The third rater was included to independently recheck the two raters' raw causal maps. Again any disagreement between raters was resolved

²⁵ A PhD student in the business area from the same university was hired as a researcher to do this.

by majority rule (Carley et al. 1992). After that, the two raters' causal maps were combined to construct the final raw causal map.

Step Three: Developing the Raw Concept

The *basic level concepts* (with keywords) were extracted from the phrases, then further group basic level concepts to *raw concepts*, this process enables the formulation of a *coding scheme* (see Table 1 for the explanation of terms). The raw concept is more generalized than the phrases, the purpose was to move the analysis from explicit description to implied or tacit concepts (Carley et al. 1992). At the same time, the extent of raw concept accumulation provided the indicator for *saturation* - the sample size was large enough to exhaust the concepts, the judgment call for sample adequacy can be calculated by the *point of redundancy* during the map casting process (Axelrod 1976).

In order to develop concepts that were distinct and uniform in breadth and abstraction (Fahey et al. 1989), popular strategy management textbooks²⁶ were used for the theoretical sources of the raw concept construction and to standardize the wording. As well previous literature on strategic cognitive (some provide coding schemes) and a business dictionary were used.

Two experienced strategy management researchers²⁷ were interviewed to clarify the naming of confusing concepts and to ensure the distinction and the same level of abstraction of raw concepts (Barr et al. 1992).

²⁶ The following textbooks were used: (1) Hitt, Ireland and Hoskisson (2012); (2) Hill, Jones and Schilling (2010); (3) Boxall and Purcell (2011); (4) Thompson (2001).

²⁷ The two strategy management scholars have been teaching and doing research in strategy management for over 10 years.

To further reduce the possibility of researchers' bias and distortion in concept naming, the third rater was included to check their raw concept naming (percentage agreement 95%)²⁸. Any disagreement was resolved by interviewing one of experienced strategy management researchers and applying majority rule (Carley et al. 1992).

During the process, the point of redundancy (Nelson et al. 2000a) was calculated. Without differentiating whether the source of the concept was from SOEs or POEs, the top 10 firms were first analysed (evaluation based on total firm assets, sales, the number of employees, and age of the firm). A raw causal map was constructed for these 10 and the number of raw concepts that emerged was calculated. Then another 10 firms were analysed and any new concepts that emerged from this analysis were added. This process continued until no new concepts emerged (i.e. the point of redundancy).

The convergent trend of the concepts appeared when fewer new concepts emerged from the raw causal map. A curve was plotted to display the point of redundancy for the concept accumulation, see Figure 18. The figure shows that the number of raw concepts started to show a converging trend at the point of 18 (concepts accumulated from 18 samples), whereby 409 raw concepts were identified. At this point further sampling was halted.

²⁸ A rater was not used to build up these concepts, as an experienced Chinese coder in strategy management area is difficult to find. Therefore the researcher built up raw concepts in person and asked the third coder to evaluate the naming and classification.

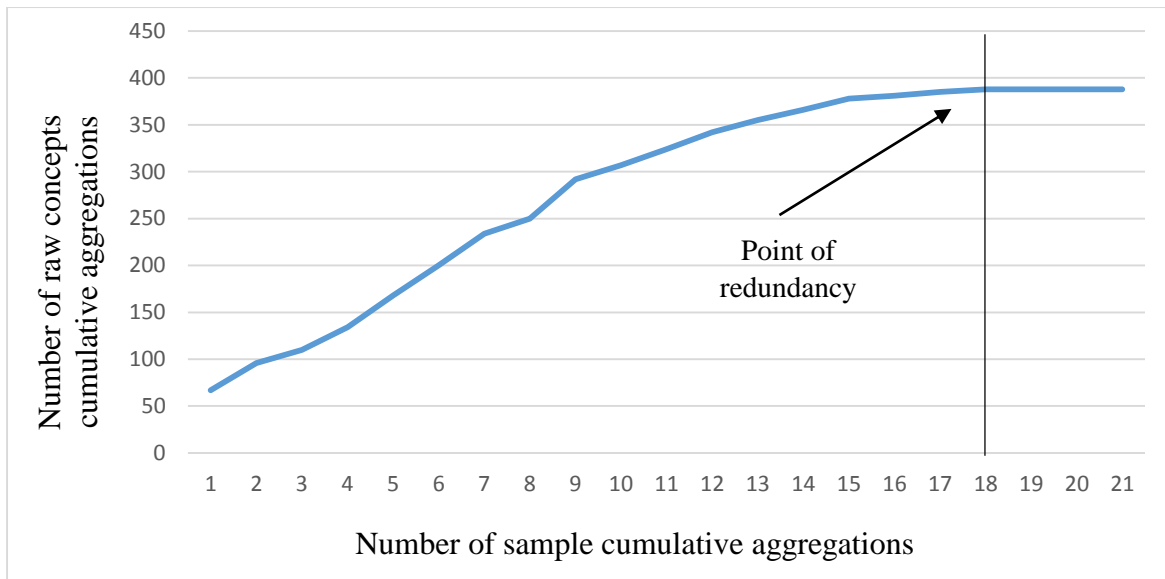


Figure 17 Point of redundancy for concept accumulation

Step Four: Recast raw preliminary causal map into raw causal map

Raw concepts are more abstract than phrases and include basic level concepts for both the past and future. Since the focus of this research is on managers' evoked thoughts "in use" during the year, the map constructed at Step Two was recast and converted into a concept-level map reflecting discussion of the past.

6.1.2 Stage Two: Construct individual coded causal maps

To compare across different firms in the industry, more generalized concepts are needed to provide a common basis of comparison (Carley et al. 1992). Hence a *category scheme* (Weber 2005) was built up to further recast the raw causal map into a coded causal map.

Step One: Develop category scheme

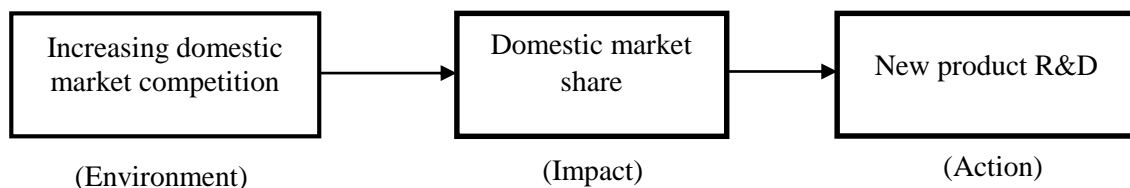
The critical decision in constructing a category scheme is whether to choose a confirmatory (category derived from extant research) or exploratory (inductively draw

words from the text) approach (Carley et al. 1992). Both of these approaches were applied in this research.

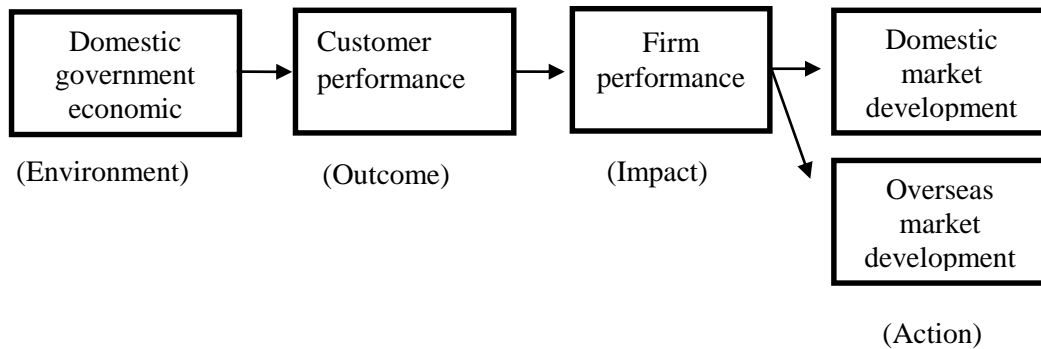
Since sensemaking is a pivotal mental activity that managers and organizations conduct to deal with potential strategic issues, central aspects of sensemaking i.e. attended issue (perception), interpretation of the issue (interpretation), and corresponding solution (solution), were taken as the framework to guide the first layer of the clustering and categorizing process.

This first layer of clustering is based on the *nature* of the causal linkage in the raw causal map. In the raw casual map, the causal linkages are between environmental events (environment), the outcome of the event (outcome), the direct impact of the event/outcome to firm (impact), and firm action (action). Based on the raw causal map constructed in Stage One, the causal linkages in the map can be generally classified into three types: ‘environment-impact-action’, ‘environment-outcome-action’, and ‘environment-outcome-impact-action’. Three examples to elaborate the features of these three types of linkage are shown below.

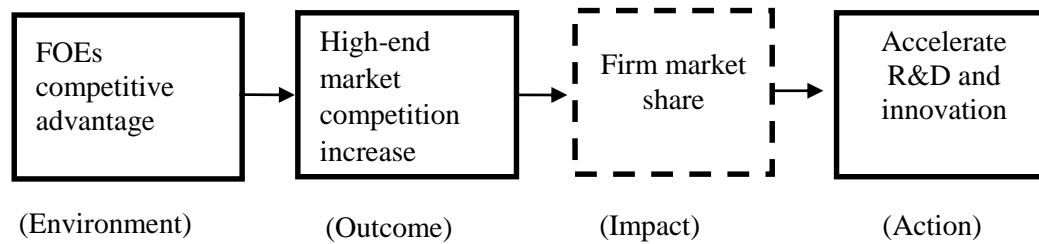
Example One: ‘environment-impact-action’ linkage. The original text is “*the competition in the industry is increasing. We are facing a challenge to maintain and expand a high market share. Therefore, we accelerated new product R&D*”. This causal statement is represented as the following format in the raw causal map.



Example Two: ‘environment-outcome-action’ linkage. The original text is “*The withdrawal of the government policy of automobile purchase encouragement resulted in a sharp decrease of sales. In order to deal with the situation, we actively developed the domestic and overseas market to increase sales*”. The causal linkage is represented as the following format in the raw causal map.



Example Three: ‘environment-outcome-action’ linkage. These linkages feature no explicit description of the direct impact on the firm, but the outcome of the environmental change is clearly described (most of the time it is about market competition analysis). For example, the original text is “*the foreign-owned enterprises (FOEs) have the advantage of technology and management capability. The firm is facing the challenge of competition from FOEs in the higher-end market. Therefore we accelerated new technology R&D...*” This causal statement does not mention the direct impact of increased higher-end market competition on the firm, but directly relates the action in response to the challenge. To deal with this kind of causal linkage, the researcher bridges the gap by inference based on the implied meaning of the linkage. See the following causal format in the raw causal map, the dashed box is filled by the researcher.



By referring to Carley (1997) argument that the meaning of a word should be understood by identifying its location in the network map whereby context is taken into account, the ‘environment-impact’, ‘environment-outcome’, as well as ‘environment-outcome-impact’ linkages are clustered under the integrated *perception-interpretation aspects*. Then ‘action’ concepts that connect with these linkages are clustered under the *solution aspects*.

After this first layer of clustering, the second layer of clustering is conducted for each aspect of the sensemaking framework.

Perception and interpretation aspects categorizing

The perception aspect (attended environmental issue) contains a set of environmental elements that receive attention. Oliver (1991)’s five institutional antecedents for firm strategic response, constituents (who), content (what), control (how), context (where) and cause (why firms respond), are referred to for guidance to categorize environmental concepts. This framework comprehensively covers the institutional elements and allows different dimensions of the institutional categories to emerge and become configured with each other to constitute the institutional context experienced by the organization.

Referring to the contingency framework of institutional antecedents, 14 institutional environment domains based on linkages clustered under perception-interpretation

aspects emerge. Table 5 lists the environment domains (see Appendix V for the environment domain clustering).

Table 5 Environment Domain in Perception Aspect of Sensemaking

Environment level	Attention-environment domain	Connotation	C#
Macro-level	Global political, economic context uncertainty	Multiplicity of negative global political and economic events	1
	Divergent global regional market	Coexistence of positive and negative aspects of the global/regional markets	2
	Complex domestic economic environment	Multiplicity of negative domestic economic conditions	3
	Complex factors in domestic market	Multiplicity of negative factors in domestic market conditions	4
	Government economic strategy in transition	National economic development strategy change	5
	Government macroeconomic intervention	Government monetary policy and fiscal policy implementation	6
	Government industry intervention	Government changes industry development plan and incentive policy	7
	Government legal and administrative regulation	Government legal and administrative policy implementation	8
Industry level	Global supply chain change	Global auto manufacturing industry situation and MNEs strategy move	9
	Domestic supply chain change	Domestic auto manufacturing industry situation and auto manufacturer strategy movement	10
	Industry technology transition	Domestic auto-parts industry technology movement	11
	Increasing market competition	Domestic and overseas competition status	12
Firm level	Resource and capability deficiency for firm growth speed	Rapid growth of general firm scale and sales require managerial capability upgrade and increase the need for human resources	13
	Resource deficiency for firm product portfolio change	Rapid growth of higher-end products in firm product structure increases the need for human resources	14

Interpretation aspects contain a set of causal linkages (environment-outcome/impact) that shift the objective environmental elements into subjective information related to the firm's identity and interests. These causal linkages evaluate what the attended environmental elements mean for the firm itself or for some normative standard.

The categories found from these causal linkages are generally included in the dimensions identified from the T/O (threat and opportunity) category developed in strategy management. T/O interpretation is a prevailing basic level category that contains both "importance" and "future-oriented" attributes that constitute the strategic issue (superordinate level category) (Dutton et al. 1987; Jackson & Dutton 1988). This category contains the attributes of "negative, loss, uncontrollable" for the threat, and "positive, gain, controllable" attributes for the opportunity (Dutton et al. 1987).

The two-step process to attain a T/O category in the survey approach, i.e. eliciting an issue-specific scenario and respondents' interpretation of this scenario according to a number of dimensions of T/O, can be simultaneously completed in the causal map analysis. To be specific, the 'environment-impact', 'environment-outcome', as well as 'environment-outcome-impact' linkages already express what institutional environmental element is taken into account by managers as relevant (perception), and what these elements mean for the firm (interpretation).

Moreover, this causal linkage based T/O category clustering is also triangulated with the SWOT (strengths, weaknesses, opportunities, threats) discussion part in the annual report. Normally the explicit SWOT content will be systematically listed and discussed. For some of the firms where past discussion includes less information about the environmental analysis, the causal linkages are also extracted from these SWOT analysis sections to enrich the map.

By referring to the strategic cognitive literature that has incorporated interpretation category analysis (e.g. Chattopadhyay et al. 2001; George et al. 2006; Thomas et al. 1993; Weber 2005), the concept linkages clustered under perception-interpretation aspects can be classified into 4 dimensions with 7 sub-categories, see Table 6 for the interpretation aspect categories (see a detailed causal linkage clustering in Appendix VI).

Table 6 Categories in interpretation aspect of Sensemaking

T/O category	Dimension	Connotation	Sub-category (#C)	Connotation
Opportunity	Positive-gain	Resource gain as a result of the event	Market resource gain (15)	Evaluation of an increase in market capacity
	Control enhancing	Aspects of external environment become less controlling, more predictable, or internal environment is more controllable	Certain (16)	External environment more predictable. Implication is known
Threaten	Negative-loss	Resource loss as a result of the event	Market resource loss (17)	Evaluation of a decrease in market capacity
			Economic loss (18)	Economic return and efficiency decline as a result of the event
	Control reducing	The aspect of external environment becomes more controlling, less predictable or internal environment become less controllable	Coercive (19)	Increasing external control
			Impeding (20)	Bottleneck for firm development
			Ambiguous (21)	Less predictable external environment. Implication is equivocal

Solution aspects categorizing

The solution aspect contains a set of concrete strategic action concepts that are taken into account by managers to respond to the situation evaluation (connecting with perception-interpretation linkage). These concepts describe how the firm enacts the environment. The type of action reveals the organization's nature (reflecting integrated organizational identity and strategy frame).

In the strategy management literature, some scholars have already developed various strategy typologies, such as Mintzberg (1978), Miles, Snow, Meyer and Coleman (1978), and Porter (1985). A few research about business strategy in transition economies have also applied some of these typologies²⁹. However considering the plural nature of strategic actions, the logic of consistency that such typologies are based on, i.e. *fitness* of different parts that make up the overall ideal configuration, might lead to a problematic assumption if the researcher directly adopts the existing typology (Fiss 2011). For example, when not all parts of the typology are equally important, inconsistent and irrelevant elements also emerge (Fiss 2011). Therefore, this research inductively builds up action categories by clustering the basic level action concepts in the raw causal map.

In order to achieve an accuracy of the action concepts clustering, basic level action concepts are used in the preliminary raw causal maps to cluster the solution categories. These concepts are first clustered under the relatively overarching strategy content category according to the content of the action. The purpose of this clustering is to facilitate further fine-grained clustering and at the same time avoid being trapped into

²⁹ Peng has applied the typology of Miles et al. (1978) for business strategy in transition economies, see Peng (2000), Peng et al. (2004).

compulsory typology fitness. The overarching strategy content emerging from the clustering are firm resource, firm capability, market resource, product and service, firm boundary, formal institution of the firm, and the informal institution of the firm.

Then under each main strategy content category, basic level concepts are further clustered on the semantic indicators of ‘movement extent’ – the key verb or the noun that conveys the meaning of strategic movement (see semantic indicators in Appendix III). The purpose of this clustering is to take into account the extent of movement towards the corresponding strategy content. This effort is different from the quantitative measurement of realized action, in which objective investment or structural changes are calculated. Instead, this linguistic-based clustering is trying to elicit managers’ *subjective strategic knowledge*.

The semantic indicator based clustering further organizes the basic level concepts into five different extents of movement under the strategy content - enhance, synergise, expand, extend, and transform.

With the aid of semantic indicators, sub-categories that embrace the meaning of both strategy content and movement extent emerge. The basic level concepts clustered within the strategy content category are further organized under movement extent. For example, the strategy orientation/mindset sub-category is identified under the informal institution category. The concepts that are located under the strategy orientation/mindset sub-category and featured as ‘moderate’ are clustered under ‘enhance’, those featured as ‘synchronize’ with customer or business group strategy are clustered under ‘synergise’, those featured as ‘responsive, adaptive to external environment’ are clustered under ‘expand’, those featured as ‘proactively change environment’ are clustered under

‘extend’, finally those featured as ‘revise previous strategy mindset and change strategy’ are clustered under ‘transform’ movement extent.

In addition, there are some other basic level concepts which do not have an explicit verb or noun indicator to express the extent of movement, these have no scale of meaning for strategy movement, but they do relate to firms’ operations. These concepts are clustered under the ‘enhance’ dimension of the strategy content. For example, the original text is “*the government put lead-acid battery manufacturing on the Supervision and Administration Focus List, so we organized an environmental protection symposium and invited the government’s Environment Department, industry experts, and major battery manufacturers to participate*”. The action concept to respond to environmental change (government administration) is ‘organize industry symposium’. This action concept is considered as public relations management which is classified as a firm resource related action. However, this action has no movement extent meaning included, therefore it is further clustered under ‘enhance’.

Following this configuration between strategy content and movement extent clustering, 7 strategic content dimensions paired with 5 different movement extents are attained, whereby 29 solution categories in total are identified at the saturation point. See the following Table 7 for this action categorizing (detailed clustering is listed in Appendix VII). The connotations of these 29 solutions category are elaborated as follows:

Enhance firm resources (ENHINTR #22): the firm establishes and improves new internal resources such as business and technology platform, human resources, and public relations. These resources are not fully established previously and the firm is trying to construct and improve these resources.

Synergise firm resources (SYNINTR #23): the firm already has the internal resources, but is trying to synergise, adjust, and optimize the resources distributed in the firm's R&D related department, financial structure, business group, and supply chain, as well as internal and external sources of human resources.

Expand firm resources (EXPINTR #24): the firm expands existing internal resources. For the sampled firms, these resources mainly include financial resources, human resources, and supply chain.

Enhance firm capability (ENHCAP #25): the firm establishes and improves conventional capabilities, which were not fully mastered previously. Capabilities identified from sample firms include general technology capability, manufacturing capability, information analysis capability, managerial capability, finance management ability, financing capability, and autonomous development capabilities.

Synergise firm capability (SYNCAP #26): the firm already has certain conventional capabilities, but is trying to complement, optimize, and adjust these by cooperating with other organizations, emphasizing the capability to integrate and configure resources, and integrate the manufacturing capability to effectively respond to the market.

Expand firm capability (EXPCAP #27): based on the existing conventional capabilities, the firm is expanding its manufacturing scale, making its existing technology capability more interactive and responsive to the market, expanding financial capability, and improving cross-border operation capability, in particular how to cope with anti-dumping barriers overseas.

Extend firm capability (EXTCAP #28): the firm is constructing technology capabilities that are beyond its conventional product production scope. These capabilities are the

key and fundamental R&D technology that make a difference to the value of the firm's products.

Transform firm capability (TRACAP #29): the firm is changing its existing conventional technology and manufacturing capability and upgrading into a more complex and higher-level ability.

Enhance market resource (ENHMR #30): the firm is constructing and promoting its own brand in the market, maintaining their existing customer resource and market share, as well as constructing and completing industry and market deployment³⁰.

Synergise market resource (SYNMR #31): the firm is adjusting its existing customer structure and market deployment to optimize revenue sources.

Expand market resource (EXPMR #32): based on existing market resources, the firm is expanding its customer sources, increasing market power, and developing new market deployment.

Enhance product and service (ENHPS #33): the firm is consolidating existing products and services.

Synergise product and service (SYNPS#34): the firm is adjusting and optimizing its existing product structure.

Expand product and service (EXPPS 35): the firm is expanding its existing product line by developing a new product.

³⁰ This indicates general planning and deploying R&D, manufacturing, target market, distribution channel, supplier etc. in order enter into certain markets.

Extend product and service (EXTPS 36): the firm is extending its existing product line and brand by entering into a different market segment, or providing more system-like products rather than separate auto parts.

Transform product and service (TRAPS #37): the firm is upgrading product value and adjusting product structure to focus more on high-end products.

Enhance firm boundary (ENHFB #38): the firm is constructing and consolidating the domestic market, derivatively reproducing, or focusing on primary business.

Synergise firm boundary (SYNFB #39): the firm is adjusting and optimizing industry investment structure and business mix to enhance primary business, or constructing an external cooperative alliance to integrate industry resources.

Expand firm boundary (EXPFB #40): the firm is constructing and consolidating the overseas market, investing in other companies by joint shares, or investing in primary business related industry.

Extend firm boundary (EXTFB #41): the firm is engaging in M&A or diversifying its own business.

Enhance formal institution (ENHFI #42): the firm is improving corporate governance, standardizing organizational structure and processes, and constructing an efficient supply chain management system, human resource management system, strategy implementation and control system, investment monitoring and control system, financial operation management system, as well as efficiency-oriented operations and investment norms.

Synergize formal institution (SYNFI # 43): the firm is adjusting and optimizing the existing internal control system, organizational structure and processes, business group management system, and supply chain management system.

Expand formal institution (EXPMI # 44): the firm is engaged in a whole value chain analysis and management.

Transform formal institution (TRAFI #45): the firm is reforming and restructuring its organizational structure and processes, corporate governance structure, business group management system, and human resource management system.

Enhance informal institution (ENHFI #46): the firm is constructing an internal stakeholder representative committee, efficiency-oriented strategy implementation culture among the management team and employees, transparent and democratic strategy making culture, humane management culture, and adopting a moderate style of strategy orientation.

Synergize informal institution (SYNIFI #47): the firm's strategy is oriented to synchronizing and synergizing with business group strategy.

Expand informal institution (EXPIFI #48): the firm's strategy is oriented to being responsive and adaptive to markets.

Extend informal institution (EXTIFI #48): the firm's strategy is oriented to being proactive to change the 'rules of the game' in the industry.

Transform informal institution (TRAFI #49): the firm's strategy is oriented to revising its previous strategic mindset and altering its strategy path.

Table 7 Solution categorizing based on configuration of action dimensions

Category Connotation Strategy content	Movement Extent	Enhance	Synergize	Expand	Extend	Transform
Firm resources		ENHINTR(22): Establish and improve firm resources	SYNINTR(23) : Synergize/adjust existing firm resources	EXPINTR(24) : Expand existing firm resources	N/A	N/A
Firm capability		ENHCAP(25) : Establish and improve firm capability	SYNCAP(26) : Capabilities integration and configuration	EXPCAP (27): Expand existing firm capabilities	EXTCAP(28) : Extend firm capability beyond current scope	TRACAP(29) : Convert existing capability to another form
Market resource		ENHMR(30) : Construct and maintain existing market resource	SYNMR(31) : Market resource adjustment and configuration	EXPMR(32) : Expand market resources scale	N/A	N/A
Product and service		ENHPS(33): Improve and enhance existing product and service status	SYNPS(34): Adjust and optimize product and service structure	EXPPS(35): New product and service development	EXTPS(36): Diversify or systematize product and service	TRAPS(37): Product and service value upgrade
Firm boundary		ENHFB(38): Domestic market expand, derivative reproduction, and business focus	SYNFB(39): Adjust existing industry investment structure and integrate industry resource	EXPFB(40): Internationally expand, joint venture-oriented reproduction, related industry expansion	EXTFB(41): M&A, diversification	N/A
Formal institution		ENHFI(42): Construct and improve formal control system	SYNFI(43): Adjust and optimize existing formal control system	EXPFI(44): Whole value chain analysis and management	N/A	TRAFI(45): Reform and restructure control system
Informal institution		ENHIFI(46): Construct and improve organization's informal control system, moderate style strategy orientation	SYNIFI(47): Strategy orientation-synchronize and synergize with business group strategy	EXPIFI(48): Strategy orientation-be responsive and adaptive to external markets	EXTIFI(49): Strategy orientation-proactively change industry rules	TRAIFI(50): Revise strategic mindset and transition strategy path

Step Two: Recast individual raw causal map into coded causal map and build up collective map data pool

Based on the category scheme built in Step One, the concept linkage of ‘environment-impact’, ‘environment-outcome’, and ‘environment-outcome-impact’ in the raw revealed causal map are assigned under the corresponding T/O sub-category. Also, the actions connected with these causal linkages are re-coded as the corresponding strategy sub-category (configuration of different action dimensions).

Then each coded causal map is recast by constructing an X-Y coordinate system to organize the concept and category under the sensemaking framework *perception-interpretation-solution*. This process aims to put the individual maps together, and organize the scattered concepts and categories and the linkages between them into a structured format. The X axes are the type of solution category, Y axes are the integrated perception-interpretation linkage under the corresponding T/O sub-category, after which the causal linkage in individual coded maps can be directly mapped onto the X-Y coordinate system. The cell that connects the corresponding perception-interpretation and solution category is named as the code of the firm. In this way, each causal linkage in the individually coded maps can be mapped onto a collective map and a corresponding data pool is built. This collective map data pool encompasses the complete content of sensemaking. See Appendix VIII for an illustration of the coordinate system.

In addition, the number of linkage accumulations is calculated during the process to check the point of redundancy, which further indicates an adequate sample to assess the collective strategic cognitive representation. The linkage accumulation is plotted as in Figure 19. The figure shows the number of linkages showing a converging trend at the

point of 19, whereby 298 linkages are identified. Taking into account both the redundant points of raw concept accumulation and concept linkage accumulation, the current sample size is deemed adequate for the analysis.

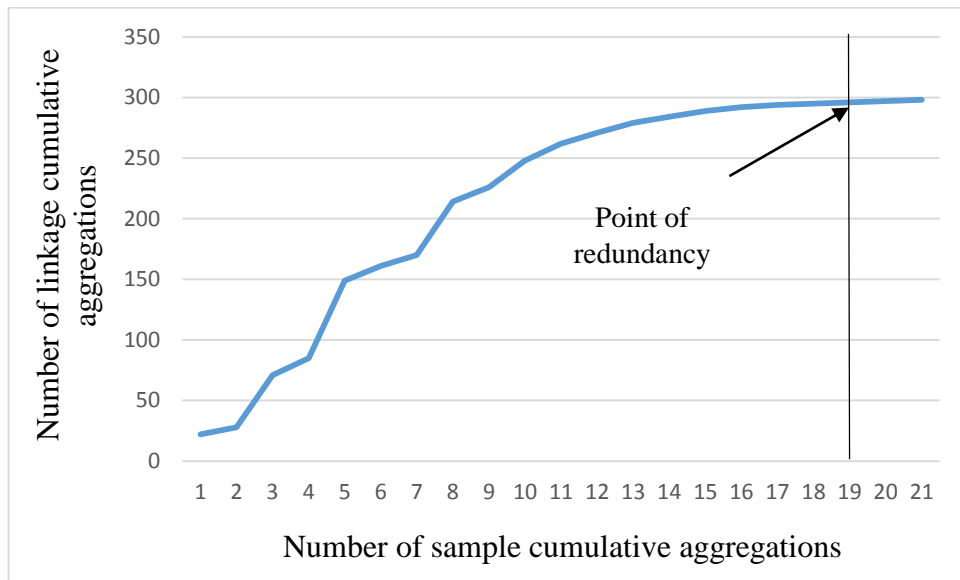


Figure 18 Point of redundancy for concept linkage accumulation

6.2 Construct the collective strategic cognitive map for SOE and POE groups

Concepts in one firm's strategic cognitive can be part of the collective cognitive available to other firms with the same type of ownership (Huff 1982), thus as with previous collective strategic cognitive research (e.g. Nadkarni et al. 2007a), individual coded maps of such firms are aggregated to represent the collective strategic cognitive map for the SOE and POE groups respectively.

Individual firm adjacency matrices are generated with the presence/absence (1/0) of the concept (Nelson et al. 2000a) according to the location of the firm's cognitive element in the coordinate system. 'Ambiguous' interpretation and solution response, which is part of the coordinate system, is used as an example to explain how the individual adjacency matrix is generated. See Figure 20 for the partial coordinate system and Figure 21 for the individual adjacency matrix elicited from the coordinate system for firm No. 9.

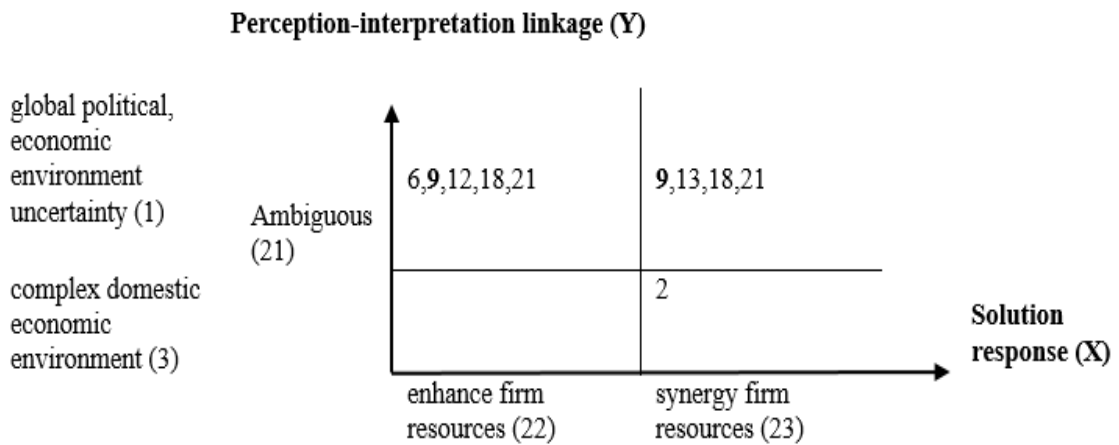


Figure 19 Partial coordinate system: 'ambiguous' interpretation and solution response

	1	2	3	...	21	22	23
1	0	0	0	0	1	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	1	0	0
...	0	0	0	0	0	0	0
21	0	0	0	0	0	1	1
22	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0

Figure 20 Partial adjacency matrix (0/1) from 'ambiguous' interpretation for firm No. 9

Based on this adjacency matrix with presence/absence meaning, individual adjacency matrices are constructed with the *frequency* of the linkage between each pair of concepts. This is calculated as the *percentage* of linkages between two category concepts in respect to the total linkages (Nelson et al. 2000a). Then the same group of firms' adjacency matrices are added together to generate an aggregated adjacency matrix. In this way, the nature of the direct causal linkage between two category concepts can be represented by the *strength* of their linkage. The greater the frequency of that causal linkage, the stronger the casual linkage in the group map, which indicates the more importance of the causal linkage for the group, see Appendix IX for the complete aggregated adjacency matrix.

Based on the aggregated adjacency matrix, the group causal map is drawn by using a social network analysis program. Netdraw 2.136 is used to display the group map, see Figures 22 and 23 for the group causal maps of SOEs and POEs respectively. A category concept is represented by a node, causal linkages and direction are represented by an arrow "→" on the map. A **green** node is used to stand for the *attended environment* (perception) category concept, a **blue** node for the *interpretation* category concept, and a **red** node for the *solution* category concept. The stronger the causal linkage is, the thicker the arrow is. Netdraw shows maps based on the same format, therefore any node and node linkage that does not exist for either group, still appears in the group map but as an isolated node.

From the group causal map, by inspection the *strong causal linkages* are observed to be virtually *the same* for SOEs and POEs. Differences mainly exist in the weak ties.

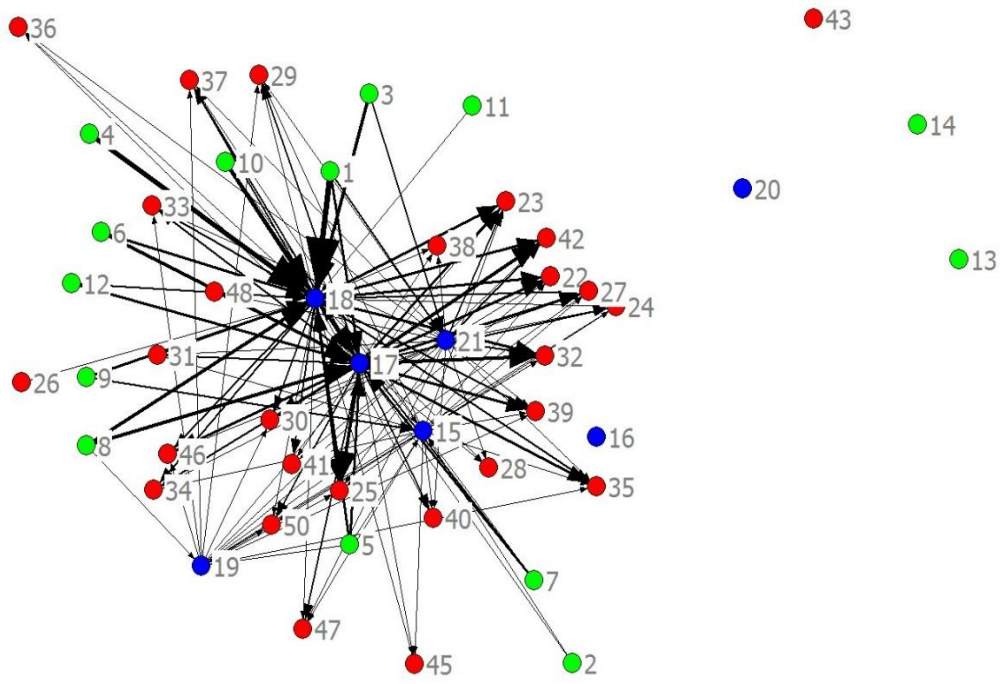


Figure 21 Collective causal map of SOEs

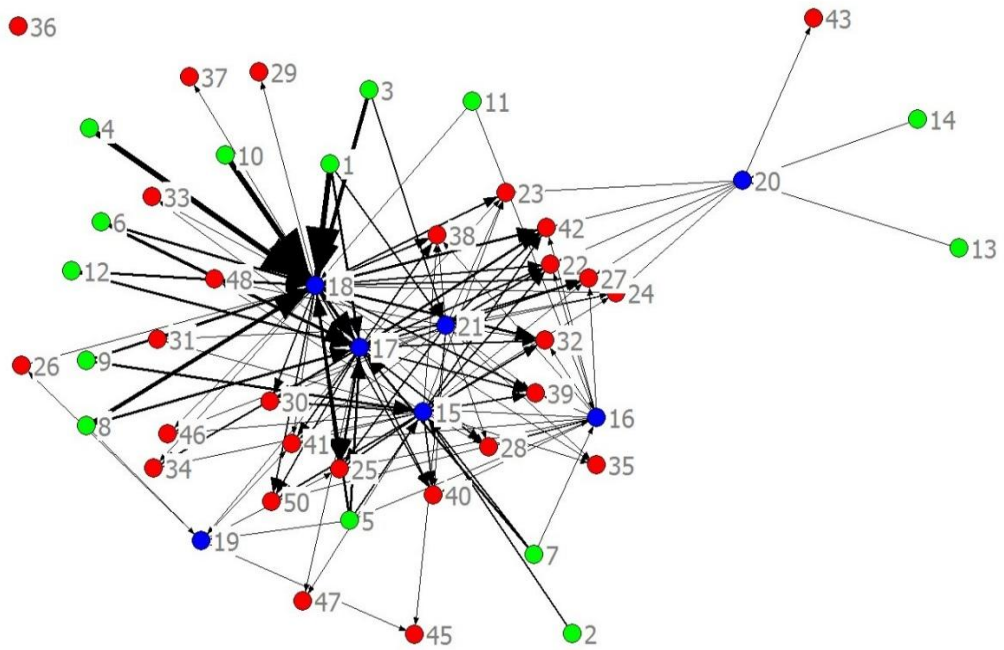


Figure 22 Collective causal map of POEs

In order to conduct an accurate comparison, the core-periphery strategic cognitive map for both the SOE and POE group is going to be identified and detached, based on which the congruent and idiosyncratic core-periphery cognitive map or elements is extracted and summarized. This analysis process is elaborated in next chapter.

Chapter 7 Data analysis process part two: collective strategic cognitive map comparison

This chapter elaborates the second part of the textual data analysis about map comparison. The map comparison techniques introduced in Chapter 5 are applied in the analysis.

The data analysis in this chapter is organized into two sections:

The first demonstrates how congruent and idiosyncratic core-periphery strategic cognitive maps and elements are identified and detached.

The second section provides supplementary assessments to consolidate the comparisons between the two groups.

7.1 Identifying and detaching congruent and idiosyncratic core-periphery strategic cognitive map and elements

Referring to previous strategic cognitive studies, the terms “core” and “periphery” are borrowed to facilitate pattern identification and comparison. Core elements represent the central and essential content that has significant meaning to managers, whereas peripheral elements are the ones perceived as less important and may be dispensable or exchangeable (Eden et al. 1992; Weick & Bougon 1986).

Based on the core-periphery map differentiation, the next main task is to organize strategic cognitive elements into a congruent core strategic cognitive map, a congruent periphery strategic cognitive map, and an idiosyncratic strategic cognitive map. See Figure 24 for the framework of this comparison.

Many strategic cognitive studies use the centrality measurement, the total number of concepts to which a specific concept in the map connects (Eden et al. 1992), to represent the coreness of a concept in managers' subjective knowledge. In this research, as interpretation category is the *bridge* between perception and solution categories, the *centrality of interpretation category* is taken as a key indicator to identify and elicit the core-periphery causal map. Also, the common categories and linkages between the categories are taken as congruent map elements, those only existing in either the SOE or POE group map are taken as idiosyncratic map elements.

Each of the interpretation category-centered causal networks is separately compared for the SOE and POE groups to identify the congruent-variant map on the basis of element presence/absence. Then a supplementary assessment is conducted to consolidate the comparison result.

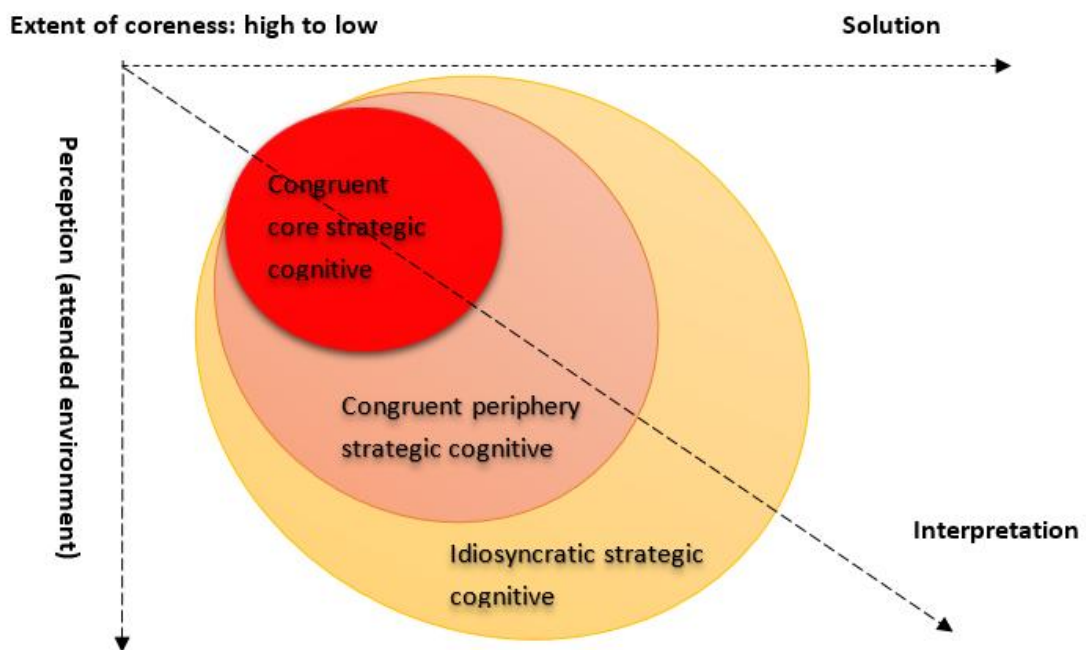


Figure 23 Framework of group causal map comparison between SOEs and POE

7.1.1 Interpretation category coreness assessment: indicator for core-periphery strategic cognitive ma

After eliciting the congruent and variant interpretation category-centred network, the coreness of the interpretation category is evaluated and compared for the SOE and POE groups. This comparison provides an initial indicator for the core- periphery map detachment.

As the interpretation category is the bridge between perception and solution categories in the map, the coreness of the interpretation category can be measured by its *centrality* in the network. Ucinet 6.493 is used to calculate the degree of centrality for all interpretation categories and then to rank them according to the composite of in degree and out degree calculation. See Tables 8 and 9 for this centrality calculation.

Table 8 Interpretation category centrality for SOE group

Rank	Node	Out degree	In degree	Composite degree
1	18	0.191	0.25	0.441
2	17	0.26	0.137	0.397
3	21	0.064	0.011	0.075
4	15	0.033	0.023	0.056
5	19	0.026	0.005	0.031
6	16	0	0	0
7	20	0	0	0

Table 9 Interpretation category centrality for POE group

Rank	Node	Out degree	In degree	Composite degree
1	18	0.148	0.278	0.426
2	17	0.142	0.134	0.276
3	15	0.096	0.045	0.141
4	21	0.061	0.014	0.075
5	16	0.037	0.008	0.045
6	20	0.012	0.008	0.02
7	19	0.008	0.01	0.018

By comparing the centrality status of 7 interpretation categories in the SOE and POE group maps, it was found that the interpretation ‘economic loss’ (18) has the highest centrality in both groups, followed by ‘market resource loss’ (17). These two interpretation categories have much higher in degree and out degree ratings than the rest of the interoperation categories in both the SOE and POE maps. However, the centrality of interpretation is different for SOE and POE groups in ‘market resource gain’ (15), ‘certain’ (16), ‘coercive’ (19), ‘impeding’ (20), and ‘ambiguous’ (21).

From the above comparison, ‘economic loss’ (18) and ‘market resource loss’ (17) reside in the center of the map. The core/periphery measurement in Ucinet is used to assess this observation. The core/periphery measurement fits a continuous (ratio-level) core/periphery model to the data network, and estimates the coreness of each node. In the end, all the nodes are classified into core and periphery. Considering the complexity of the map only the nodes that are classified as core members are reported. See Table 10 for the core/periphery analysis report.

Table 10 Core Class Memberships

	Core member node	Fitness³¹
SOEs	1, 6, 10, 17, 18	0.482
POEs	1, 4, 8,10, 17, 18	0.397

To summarize the above analysis, SOE and POE groups both prioritize strategic issues relating to ‘economic loss’ (18) and ‘market resource loss’ (17) and respond to these issues. So economic loss (18) and market resource loss (17) centered strategic cognitive

³¹ The final fitness indicates how well the observed data approximates an ideal core/periphery structure. The higher the fitness, the better the agreement on the core/periphery model. There is no significance test of fitness of the core/periphery model for Ucinet, but the core interpretation categories identified are consistent with the centrality assessment result.

maps are taken as the revealed core strategic cognitive; the other interpretation category-centred strategic cognitive map is revealed as a peripheral strategic cognitive. In particular, the interpretation categories ‘certain’ (16) and ‘impeding’ (20) center on the network idiosyncratically, as they exist only in the POE group map.

In the following part, core-periphery strategic cognitive elements are detached, and the SOE and POE groups are compared with the aid of a network analysis program.

7.1.2 Interpretation category-centred network analysis

Netdraw allows the user to select multi-networks and switch or combine them easily. The user can flip back and forth between different networks with the nodes remaining in the same locations. Node (and linkages with the node) can be conveniently activated or deactivated by choosing the corresponding node from the nodes list. Also, during the analysis process, the isolated nodes can be automatically deleted if the user chooses. These functions facilitate the researcher selectively displaying a focused interpretation category and the corresponding interpretation category-centred network, at the same time it deactivates the other interpretation categories and their surrounding networks. This function is used to filter and delete node and node linkages that differ between SOE and POE groups, as well as to elicit the idiosyncratic node linkages for each group.

The aggregated adjacency matrix of SOEs and POEs is imported to Netdraw 2.136, then each of the interpretation category-centred networks is analysed. The *congruent map* is identified by switching between the SOE and POE maps and deleting any isolated nodes in either map. The causal linkages connecting with these isolated nodes are an *idiosyncratic causal map* for the type of group that owns it. The identified congruent and idiosyncratic causal maps which are represented as interpretation category-centred networks for both the SOE and POE groups are displayed below.

(1) Congruent interpretation-centred network

O- Market resource gain (15)

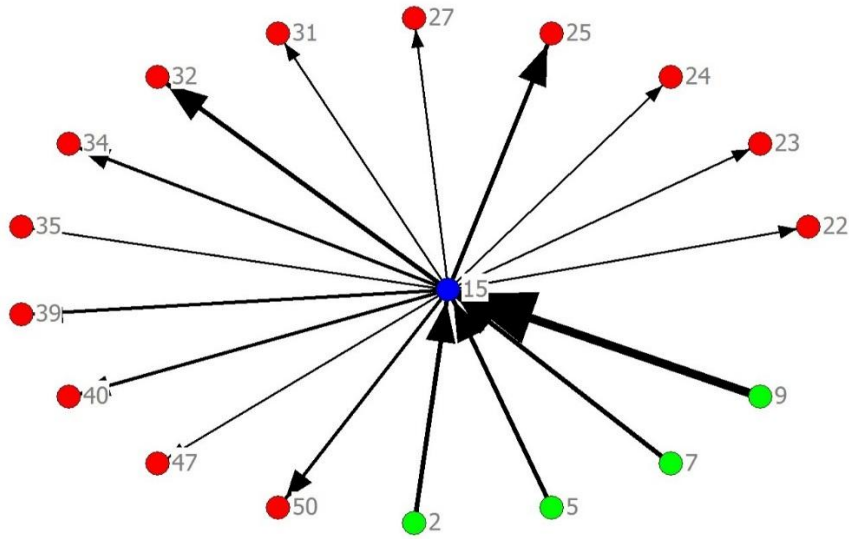


Figure 24 Congruent causal understanding with 'market resource gain' interpretation - SOE group

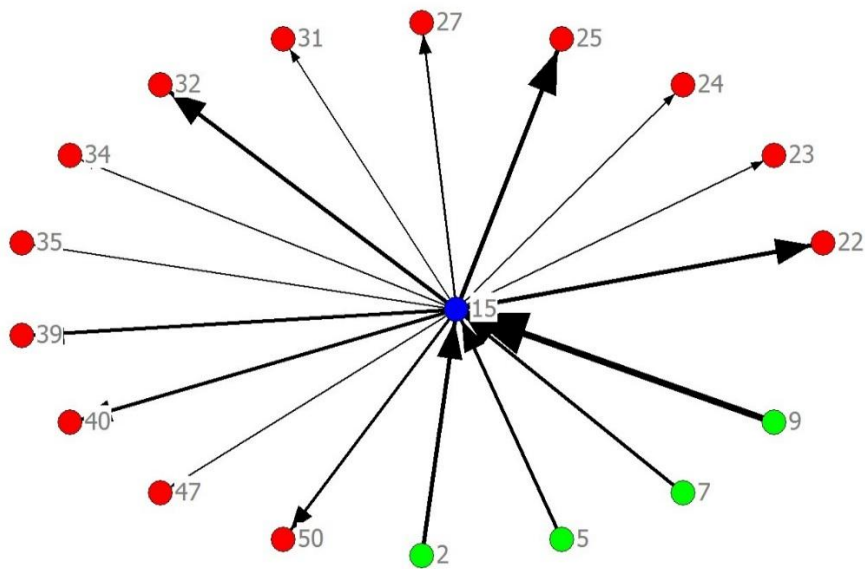


Figure 25 Congruent causal understanding with 'market resource gain' interpretation - POE group

For the ‘market resource gain’ centered congruent map, in general, there is no big difference in terms of tie size between the same pair of concepts. This indicates that the SOE and POE groups place similar emphasis on the configuration of environment-solution elements in the congruent ‘market resource gain’ centered cognitive map. A more fine-grained comparison of the relative emphases for each group will be analysed in a supplementary assessment in the next section.

T- Market resource loss (17)

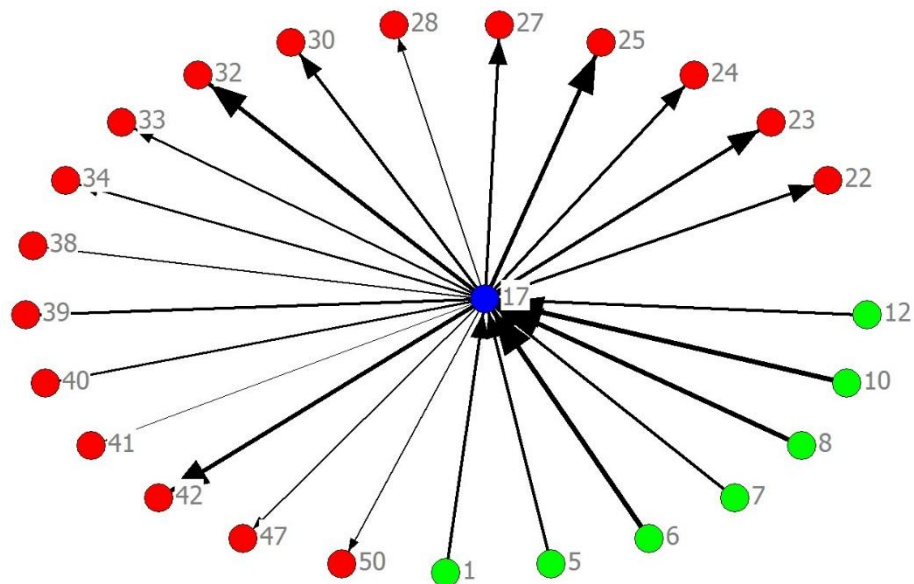


Figure 26 Congruent causal understanding with ‘market resource loss’ interpretation - SOE group

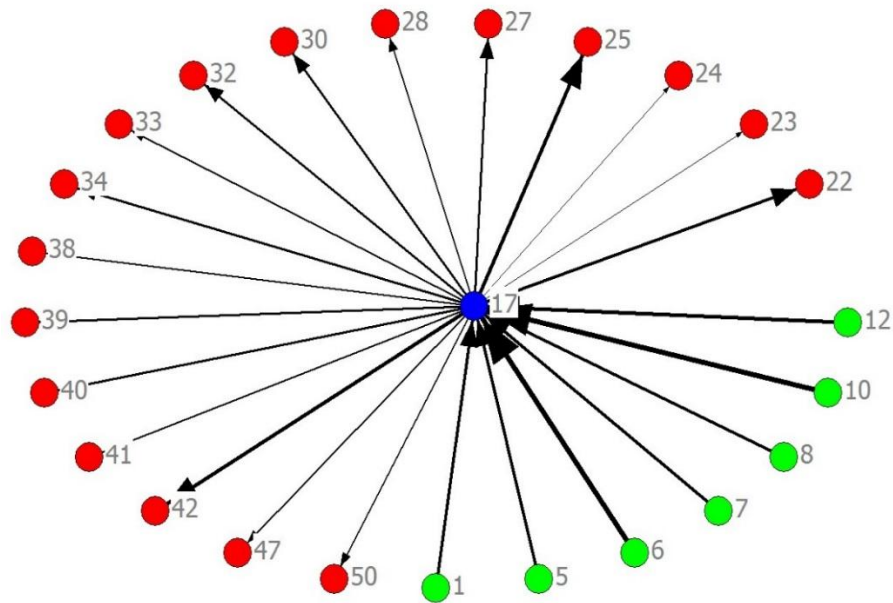


Figure 27 Congruent causal understanding with ‘market resource loss’ interpretation - POE group

For the ‘market resource loss’ centered congruent map, in general, there is no large difference in terms of tie size between the same pair of concepts. This indicates the SOE and POE groups put similar emphasis on the configuration of environment-solution elements in the congruent ‘market resource loss’ centered cognitive map. A more fine-grained comparison of each group’s relative emphasis will be provided in the supplementary assessment in the next section.

T- Economic loss (18)

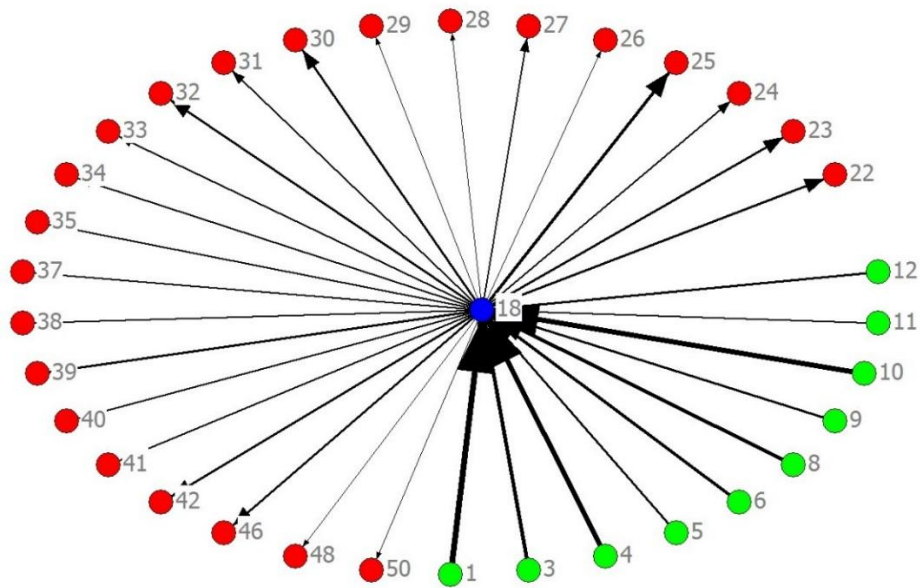


Figure 28 Congruent causal understanding with ‘economic loss’ interpretation-SOE group

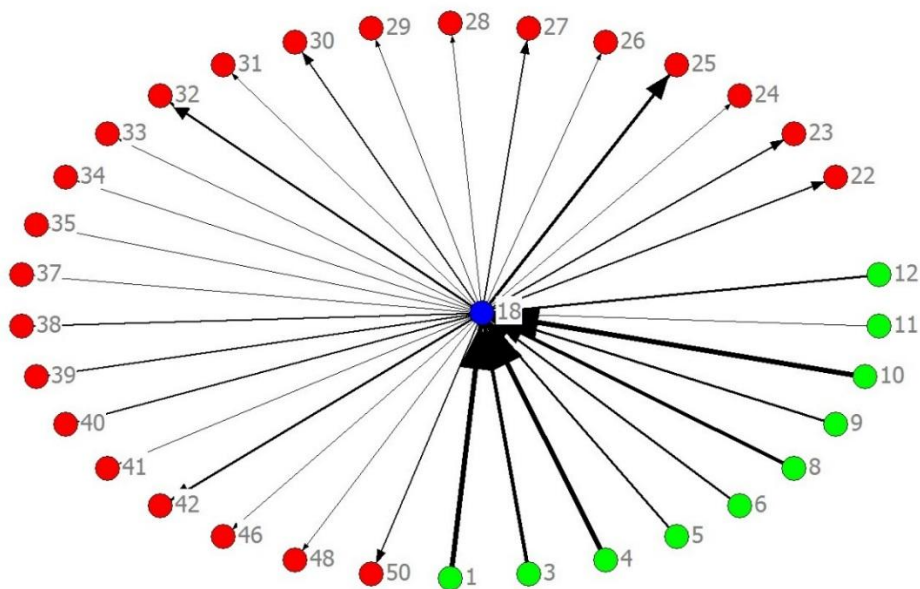


Figure 29 Congruent causal understanding with ‘economic loss’ interpretation-POE group

For the ‘economic loss’ centered congruent map, in general, there is not a big difference in terms of tie size between the same pair of concepts. This indicates similar emphasis is placed by both the SOE and POE groups on the configuration of environment-solution elements in the congruent ‘economic loss’ centered cognitive map. A more detailed comparison of the relative emphases for each group will be given in the next section’s supplementary assessment.

T- Ambiguous (21)

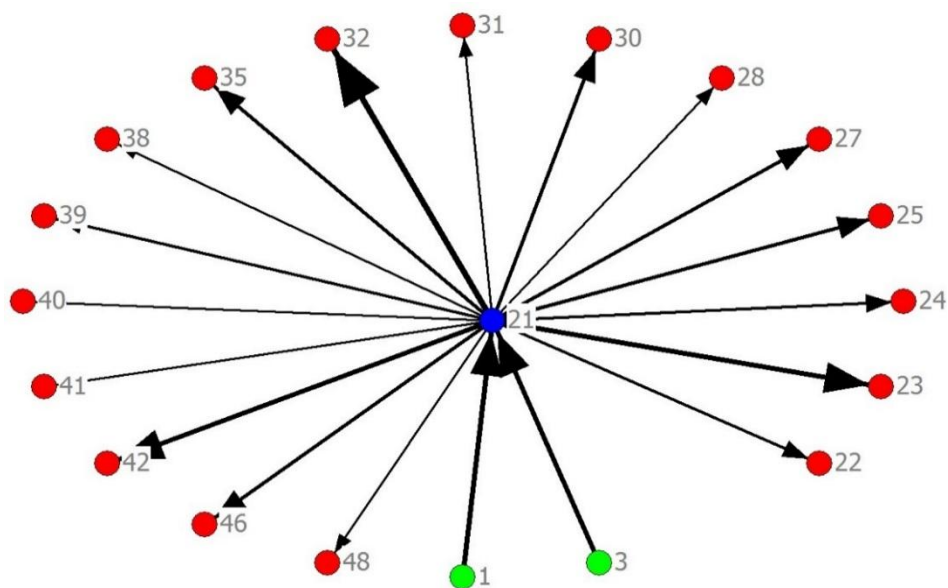


Figure 30 Congruent causal understanding with ‘ambiguous’ interpretation- SOE group

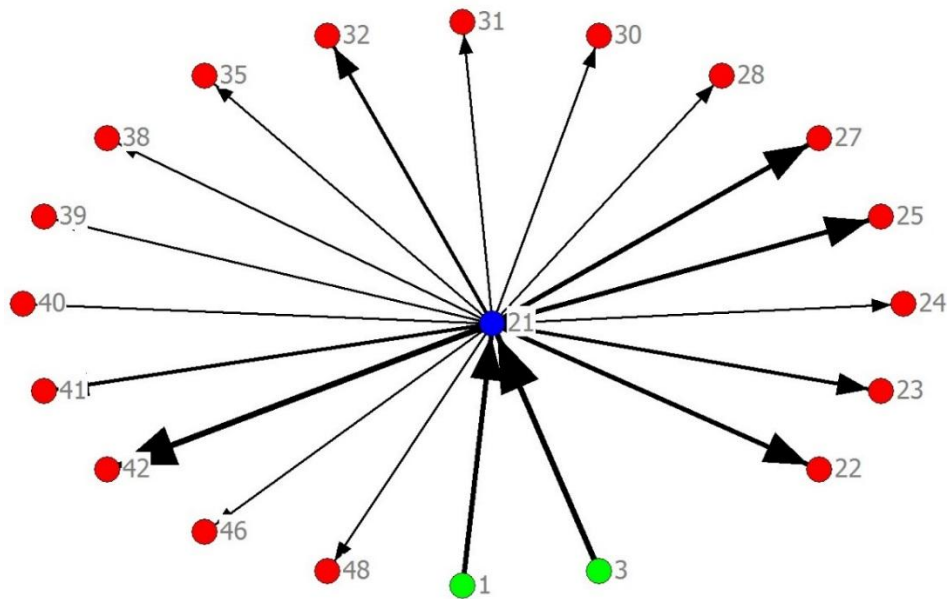


Figure 31 Congruent causal understanding with ‘ambiguous’ interpretation- POE group

For the ‘ambiguous’ centered congruent map, in general, there is not much of a difference in terms of tie size between the same pair of concepts. This indicates SOE and POE groups emphasize the configuration of environment-solution elements in the congruent ‘ambiguous’ centered cognitive map to a similar extent. A more in-depth comparison of each group’s relative emphasis will be outlined in the supplementary assessment provided in the next section.

T- Coercive (19)

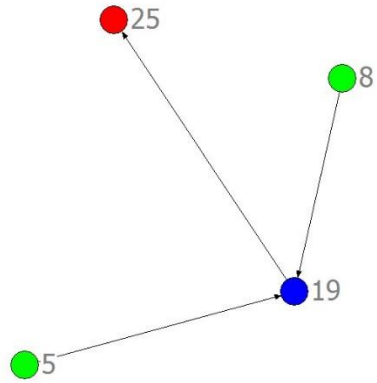


Figure 32 Congruent causal understanding with ‘coercive’ interpretation- SOE group

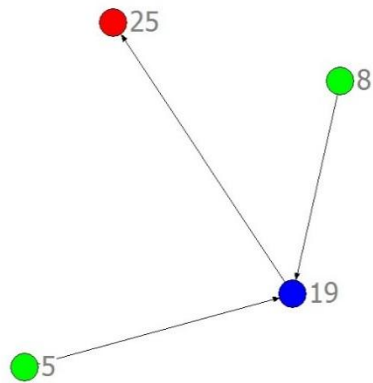


Figure 33 Congruent causal understanding with ‘coercive’ interpretation- POE group

For the ‘coercive’ centered congruent map, in general, there is no big difference in terms of tie size between the same pair of concepts. This indicates SOE and POE groups similarly emphasize the configuration of environment-solution elements in the congruent ‘coercive’ centered cognitive map. In the following section’s supplementary assessment the relative emphasis for each group will be more precisely compared.

(2) Idiosyncratic interpretation category-centred network

The two interpretation categories ‘certain’ (16) and ‘impeding’ (20) only exist in the POE group map. See Figures 35-36 for these interpretation category-centered networks.

O-Certain (16):POEs group

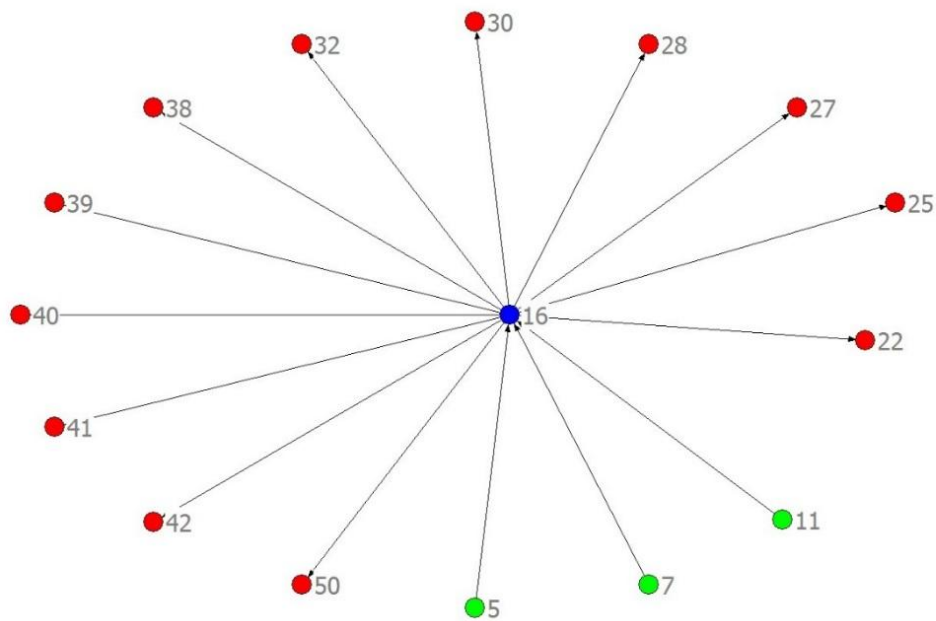


Figure 34 Idiosyncratic causal network with ‘certain’ interpretation – POE group

T- Impeding (20):POE group

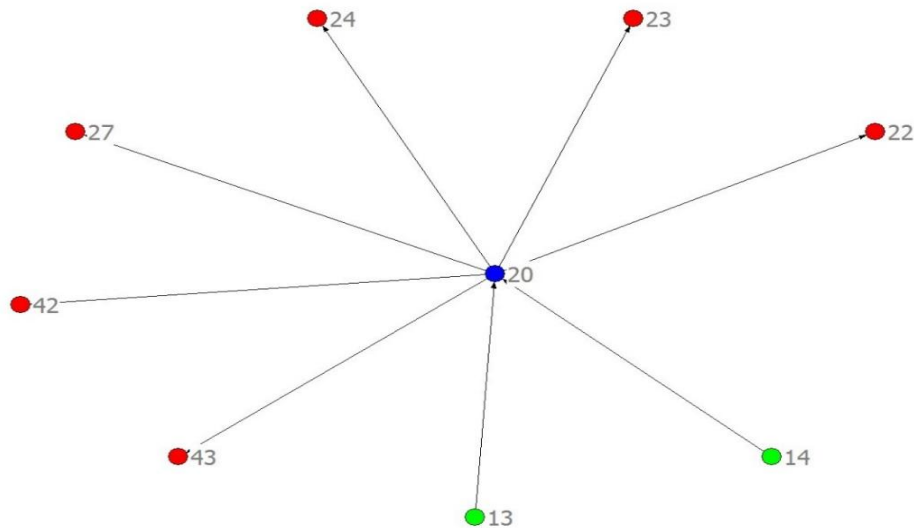


Figure 35 Idiosyncratic causal network with ‘impeding’ interpretation – POE group

The ‘certain’ interpretation is linked with government economic strategy transition (5), government industry intervention (7), and industry technology transition (11). Thus this ‘certain’ interpretation category-centred causal map suggests POE group members perceive the government’s economic strategy transition and industry intervention policy change as quite predictable, and they are prepared to adapt to these environmental changes. However, the solutions with which they respond to these predictable environmental changes are diverse. These responses cover different extents of movement towards resources (22), capability (25, 27, 28), market resources (30, 32), firm boundary (38, 39, 40, 41), formal institution (42), and informal institution (50).

The ‘Impeding’ interpretation is linked to insufficient managerial capability and human resources that constrain firm growth (13) and insufficient human resources that constrain product portfolio growth (14). Thus the ‘impeding’ interpretation category-centred causal map suggests POE group members perceive that rapid growth of firm

scale and sales, as well as higher-end products in the firm's product portfolio, have been constrained by insufficient managerial capability and human resources. The solution response to these impedances is mainly about action towards firm resources (22, 23, 24), capability (27), and formal institution (42, 43), in which synergizing and expanding are emphasized.

(3) Idiosyncratic ties connect with interpretation category

For the congruent interpretation category comparing the SOE and POE groups, some idiosyncratic ties exist for both SOE and POE group maps. See Figures 37-38 for idiosyncratic ties in the POE group map, and Figures 39-41 for idiosyncratic ties in the SOE group map.

O-Market resource gain (15): POE group

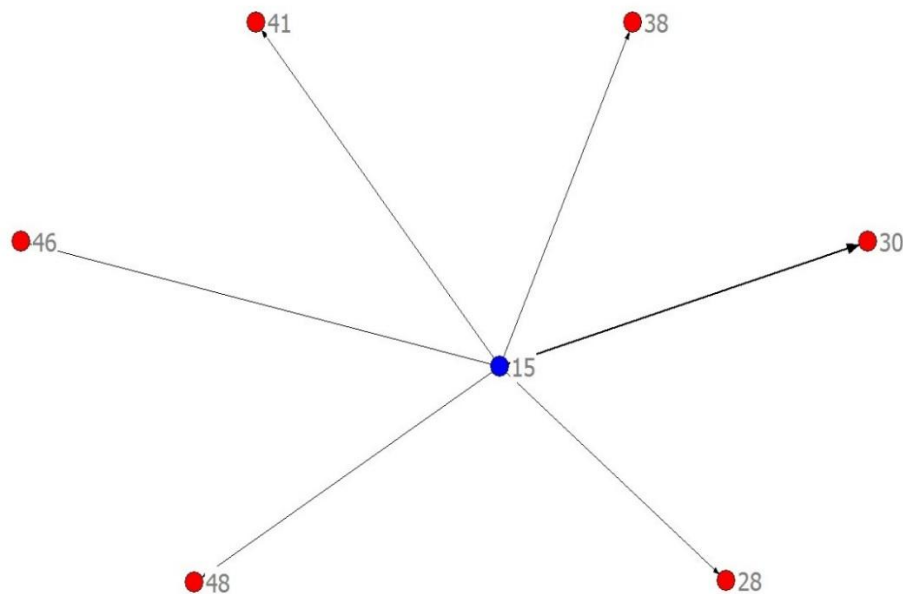


Figure 36 Idiosyncratic causal understanding with 'market resource gain' interpretation – POE group

The ‘market resource gain’ interpretation category exists for both the SOE and POE groups, but POEs have idiosyncratic solutions to respond to the market resource gain opportunity whereas the SOE group does not. These solution responses are: extend firm capability (28), enhance market resource (30), enhance firm boundary (38), extend firm boundary (41), enhance informal institution (46), expand informal institution (48). The solutions are mainly at the ‘enhance’ movement extent. ‘Extend’ firm capability and firm boundary are also considered, which indicates firms try to attain capability beyond their current conventional capability scope, and try to extend their firm boundary mainly through M&A or diversifying their business.

T- Coercive (19): POE group

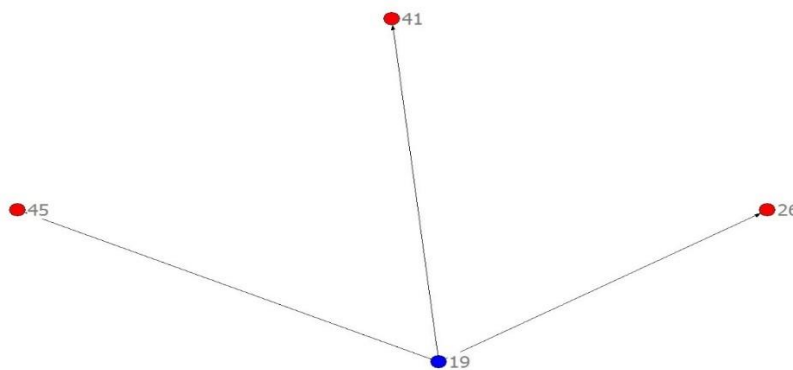


Figure 37 Idiosyncratic causal understanding with ‘coercive’ interpretation – POE group

The ‘coercive’ interpretation category exists for both SOE and POE groups, but POEs have idiosyncratic solutions to respond to the coercive pressure unlike SOEs. These

idiosyncratic solutions are: Synergize firm capability (26), extend firm boundary (41), transform formal institution (45).

T- Coercive (19): SOE group

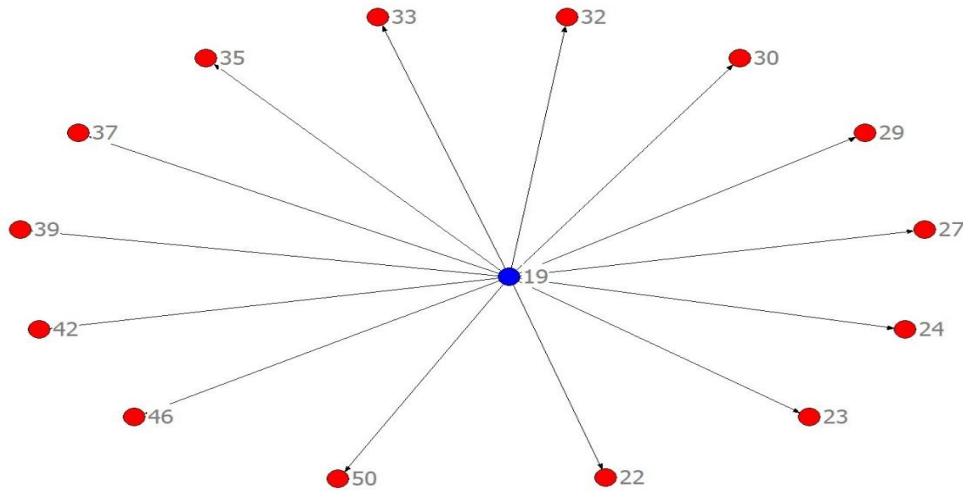


Figure 38 Idiosyncratic causal understanding with ‘coercive’ Interpretation - SOE group

The ‘coercive’ interpretation category exists in both the SOE and POE groups, but SOEs have idiosyncratic solutions to respond to coercive pressure. These idiosyncratic solutions vary in movement extent in terms of enhance, synergize, expand firm resource (22, 23, 24), expand and transform firm capability (27, 29), enhance and expand market resource (30, 32), enhance, expand and transform product and service (33, 35, 37), synergize firm boundary (39), enhance formal institution (42), and enhance and transform informal institution (46, 50).

T- Market resource loss (17): SOE group

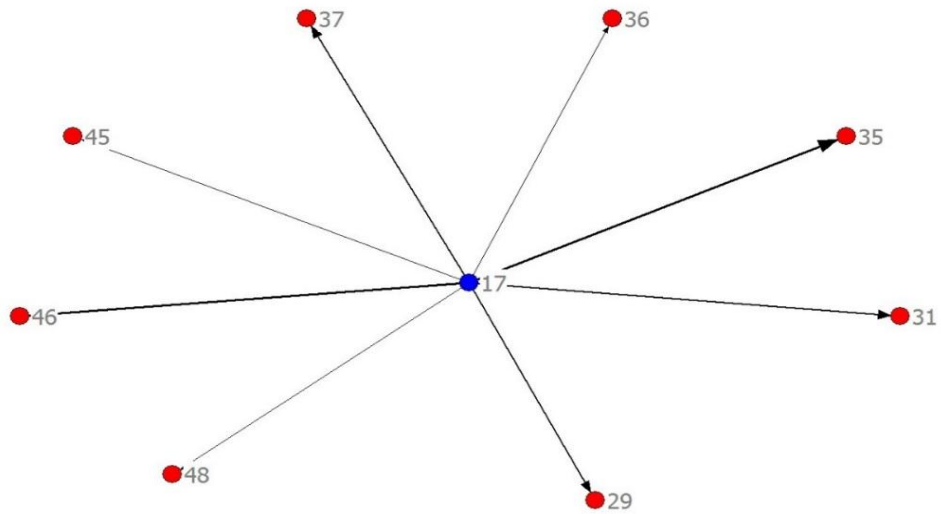


Figure 39 Idiosyncratic causal understanding with ‘market resource loss’ interpretation – SOE group

The ‘market resource loss’ interpretation category exists for both the SOE and POE group, but SOEs have idiosyncratic solutions to respond to this, which is not the case for POEs . These idiosyncratic solution responses to market resource loss are diverse, covering different extents of movement: transform capability (29), synergize market resource (31), expand, extend, and transform product and service (35, 36, 37), transform formal institution (45), and enhance, expand informal institution (46, 48).

T- Ambiguous (21): SOE group

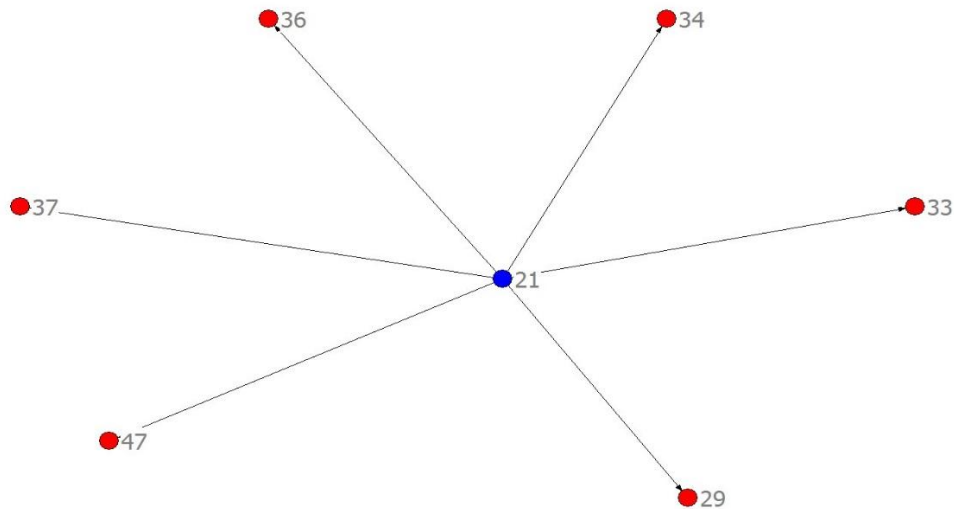


Figure 40 Idiosyncratic causal understanding with ‘ambiguous’ interpretation – SOEs

The ‘ambiguous’ interpretation category exists for both the SOE and POE groups, but SOEs have idiosyncratic solutions to respond to coercive pressure which is not the case for POEs. These idiosyncratic solutions are mainly about transforming conventional capability to a more complex and higher-level ability, i.e. transform firm capability (29), a comprehensive movement extent of products and services (33, 34, 36, 37), and synchronizing with business group strategy (47).

7.1.3 Network analysis summary

The above analysis detached the core-peripheral strategic cognitive map based on the relative emphases of the interrelation categories. Congruent and idiosyncratic map

elements are also elicited with the aid of Netdraw. Several indications emerge from the above network analysis:

- ‘Economic loss’ (18) and ‘market resource loss’ (17) are the major evaluations of the environmental context for both groups. These two interpretations represent the core strategic cognitive map for both groups. The rest of the interpretation category centered networks are peripheral strategic cognitive maps for both groups.
- In terms of element presence, the core strategic cognitive map is convergent for the SOE and POE groups, even though there are a few idiosyncratic solution elements for the ‘market resource loss’ interpretation.
- In terms of element presence, there are both convergent and divergent solution elements in the peripheral strategic cognitive map.
- The interpretation categories ‘certain’ (16) and ‘impeding’ (20) are located in the idiosyncratic peripheral strategic cognitive map for the POE group.

7.2 Supplementary assessment and comparison of revealed strategic cognition between SOE and POE groups

7.2.1 Comparing the similarity extent of attended environment emphases

In order to compare the revealed strategic cognitive map in a more fine-grained style, the relative emphasis of attended environment elements is demonstrated comparing SOE and POE groups.

The structural analysis from the network analysis method is referred to and the *centrality/power* of the attended environment elements is assessed (Borgatti 2002). In this respect, out-degree³² indices, which show the number of ties that extend from the attended environment element, were calculated by Ucinet 6. The indices tell how important the environment elements are perceived to be by the firms. See Table 11 for the summarized out-degree centrality for attended environment elements. The centrality is ranked from high to low in the table.

Table 11 Attended environment elements: Centrality comparison

Environment node-SOEs	Out-degree centrality	Normalized Out-degree centrality	Environment node-POEs	Out-degree centrality	Normalized Out-degree centrality
1	0.068	2.834	10	0.077	3.102
10	0.067	2.778	1	0.071	2.857
8	0.053	2.211	8	0.051	2.041
6	0.046	1.927	4	0.049	1.959
4	0.04	1.644	6	0.045	1.796
5	0.034	1.417	5	0.045	1.796
3	0.034	1.417	3	0.041	1.633
12	0.025	1.02	12	0.035	1.388
9	0.025	1.02	9	0.035	1.388
7	0.023	0.964	7	0.024	0.98
2	0.007	0.283	2	0.01	0.408
11	0.004	0.17	11	0.006	0.245
14	0	0	13	0.004	0.163
13	0	0	14	0.004	0.163

³² Note according to the sensemaking framework used to organize the causal map, attended environment elements only lead to the interpretation category. So it is not necessary to calculate the in-degree of attended environment category, which would reveal how many ties the category has received.

According to the out-degree comparison result, the SOE and POE groups have very *similar* perceptions about the importance of the environment elements. Only a few ranked differences exist: SOEs emphasize global political and economic context uncertainty (1), while POEs are more focused on domestic supply chain change (10); SOEs emphasize the issue of government macroeconomic intervention (6), while POEs care more about the complex domestic factors in the market (4). This subtle difference indicates that SOEs are focusing more on the global market, and are more impacted by government domestic economic interventions, while POEs are more focused on the domestic market, and constrained by changes in the domestic supply chain and factors in the domestic market.

7.2.2 Comparing similarity extent of context evaluation between SOE and POE groups: Perception-interpretation linkage

The previous analysis identifies core/periphery interpretation categories to detach the core-periphery strategic cognitive map. Centrality and core-periphery analyses from Ucinet facilitate this evaluation. This measurement evaluates the relative importance of the interpretation category in the whole map, which takes into account the interpretation category linkage with both the attended environment and corresponding solutions for the interpretation. To conduct a more fine-grained comparison, the perception-interpretation linkages and interpretation-solution linkages are assessed and compared

The perception-interpretation linkage represents managers' context evaluation. Therefore, the profile of interpretation emphasis in the perception-interpretation linkages can be used to approximate the similarity extent of context evaluation, between SOE and POE groups. The interpretation emphasis is calculated as the frequency of an interpretation category in the perception-interpretation linkages divided by the

frequency of collective interpretation categories in the perception-interpretation linkages. Then *repertoire profile plots* (Weber 2005) are used to visually demonstrate the interpretation profile for SOE and POE groups. See Figure 42.

The repertoire profile plots represent the pervasiveness with which an interpretation category is used throughout the group to evaluate the context. Group members' general context evaluation is shown as the shape of the graph, with the overlap of the graph demonstrating the extent of similarity between the two groups' context evaluation.

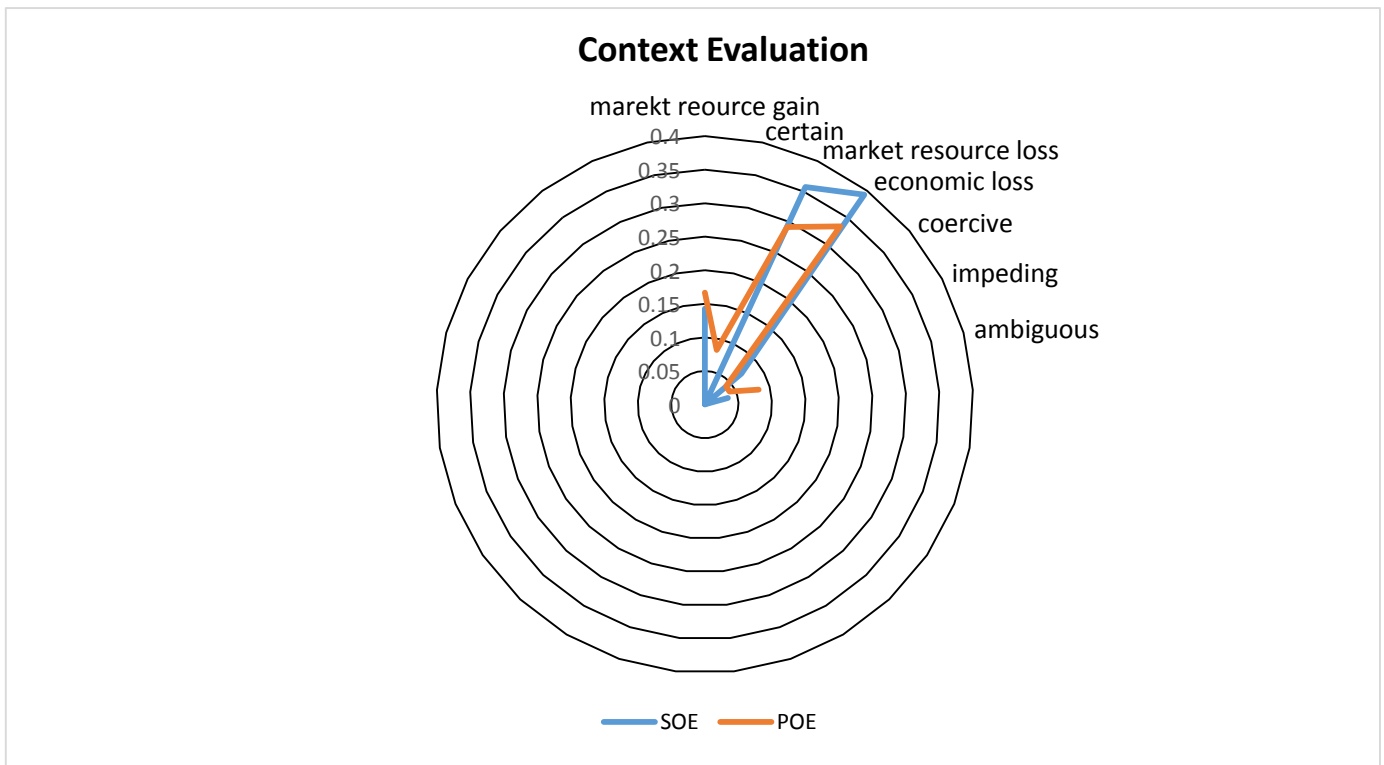


Figure 41 Extent of the similarity for general context evaluation

Figure 42 demonstrated that the interpretation profiles of the SOE (blue line) and POE (red line) groups generally overlap with each other in the perception-interpretation linkages. 'Economic loss' and 'market resource loss' is the dominant context evaluation

for both the SOE and POE groups. So SOEs and POEs have a similar evaluation of the context they are facing.

7.2.3 Comparing similarity extent of solution toolkits for SOEs and POEs: Interpretation-solution linkage

As with the context evaluation, repertoire profile plots visually represent and compare the solution toolkit profiles for SOE and POE groups in interpretation-solution linkages.

The repertoire profile plots represent the pervasiveness with which a solution category is used throughout the group in interpretation-solution linkages. The emphasis score of a certain solution is calculated by the frequency of this solution category under a specific interpretation, divided by the total frequency of all the solution categories under the same interpretation.

This calculation for 7 sets of interpretation-solution linkages and the SOE and POE comparisons are shown in figures 43 to 49. Group members' solution profiles under specific interpretations are shown as the shape of the graph, and the overlap of the graph demonstrates the extent to which the two groups' solution toolkits are similar.

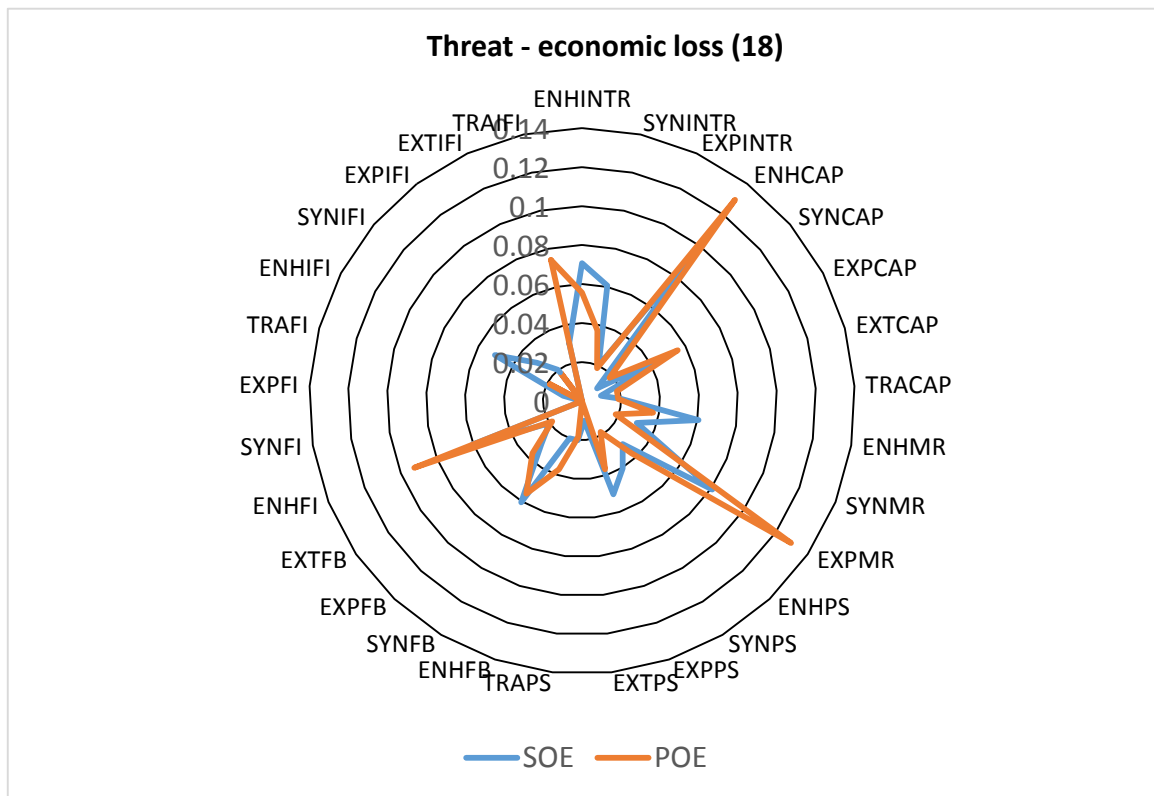


Figure 42 Comparison of the similarity for solution response - economic loss

Figure 43 demonstrates that the solution profile of SOEs (blue) and POEs (red) overlap with each other for the ‘economic loss’ interpretation. So the solution toolkits for the ‘economic loss’ interpretation are similar for both groups.

Also, the SOE group has a more *moderate* strategy solution configuration compared with the POE group, as the relative emphasis among solution dimensions is not as extreme.

Compared with POEs, SOEs stress more ‘enhance firm resource’ (ENHINTR), ‘synergize firm resource’ (SYNINTR), and ‘enhance market resource’ (ENHMR). Relative to the SOE group, POEs place more emphasis on ‘enhance capability’

(ENHCAP), expand capability (EXPCAP), and ‘enhance formal institution’ (ENHFI).

This emphasis difference is summarised in Section 6.4.

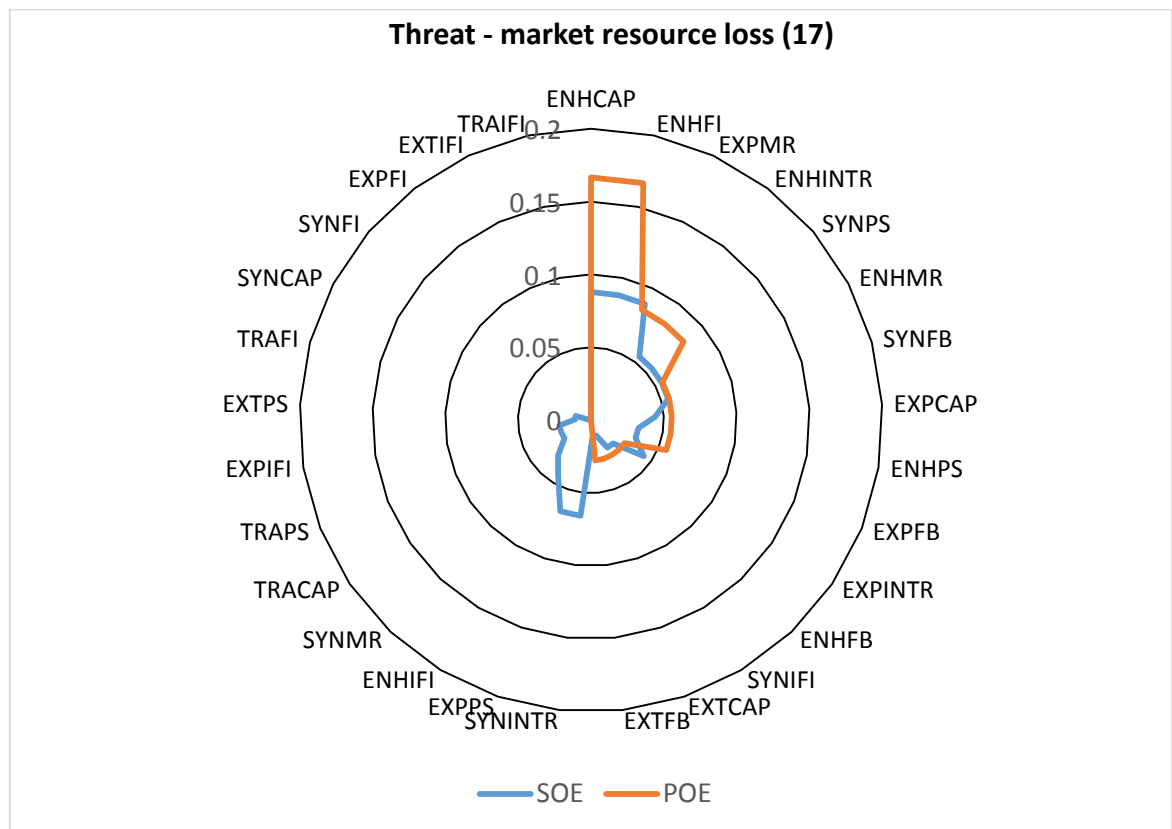


Figure 43 Comparison of the similarity for solution response - market resource loss

Figure 44 demonstrates that except for some solution toolkits the POE group does not have, which correspond to idiosyncratic ties described in the previous analysis, the solution profiles of SOEs and POEs overlap with each other for the ‘market resource loss’ interpretation.

As with the solution profile for ‘economic loss’, the SOE group has a more *moderate* strategy solution configuration compared with the POE group. The relative emphasis on solution elements is not as strong as for POEs.

Relative to the SOE group, it is noticeable that the POE group prominently stresses ‘enhance capability’ (ENHCAP), and ‘enhance formal institution’ (ENHFI). This difference in emphasis is summarised in Section 6.4.

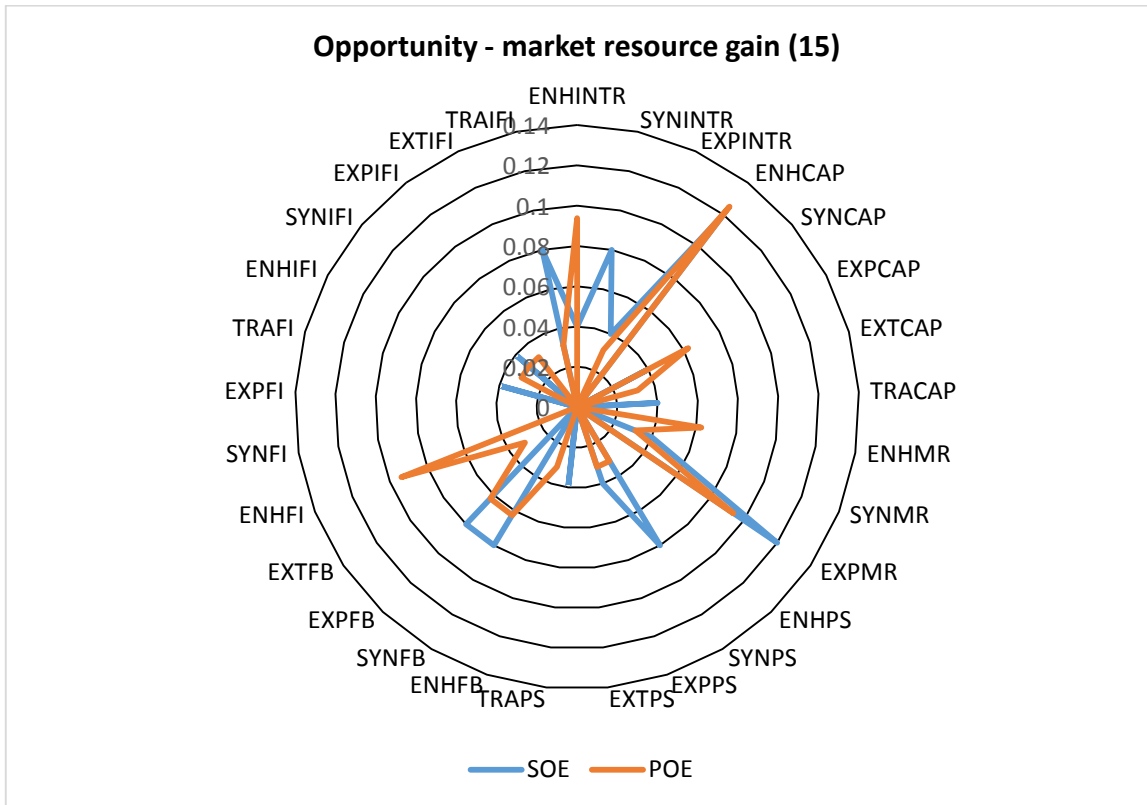


Figure 44 Comparison of the similarity for solution response - market resource gain

Figure 45 demonstrates that the solution profile of the SOE and POE groups generally overlaps for the ‘market resource gain’ interpretation, but is much more diverse for ‘economic loss’ and ‘market resource loss’ related solution profiles.

It is noticeable that compared with POEs, SOEs emphasize ‘transform informal institution’ (TRAFI), ‘expand market resource’ (EXPMR), and ‘synergize products and

services' (SYNPS), while POEs consider 'enhance firm resource' (ENHINTR), 'enhance firm capability' (ENHCAP) as more important. This difference in emphasis is summarised in Section 6.4.

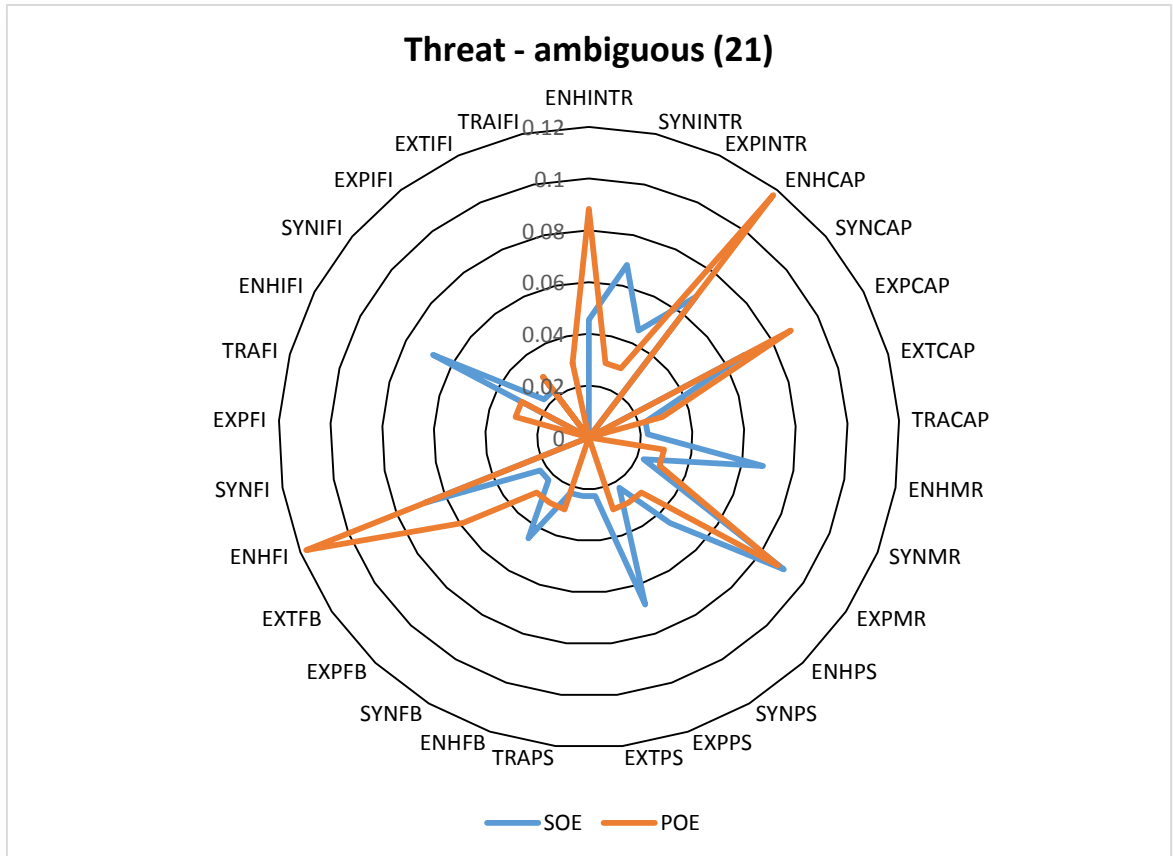


Figure 45 Comparison of the similarity for solution response - ambiguous

Figure 46 demonstrates that the majority of dimensions of the profile overlap for SOEs and POEs for the 'ambiguous' interpretation. However, the relative emphasis of solution toolkits is much more diverse compared with 'economic loss' and 'market resource loss' profiles.

In general, the SOE group has a more *moderate* strategy solution configuration compared with the POE group.

Compared with POEs, SOEs place more emphasis on ‘synergize firm resource’ (SYNINTR), ‘expand firm resource’ (EXPINTR), and ‘enhance market resource’ (ENHMR). Relative to SOEs, POEs focus more on ‘enhance firm resource’ (ENHINTR), ‘enhance firm capability’ (ENHCAP), and ‘expand firm capability’ (EXPCAP). Section 6.4 summarizes this difference in emphasis.

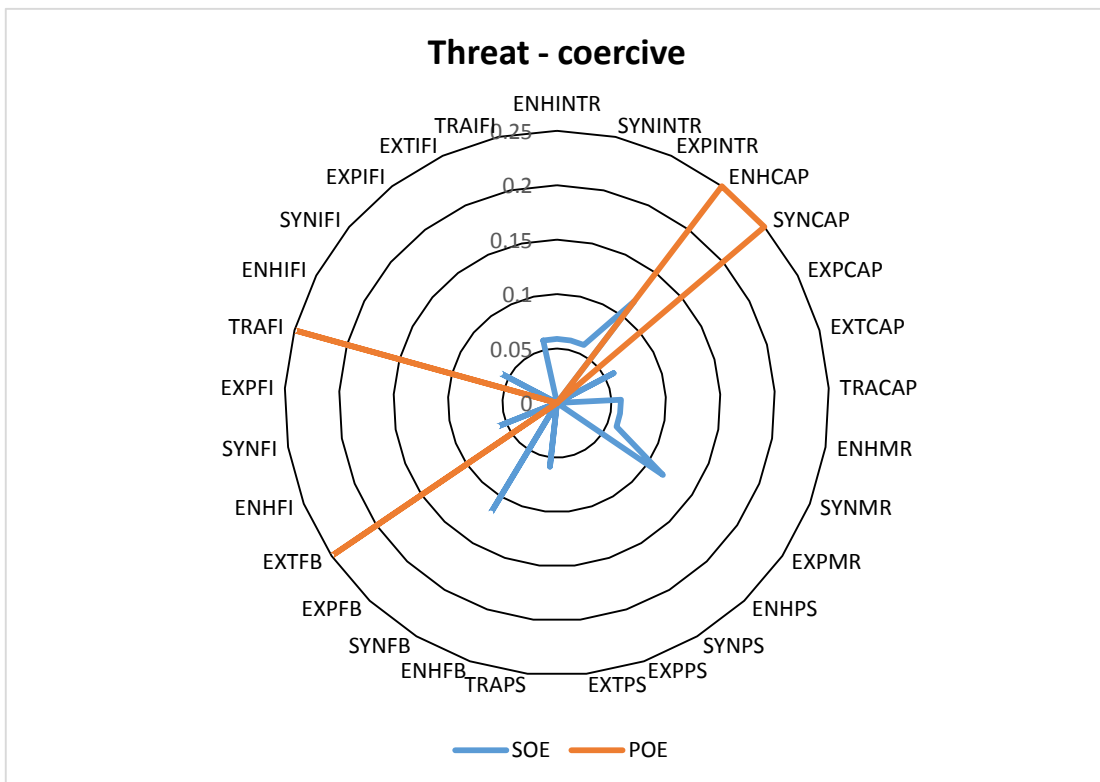


Figure 46 Comparison of the similarity for solution response - coercive

Figure 47 demonstrates that except for ‘enhance firm capability’ (ENHCAP), SOEs and POEs have divergent solutions towards ‘coercive’ interpretations, which is consistent with previous network analysis. It is noticeable that SOEs still have much more moderate solution toolkits compared with the POE group.

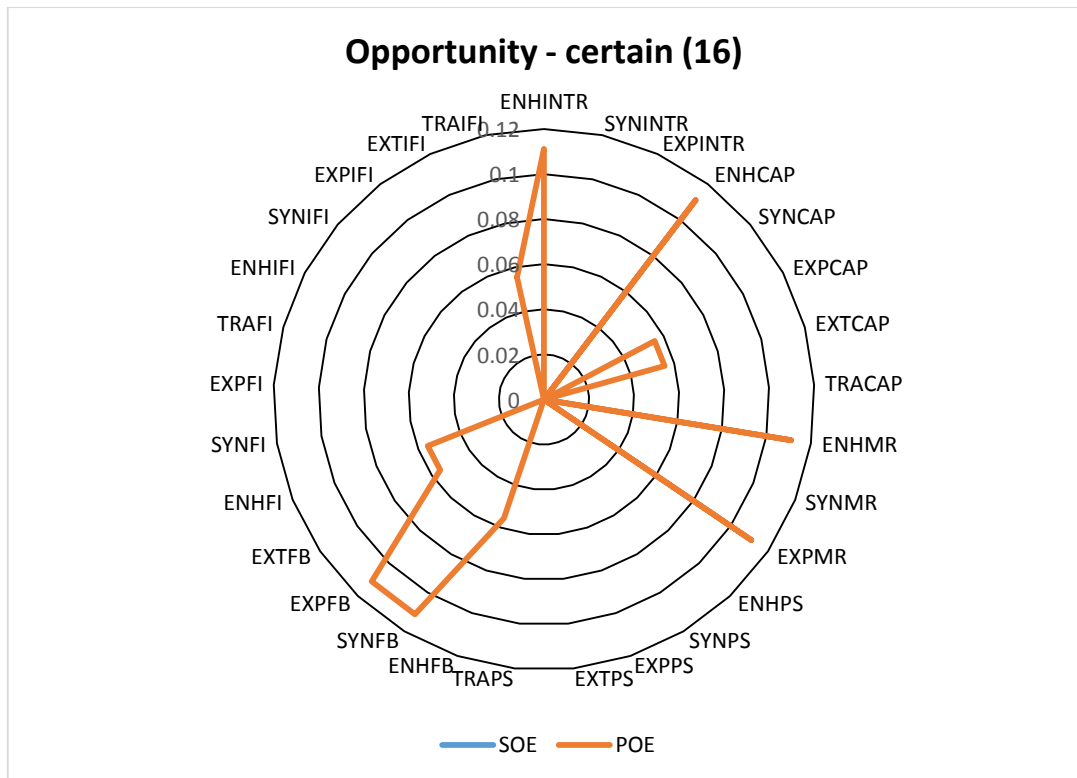


Figure 47 Comparison of the similarity for solution response - certain

Figure 48 demonstrates that SOEs have no solution response to the ‘certain’ interpretation. This is consistent with the idiosyncratic interpretation category-centred network analysis, in which the ‘certain’ interpretation of the environment only exists in the POE group map.

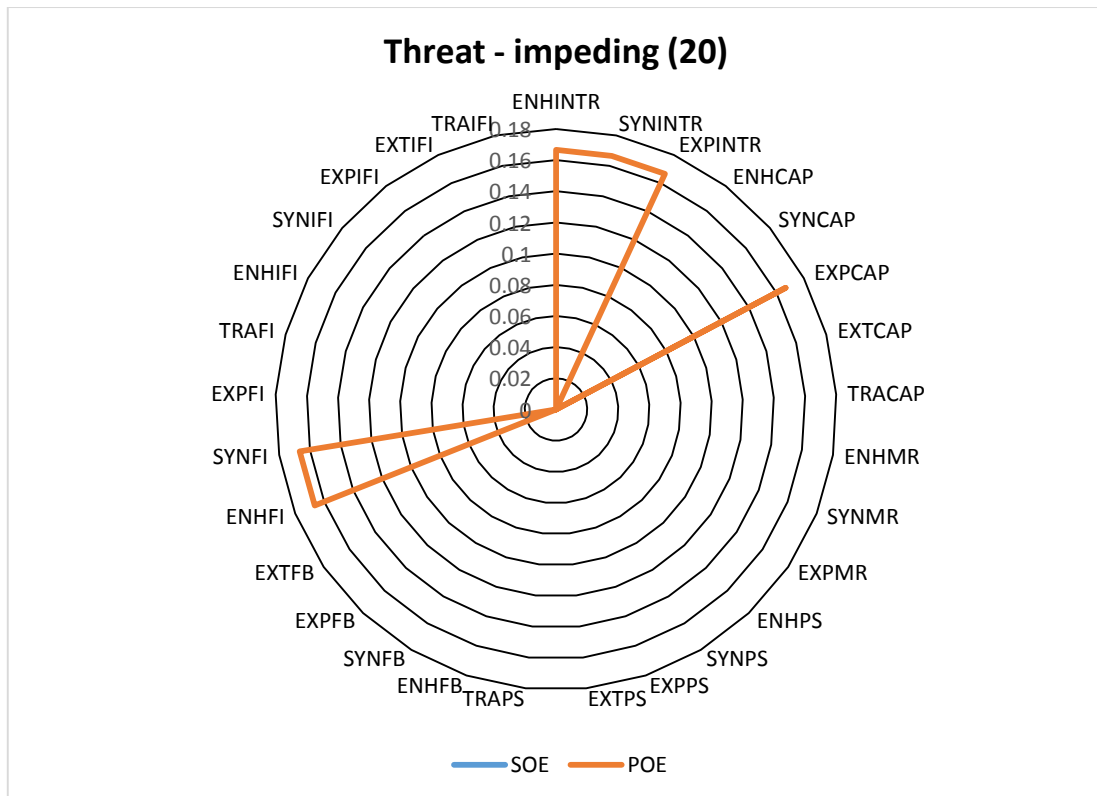


Figure 48 Comparison of the similarity for solution response - impeding

Figure 49 demonstrates that SOEs have no solution response to the ‘impeding’ interpretation. This is also consistent with the idiosyncratic interpretation category-centred network analysis, in which only in the POE group map does the ‘impeding’ interpretation for the environment exist.

The above solution profile analysis provides several observations. First, as indicated above, the solution profiles of SOEs and POEs generally overlap for the interpretation categories of ‘economic loss’, ‘market resource loss’, ‘market resource gain’, and ‘ambiguous’. Secondly, the extent of overlap in the solution profiles is more prominent for the core interpretation categories of ‘economic loss’ and ‘market resource loss’, and less so for the peripheral interpretation categories. Overall, the SOE group tends to be more moderate under a perceived threat compared with the POE group, which can be

observed from the solution profiles for 'economic loss', 'market resource loss', 'ambiguous' and 'coercive'.

There are subtle differences in terms of the relative emphases under the congruent solution dimensions. These distinctions along with other comparison results are summarized and discussed in Section 6.4.

7.2.4 Comparing the extent of overall similarity of revealed strategic cognitive maps for the SOE and POE groups

The above analysis implies a generally convergent pattern of revealed strategic cognitive when comparing SOEs and POEs. This observation is further assessed by evaluating the strategic cognitive map in a more holistic manner.

Four dimensions of the network structure are assessed to compare the holistic strategic cognitive maps of the SOE and POE groups. The first dimension is the extent of complexity in the network structure (Eden et al. 1992). Complexity reflects the breadth or variety of environmental, organizational and strategic knowledge elements, as well as the connectedness among these elements that the firm has accumulated and stored in strategy making. The more complex the strategic cognitive map is, the more diverse the set of alternative threads and solutions accommodated in the firm's strategy making, which enables firms to notice and respond to more stimuli and increase their chances of adaptability to environmental change (Lyles et al. 1992; Weick 1995). To measure this extent of complexity, the comprehensiveness - total number of concepts in the aggregated causal map for each group, and connectedness - the total number of linkages between concepts in the aggregated causal map for each group are calculated.

The second dimension is centralization (Carley et al. 1992). A high value in centrality indicates that a few core categories dominate the group's causal map, which reflects the

extent of centralization of knowledge for strategy making (Nadkarni et al. 2007b). A centralized vocabulary system may draw managers' attention to certain factors and relationship between factors, then lead to their inference by using the core concepts rather than through a formally directed search and analyse process. Thus the more centralized the strategy knowledge is, the more likely the strategy making is trapped in causation bias (Kiesler & Sproull 1982), and inertia (Carley et al. 1992). This restrains firms from absorbing new knowledge and experimenting with alternatives (Hodgkinson 1997; Reger & Palmer 1996). Overall network degree is used to assess the extent of centralization of the groups' knowledge systems. Network analysis defines degree as the number of connections a node has, then the overall network degree is given as the squared sums of the proportions of total centrality held by each node. A higher network degree means overall, the power of individual nodes (strategic cognitive elements) is more unequally distributed in the map (Hanneman & Riddle 2005).

The third dimension is consensus (Mohammed, Klimoski & Rentsch 2000). This dimension assesses the extent to which strategic knowledge is shared within the group members. The higher the consensus the greater the strategy beliefs are institutionalized within the group (DiMaggio et al. 1983; Nadkarni et al. 2007a). Cohesion of linkages (Borgatti 2002) is used in the group map to assess this dimension. Density, which is defined as the average strength of ties across all possible ties in the map (Hanneman et al. 2005), is used as a measurement for this cohesion.

Ucinet 6.493 is used to calculate these three network descriptive statistics. See Table 11 for the results.

The last parameter is the distinctiveness of the network (Weber et al. 2013). This measurement is chosen to evaluate the extent to which the same categories are used by

both groups. Weber (2005)'s approach to use the *Jaccard binary similarity coefficient* is used here to assess the extent of similarity for the SOE and POE groups' strategic cognitive maps. The calculation equation is:

$$S = \frac{\sum c_{11}}{\sum c_{11} + \sum c_{10} + \sum c_{01}}$$

c_{11} is the category linkage³³ present in both SOE and POE aggregated adjacency matrix, c_{10} is the category linkage present in the SOE but not the POE aggregated adjacency matrix, and c_{01} is the category linkage not present in the SOE but present in the POE aggregated adjacency matrix. According to this calculation, S is the percentage of category linkage present in both the SOE and POE aggregated adjacency matrix. See Table 12 for the calculation result.

Table 12 Descriptive statistics of collective strategic cognitive map

	SOE group	POE group
Complexity extent:		
Comprehensiveness (# of nodes)	49	49
Connectedness (# of causal linkages)	133	131
Centralization (overall degree):		
Network centralization	17.34%	16.18%
Cohesion:		
Density	0.054	0.053
Distinctiveness:		
Similarity extent of category linkages (S)	0.57	

The descriptive statistics of the collective strategic cognitive map shows that the complexity extent, centralization, and cohesion extent, are similar for SOE and POE groups. The extent of similarity for category linkages comparing the two groups is more

³³ Since the linkage in the adjacency matrix is organized as a perception-interpretation linkage and an interpretation-solution linkage, c_{11} is the respective category linkage present in the matrix.

than 50%, which according to Banks et al. (1994) indicates there is a common or central strategic cognitive for the two groups, representing a cultural consensus between them (Carley 1986).

7.2.5 Supplementary assessment summary

Supplementary assessment support adds to the observations from network analysis:

- In general, a convergent pattern of strategic cognitive is identified. SOE and POE groups are similar in terms of their core strategic cognitive maps, which are reflected in ‘economic loss’ and ‘market resource loss’ interpretation category-centred maps. The other interpretation category-centred cognitive maps are less convergent.
- In terms of element presence, both congruence and variance are identified. In the core strategic cognitive map, SOEs have a few idiosyncratic solutions. In the ‘market resource loss’, ‘ambiguous’ and ‘coercive’ centered peripheral strategic cognitive maps, SOEs and POEs have common solution configurations, but at the same time, each group has their own idiosyncratic solution elements. In particular, for the peripheral strategic cognitive map, ‘certain’ and ‘impeding’ context evaluations and solution responses are idiosyncratic to POEs.
- In terms of element emphasis for the congruent map (organized under ‘market resource gain’, ‘market resource loss’, ‘economic loss’, ‘coercive’, and ‘ambiguous’ interpretations), a subtle difference exists in attended environment emphasis, peripheral context evaluation, and solution response to the context evaluation.

The observations from network analysis in section one and supplementary assessment in section two are integrated and discussed in next chapter.

Chapter 8 Result and discussion

Based on the map analysis in chapter 7, this chapter visually represents, summarizes and discusses the results.

Previous research using text-based causal mapping technique has proposed methodological evaluation standards for its application (Nelson et al. 2000a; Nelson et al. 2000b). This chapter also elaborates how the data analysis process in this research meets these methodological requirements to achieve reliability and validity.

8.1 Preparation for result representation

8.1.1 Aggregating adjacency matrix in congruent parts

Convergent patterns are identified, and only subtle differences of emphasis exist in the congruent map of POEs and SOEs. Hence the adjacency matrix of SOE and POE groups are further detached and aggregated at the congruent parts. Then the relative emphasis for attended environment and solution (higher level category) elements in the congruent core and congruent peripheral maps respectively are ranked. Similarly the interpretation categories ‘certain’ and ‘impeding’ idiosyncratic maps are ranked. See Appendix X for the aggregated adjacency matrix and ranking assessment.

8.1.2 Parsimonious processing of solution toolkits

The comparison results are based on 14 perception category concepts, 7 interpretation sub-category concepts, and 29 solution sub-category concepts. These sub-categories facilitate a fine-grained analysis. However, in order to concisely represent the identified congruent and variant patterns of the revealed strategic cognitions, the dimensions of the solution sub-categories are further reduced. This is to abstract the *configuration*

characteristics of the solution sub-categories in the group map and at the same time *avoid oversimplification*. The 29 solution sub-categories are further clustered into 18 higher level categories, see Appendix XI for the category scheme. The connotation of these 18 solution categories are as follows:

Consolidate internal competency (51): firms configure the solutions of enhancing resource, synergizing resource, expanding resource, enhancing capability, and synergizing capability. These solutions are about internal competency consolidation, and are not solutions responsive to the external environment.

Synchronize internal competency (52): firms expand capabilities. These solutions deal with consolidating internal competencies, focusing on interactive and responsive capability.

Upgrade internal competency (53): firms configure the solutions of extending and or transforming capabilities. These solutions are beyond the conventional internal competency of the firm, and move into a higher-level construction of competency.

Comprehensively upgrade internal competency (54): all movement extents towards resources and capabilities are considered by member firms within the group. This indicates a more thorough strategic movement for internal competency.

Consolidate external competency (55): firms configure the solutions of enhancing products and services, as well as enhancing, synergizing and expanding market resources. These solutions are about consolidating external competency in the market, but not beyond the existing market segment related to their products and existing market resources.

Synchronize external competency (56): firms expand products and services. These products and services are still targeting the existing market segment but are more responsive to the market change.

Upgrade external competency (57): firms configure the solution of extending and transforming products and services. The target market segments of these products and services are beyond their existing market segments.

Comprehensively upgrade external competency (58): all movement extents towards products and market resources are considered by firms within the group. This indicates a more thorough strategic movement for external competency.

Consolidate firm boundary (59): firms configure the solution of enhancing and synergizing firm boundary. However, the geographical, ownership, and industry boundaries are still within the respective existing boundaries.

Upgrade firm boundary (60): firms configure the solution of expanding and extending firm boundary. The geographical, ownership or industry boundaries are beyond the respective existing boundaries.

Comprehensively upgrade firm boundary (61): all movement extents towards the firm's boundary are considered by firms within the group. This indicates a more thorough strategy movement on the firm boundaries, in which higher risk actions such as internationalization and M&A are included.

Consolidate formal institution (62): firms configure the solution of enhancing, synergizing, and expanding formal institutions. These formal institutions are the foundations of the firm's operational effectiveness.

Upgrade formal institution (63): firms transform their formal institutions, with the aim of reforming and restructuring the existing formal institution system.

Comprehensively upgrade formal institution (64): all movement extents towards formal institutions are considered by firms within the group. This indicates a more thorough strategy movement with respect to formal institutions.

Consolidate informal institution (65): firms enhance their informal institutions. These comprise organizational culture that works in the strategic decision-making and implementation process, corporate social responsibility related management, moderating the style of strategy orientation.

Synchronize informal institution (66): firms configure the solution of synergizing and expanding their informal institutions to become are more responsive and interactive in their strategy orientation towards the business group or market.

Upgrade informal institution (67): firms configure the solution of extending and transforming their informal institutions which deal with strategic orientation that is more proactive, for example to change the 'rules of the game' in the industry or to revise the previous strategic mindset and alter the strategy path.

Comprehensively upgrade informal institution (68): all movement extents towards informal institutions are considered by firms within the group. This indicates a more thorough strategy movement regarding informal institutions.

After this parsimonious processing, the congruent core-periphery revealed strategic cognitive, and idiosyncratic revealed strategic cognitive are represented and summarized below.

8.2 Comparison result representation and discussion

8.2.1 Congruent strategic cognition map representation and discussion

Map analysis result in chapter 7 shows the ‘economic loss’ (18) and ‘market resource loss’ (17) interpretation category-centred map are congruent core strategic cognitive map between SOEs and POEs group, while part of ‘market resource gain’ (15), ‘ambiguous’(21) and ‘coercive’(19) interpretation category-centred map are congruent peripheral strategic cognitive map between the two groups.

After parsimonious processing, the congruent core and peripheral strategic cognitive maps are firstly organized in accordance with the coreness of each sensemaking aspect, see Figures 1 and 2 in Appendix XII for the detached strategic cognitive maps.

In order to show the maps in a relatively direct style, the attended environment elements in the X-Y coordinate system are incorporated (Appendix VIII), and Decision Explorer 3.4.0 is used to draw the maps. The top three environment components and solutions with different strengths of linkage are highlighted, see Figure 50 and 51 for the maps.

In the map, the grid lines mark the main environment domains subjectively perceived by managers. The bold arrow highlights the most active environment components and solution responses in accordance to their coreness extent. The number in each box is the concept reference number that is automatically generated by Decision Explorer. In order to give out more specific information of the environment domain and at the same time be consist with the category number generated, the environment category number is placed in the front and followed with the number of the concept. For example, increasing market competition (No. 12 environment domain category) includes two types of competition in the congruent core map- domestic market competition and international competition. The two types of competition are included in the map, and domestic market competition is numbered as 121, which indicates No.1 concept in No. 12 category.

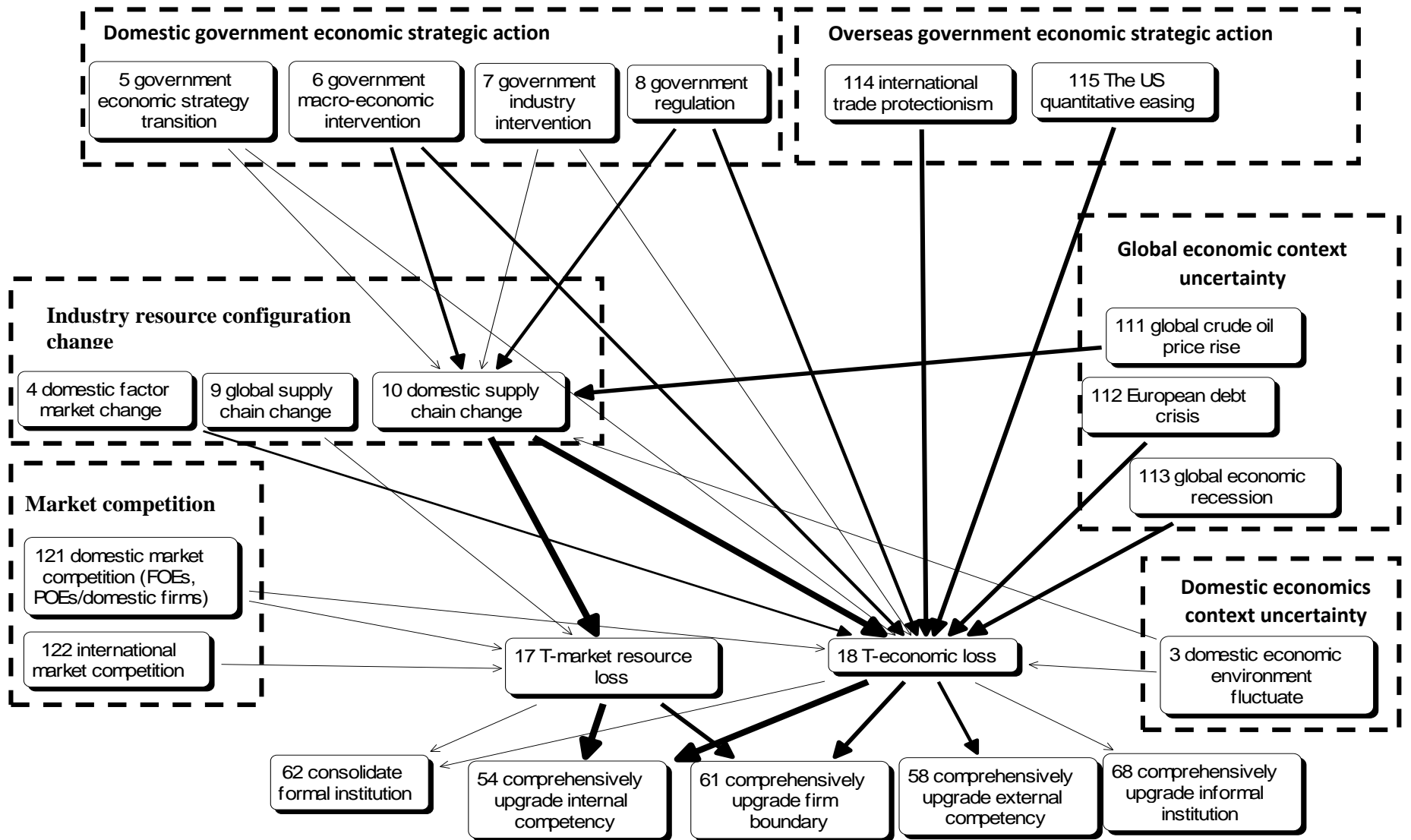


Figure 49 Congruent core strategic cognitive elaboration

Note:

- (1) As SOEs particularly emphasise POEs as competitors in middle and lower-end markets, but POEs only mention domestic firms in general, POEs/domestic firms are used to express this difference.
- (2) Events included in the main environment domains that are not elaborated in the map:
 - 3 domestic economic environment fluctuate- RMB appreciation, inflation
 - 4 domestic factor market change- labor cost, energy price, and raw material price increases
 - 5 government economic strategy transition - reduction in GDP goal, environmentally friendly development, economic development mode transition;
 - 6 government macroeconomic intervention - contractionary monetary policy
 - 7 government industry intervention - auto industry subsidy incentive policy fadeout
 - 8 government regulation - environmental protection policy implementation, local government constraints on auto purchasing
 - 9 global supply chain change - international customer market performance drop
 - 10 domestic supply chain change - decline in auto industry growth and industry upgrading, customer performance reduction and price competition strategy
 - 12 domestic market competition - competing with FOEs in higher-end markets, with POEs in the middle and lower-end markets

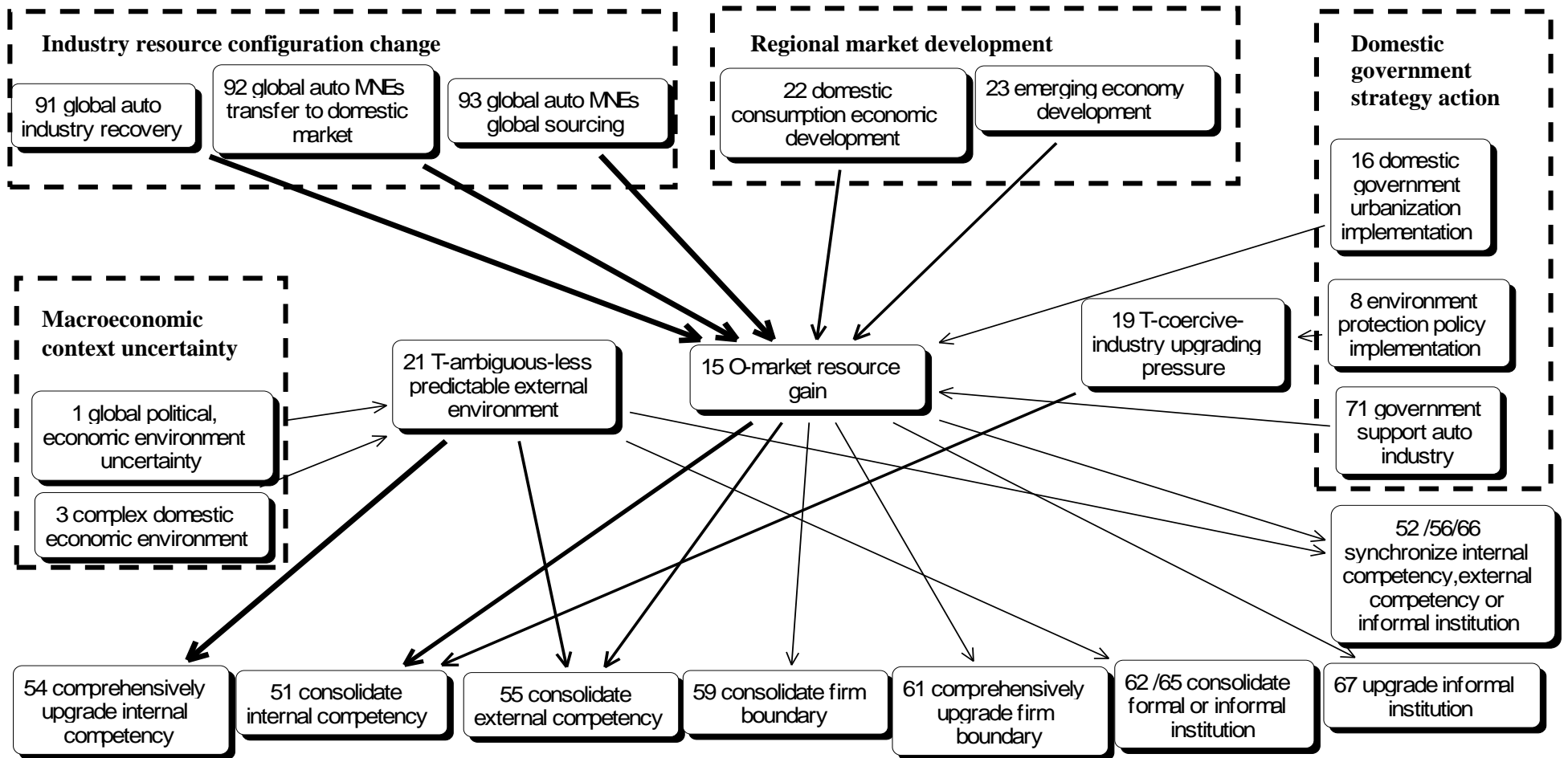


Figure 50 Congruent periphery strategic cognitive elaboration

From the congruent core-periphery strategic cognitive map, several indications can be obtained:

Congruent core map: Reinforced pressure from multiple institutional constituents leads to convergent upgrade solution

The congruent core strategic cognitive map identified multiple institutional antecedents from domestic and overseas government economic strategic actions, industry resource configuration changes, domestic market competition, and global and domestic economic context uncertainty. These reinforce pressure on firms' market resources and economic performance and lead to consideration of congruent strategic solutions for both SOEs and POEs. This reinforced institutional pressure lead to more thorough consideration of solutions, in which 'comprehensively upgrade internal competency', 'comprehensively upgrade external competency', and 'comprehensively upgrade firm boundary' are dominant.

Among these institutional antecedents, the most dominant are: the overseas government economic strategic actions (international trade protectionism, and US quantitative easing), domestic government macroeconomic intervention (contractionary monetary policy), domestic government legal and administrative regulation (environment protection policy implementation, and local government constraints on auto purchasing), global economic context uncertainty (global crude oil price rise, European debt crisis, and global economic recession), domestic supply chain changes (decline in auto industry growth and industry upgrading, drop in customer activity, and price competition strategy), and domestic factor market changes (labour cost, energy price, and raw material price increases). These all threaten firm market resources and revenue.

Congruent core map: *Domestic supply chain competition dynamics as key institutional constituents rather than governmental factors*

Change in the domestic supply chain receives dominant attention from both SOEs and POEs. This change is considered to be closely related to domestic government economic strategic action and the global oil price rise. This indicates it is not the direct impact from domestic government strategic action that drives auto parts firms' response, but the domestic supply chain competition dynamic that is driven by automobile manufacturers' competition strategies (industry upgrade and price competition).

Congruent core map: *Domestic market changes diminish conventional competitive advantage*

Changes in the domestic market, labour cost, energy price, and raw material price increase, are perceived as having considerable impact on firms' economic performance. Taking into account the reinforced institutional pressure of the domestic supply chain change and market competition, this signifies a loss of conventional competitive advantage for both SOEs and POEs.

Congruent periphery map: *Domestic market scale impedes firm boundary extension in a dominant threat context*

Although the prevailing context evaluation is threat centered, some SOEs and POEs are still aware of market opportunity from industry resource configuration changes (movement in global auto MNEs' strategy: transfer to the domestic market³⁴ and global sourcing), domestic market development and the government urbanization policy. These perceived environment opportunities collectively signify an increasing domestic market

³⁴Domestic market here indicates the Chinese market

scale, which mainly prompts a ‘consolidate’ response and focuses on firms’ internal and external competencies. More thorough firm boundary movement (upgrade and comprehensively upgrade firm boundary) is not considered.

Integrated congruent core-periphery map: *In a competitive industry like auto parts, both SOEs and POEs do not respond to coercive government pressure directly. Instead, the reinforced pressures from multiple institutional constituents, have resulted in firm loss, and have led to their convergent strategy of upgrading.*

From both congruent core and periphery maps, the more thorough strategy movement ‘comprehensively upgrade’ appears mainly to be interpreted as a type of threat: ‘economic loss’, ‘market resource loss’, and ‘ambiguous’. These interpretations are related to firm loss (or potential loss) that results from the pressure imposed by multiple institutional constituents (government economic strategic action, industry resource configuration change, market competition, and macroeconomic uncertainty). This context of evolution brings about congruent upgrade solutions in both SOEs and POEs.

In contrast, the ‘coercive’ interpretation result from domestic government environment protection policy implementation is in the peripheral map and only led to a ‘consolidate’ extent of movement for SOEs and POEs.

Integrating these observations from the congruent core and peripheral maps, it is shown that both SOEs and POEs do not directly respond to coercive government pressure. Only when there are reinforced pressures that push the firms to the edge of loss, do they pay attention to and take into account higher level strategy, and respond.

8.2.2 Idiosyncratic strategic cognition representation and discussion

(1) Idiosyncratic strategic cognitive map for POE group

According to the map comparison analysis, the POE group has two interpretation categories ‘certain’ (16) and ‘impeding’ (20) centred map that is idiosyncratic. Developed in the same manner as the congruent maps, the idiosyncratic peripheral strategic cognitive map for POEs (Figure 52) reveals the following:

A promising industry technology development context motivates strategy upgrade: government encouragement and industry technology accumulation

Although the prevailing evaluation context is threat dominant, a few POEs noticed the opportunities under ‘certain’. The solutions of ‘comprehensively upgrade internal competency’ and ‘comprehensively upgrade firm boundary’ occur under this ‘certain’ context evaluation.

The ‘certain’ interpretation is related to domestic industry technology development (new technology development in the industry and domestic firms’ core technology and capability development), as well as a clear, environmentally friendly economic strategy orientation by the government (signified by the government’s multiple encouraging policies). Hence it is confidence from government encouragement and technology accumulation in the industry that motivates some POEs to upgrade their internal competency and firm boundaries.

Deficiency in managerial capability and human resources constrains strategy upgrade

For the firm experiencing rapid growth in high-end products and firm scale, a deficiency in managerial capability and human resources impedes more thorough strategic movement. Instead, consolidating and synchronizing internal competencies and the firm’s institutions becomes the focus.

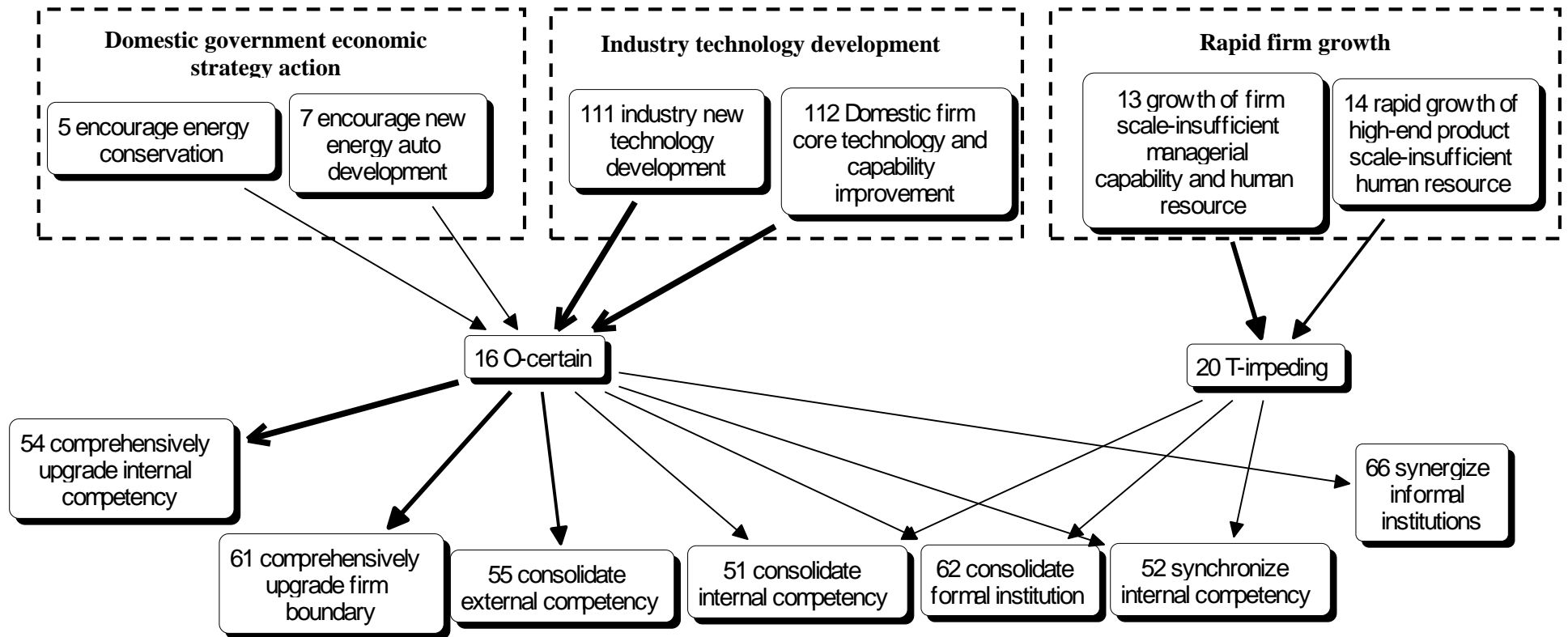


Figure 51 Peripheral idiosyncratic strategic cognitive elaboration

(2) Idiosyncratic strategic cognitive elements and distinction of emphases

Network analysis identified some idiosyncratic solutions as responses to the specific interpretation category for both SOEs and POEs, see Table 13 for the summary.

Table 13 Idiosyncratic solution elements towards context evaluation

Context evaluation	Solution response	
	SOEs	POEs
Towards T-market resource loss	Upgrade internal and external competency, formal institutions	N/A
	Synchronize external competency informal institutions	
	Consolidate external competency, informal institutions	
Towards T-ambiguous	Upgrade internal competency, external competency	N/A
	Synchronize informal institutions	
	Consolidate external competency	
Towards T-coercive	Comprehensively upgrade internal competency	Upgrade firm boundary; Consolidate external competency informal institutions
	Upgrade internal competency, external competency, informal institutions	
	Synchronize internal competency, external competency	
	Consolidate external competency, firm boundary formal institutions informal institutions	
Towards O-market resource gain	N/A	Upgrade internal competency firm boundary
		Synchronize informal institutions
		Consolidate external competency firm boundary informal institutions

Supplementary assessment demonstrates there is a subtle difference in the relative emphasis of SOEs and POEs in the dimension of solutions. In order to intuitively show the distinction, a repertoire profile is plotted. Since the purpose is to summarize the distinction, a binary value (0/1) is used to represent the relative strength of the emphasis for the two groups. The process is as follows: For each group, the emphasis values in each dimension from all interpretation category-centred solution profiles are first added. The added emphasis values at 29 solution category dimensions into higher-level solution category dimensions are then grouped and aggregated. Based on these aggregated values, the two groups are compared on each dimension. Then the emphasis value is replaced with a binary value (0/1), the group with the higher value receives 1, the other group receives 0. After this process, the emphasis distinction between the two groups is represented as a binary value-based profile. See the graphical representation of the differences of solution emphasis in Table 14.

Table 14 Subtle emphasis difference

	SOEs	POEs
Attention focus (perception)	global political, economic context uncertainty	domestic supply chain change (auto manufacturing industry)
	domestic government macroeconomic intervention	domestic factor market change
Context evaluation (interpretation)	Threat - ambiguous Threat - coercive	Opportunity - market resource gain Opportunity - certain
Profile of solution emphasis distinction (binary value-based)	<p>The radar chart compares the emphasis of SOEs (blue line) and POEs (orange line) across 12 categories. The categories are arranged in a circle around a central point. The categories are: Consolidate internal competency, Synchronize internal competency, Upgrade internal competency, Consolidate external competency, Synchronize external competency, Upgrade external competency, Consolidate firm boundary, Upgrade firm boundary, Consolidate formal institution, Upgrade formal institution, Consolidate informal institution, and Synchronize informal institution. The chart shows that SOEs have a higher emphasis on internal and external competencies (Synchronize and Upgrade internal/external), while POEs have a higher emphasis on institutional and firm boundary concepts (Upgrade and Consolidate informal/formal institutions and firm boundaries).</p>	

Except for distinctions identified from map analysis, some peculiar concepts of the informal institutional solution also emerged in the basic level concept clustering process. These concepts are idiosyncratically mentioned within the SOE group. Since these are lower level solution concepts and are clustered into the higher level solution category, these particular concepts are summarised and presented in Table 15.

Table 15 Peculiar informal institutional solution concepts from SOE group

Higher level category	Higher level concept	Basic level concept
Consolidate informal institution	Informal organization construction	Construct internal stakeholder representative committee
	Organizational perception management	Manage management team perception
		Cultivate activity in organizational culture
		Manage transparently
		Involve employees in function-level strategy making
		Construct democratic decision-making mechanism
		Enrich employees' spare time recreational activities
	humanity management style	Help and support employees in difficulty
		Place redundant employees

These distinctions collectively reflect some common properties that distinguish SOEs from POEs in a *subtle* way:

Attention focus: SOEs' strategic response is driven more by global market dynamics, while POEs are driven more by domestic market dynamics

The supplementary assessment shows even though SOEs and POEs have a similar emphasis on the attended environment, subtle variances exist in the relative emphasis each group places on global versus domestic market dynamics. As summarized in Table 13, SOEs attend more to global market dynamics (global political, and economic context uncertainty), while POEs focus more on domestic market dynamics (domestic supply chain change driven by automobile manufacturer status and strategic action). These variances indicate a slight difference in the drivers of SOE and POE strategic behavior.

Attention focus: Conventional competitive advantage loss is perceived as more critical by POEs

As summarized in Table 13, POEs prioritize domestic market changes (increasing labor cost, raw materials, and energy prices) compared with SOEs. This indicates that POEs perceive a loss in conventional competitive advantage loss as more critical.

Solution emphasis profile: SOEs address comprehensively upgrading firm competency while transforming old strategic paths is a priority for POEs

The profile of solution emphasis distinctions summarized in Table 13 shows that SOEs emphasise more the upgrading of internal and external competencies. Synchronizing information institutions (responsive to internal and external markets) is also their focus.

Compared with SOEs, POEs address upgrading formal institutions (structure and governance), informal institutions (strategy transition), as well as firm boundaries (M&A, diversification, global presence). These emphases show that transforming from an old or obsolete strategic path is considered as a priority for POEs.

Integrating attention focus and solution emphasis profiles

Integrating the above observations, a logical result can be summarized as follows:

POEs rely more on conventional competitive advantage and the domestic market, therefore the loss of conventional competitive advantage and changes in the domestic market are more critical for POEs and prompt their strategic path to upgrade firms' boundaries and reform their corporate structure and governance.

In contrast, SOEs are more driven by the global market and less impacted by the loss of conventional competitive advantage. In an uncertain global environment, SOEs tend to comprehensively upgrade firm competencies in order to better compete in global markets.

Solution emphasis profile: SOEs address the ‘consolidate informal institution’ more, which is a specific of the organizational culture and reflects the social burden that disadvantages SOEs in market competition.

The profile summarized in Table 13 shows that ‘consolidate informal institution’ is more stressed by SOEs. Integrating this observation with the particular concepts of informal institutional solution summarized in Table 14, this ‘consolidate informal institution’ emphasis is a manifestation of the specific organizational culture of SOEs, in which ‘internal stakeholder representative committee construction’, ‘organizational perception management’ and ‘humanity management style’ are the focus. These particular organizational cultural concepts reflect both the social burden SOEs assume (placement of redundant employees) and also the disadvantage of SOEs in market competition (organizational perception needs to be managed).

Some typical statements to clarify the social burden SOEs assume as well as the path dependency of a slack organizational culture are reflected in quotes such as:

SOE (No.8): “国家九部委整治行动将铅酸蓄电池行业纳入重金属排放重点源监管范畴, 公司主动对微蓄分公司、电池制造部开展搬迁改造, 给员工安置稳定带来了较大影响和压力”

Translation: “The recent government environmental pollution control policy includes lead-acid battery manufacturing on the list of industries that require serious regulatory administration. So the company proactively has deployed older factory renovation and transformation, however, this brings the pressure of redundant employee placement and maintaining stability”.

This statement by SOE No. 8 illustrates that the firm is aware of redundant employee placement, and maintaining stability as still part of the SOEs' organizational identity. This confirms Bai et al. (2000)'s multi-task explanation, that is, even in more recent years, SOEs assume the requirements for efficient production and at the same time they are still a vehicle for the maintenance of employment and a social safety net for the unemployed.

SOE (No.18): “干部队伍和管理人员或多或少地存在着庸、懒、散、软现象，为此公司开展治庸问责活动，加强各级管理人员思想教育，转变思想观念，提高战略实施效率”

Translation: Slackness more or less exists in the managerial team, therefore, the company has conducted special campaigns to improve management team perception, transform their mindset, and improve strategy implementation efficiency.

This statement by SOE No. 18 shows the firm is aware that an efficiency-oriented culture is not really embedded within the organization. In order to transform the path dependence of slack culture, several organizational perception management solutions have been conducted. This statement also indicates the path dependence of a slack culture in SOEs is an impedance for efficient strategy implementation, which is a potential disadvantage for SOEs in market competition.

Integrate context evaluation and strategic response: SOEs respond with more circumspection in a threat dominant context compared with POEs

In the supplementary assessment, SOEs' solution profile is identified as more circumspect under threat than POEs. This observation is further consolidated by the

idiosyncratic solution elements towards context evaluation summarized in Table 12, as well as the subtle differences of emphasis summarized in Table 13.

Table 12 shows SOEs put more effort into responding to a threatening strategic issue than POEs. The subtle difference in emphasis summarized in Table 13 also shows that SOEs perceive the context as more threat dominant, the threat types of ('ambiguous' and 'coercive') are more emphasized than interpretations reflecting opportunity ('market resource gain' and 'certain') compared with POEs.

Therefore, in general, SOEs are more circumspect in a threat dominant context, in which more balanced solutions are considered.

The above map analysis and discussion leads to several findings that both confirm and are inconsistent with the previous SOE centered arguments. Before elaboration of these findings in the next chapter, this chapter concludes with a methodological evaluation.

8.3 Methodological evaluation

Referring to the previous revealed causal mapping method that is applied in the eliciting and delineating the knowledge of actors from annual reports or other text material (Axelrod 1976; Nelson et al. 2000a; Nelson et al. 2000b), the methodology is evaluated based on the criteria listed in Table 17. How these criteria were met is also included.

Based on this evaluation, the causal mapping analysis applied in this research is reliable and valid.

Table 16 Methodological evaluation of causal maps analysis

Methodology issue	Validation criteria	Practice in this study
<p>1. Research focus: What is the research objective?</p>	Identify and compare salient institutional dynamics behind SOEs' and POEs' collective strategic behavior from their own perspective	Aggregate group member firms' strategic cognitive maps and identify congruent and idiosyncratic core-periphery maps comparing SOE and POE groups.
<p>2. Data source choice: How can the relevant knowledge be captured?</p>	Evaluate the validity of the data source to capture the strategic cognitions of the organization	<p>(1) Management discussion and analysis about the past in annual reports</p> <ul style="list-style-type: none"> • Is widely used in strategic cognitive research (Narayanan et al. 2011) and recognized as appropriate for the study of intrinsically cognitive issues (Fiol 1995); • Managers' actual, subconscious biases in the sensemaking process are reflected in text concerning past events (Clapham et al. 1991; Huff et al. 1990), which is in fact critical to understanding managerial cognitive (Barr 1998). This bias is also confirmed in the Chinese context by increasing evidence of corporate information disclosure behavior and its relationship with firm market value (e.g. Cheung et al. 2010). • This represents the institution rather than individual, evidently and intensively revealing dominant strategic beliefs of the organization (Crilly et al. 2012; Tripsas et al. 2000). • This avoids managers' retrospective bias (Osborne et al. 2001), is nonintrusive (Bowman 1984), circumvents managers' consciously imposing order on recollected events (Huff 1990, and is replicable (Kabanoff 1994)
<p>3. Sampling strategy: Does the choice of sample reflect research objectives?</p>	<ul style="list-style-type: none"> • Establish that firm sample is representative and comparable to capture Chinese SOEs' and POEs' perceptions 	<p>(2) An industry is selected that is important to the national economy, not a monopoly market, in which there is the coexistence of SOEs and POEs</p> <p>(3) A core group of firms in the selected industry is chosen</p> <p>(4) Actual controller is identified to classify SOE/POE, which takes into account the hybrid ownership form (Bruton et al. 2015)</p>
<p>4. Construct maps:</p>	<ul style="list-style-type: none"> • Identify of all causal statements 	<ul style="list-style-type: none"> • Pilot study is performed to construct coding protocols

<p>Are the concepts are captured in a meaningful manner? Are categories conceptually relevant? Are linkages among theoretical categories captured?</p>	<ul style="list-style-type: none"> • Evaluate that the concept, category, and linkage is appropriate for the research topic • Code reliably 	<ul style="list-style-type: none"> • All causal statements are extracted from text and organized into causal phrase linkages by using multiple raters • Code phrases to the concept by referring to a popular strategy management textbook, coding scheme from strategic cognitive articles published in top-level journals, and consulting with an experienced strategy management researcher. This extra rater is involved to double check the coding • Inter-coder reliability is assessed by Nvivo (Kappa coefficient and percentage of agreement) • Central aspects of sensemaking (perception-interpretation-solution) and Olive (1991)'s contingent institutional antecedents of firms' strategic response are used as a conceptual scheme to frame the clustering of concept networks into category networks.
<p>5. Unit of analysis: Is the level of analysis consistent with the phenomena under investigation?</p>	<p>Use a level of aggregation in the study</p>	<ul style="list-style-type: none"> • This research sought to capture and compare group knowledge about salient institutional dynamic and appropriate strategic responses, therefore aggregating category-level maps from firms with the same type of ownership is appropriate to extract common cognitions within the same group, and compare these across the other group with a different type of ownership.
<p>6. Convergence: Is the knowledge structured or random?</p>	<p>Evaluate sample size and the frequency with which concepts are revealed</p>	<ul style="list-style-type: none"> • The point of redundancy is calculated to assess the saturation of concepts and linkage between the concepts, which both indicates the adequacy of sample size • An adjacency matrix is constructed to assess both the presence and frequency of the concepts and linkage between the concepts • A network analysis program is used to identify and detach congruent and variant map components • Repertoire profile plots and descriptive statistics of the collective cognitive map are used to consolidate the comparison of results
<p>7. Validity of findings: Do the findings make sense?</p>	<p>Determine the relevance of findings to tacit understanding of respondents and knowledge of general theories</p>	<ul style="list-style-type: none"> • Compare results with existing theoretical explanations in SOE and EMNE literature (see Chapter 9) • A limitation exists: there is a lack of access to managers to check the results in order to assure accuracy of the findings

Chapter 9 Findings and Conclusion

The previous chapters have demonstrated that core strategic cognitions are shared by both POE and SOE groups with only subtle differences in more peripheral strategic cognition areas.

Based on the linkage of micro-level sensemaking and macro-level institutional context proposed by neo-institutionalist scholars, especially the work of Weber et al. (2006), the convergent content of managers' sensemaking reveals the salient institutional dynamics in the field. The major findings have several implications for the SOEs literature and address the overall research questions. The findings from the map analysis also have several theoretical, empirical, methodological and practical implications. Limitation and suggestions for future research are also discussed.

9.1 Findings summary

- Key findings: SOEs and POEs have convergent strategic mindsets

In a competitive industry, ownership per se has no prominent effect on the core strategic cognitions of SOEs. In particular, SOEs and POEs have convergent responses towards the perception of combined pressures related to economic loss and market resource loss, but subtly diverse responses to the perception of the institutional context related to opportunity or threat of losing control.

Neither SOEs nor POEs respond to government coercive³⁵ pressure directly. Instead, combined pressures from multiple institutional constituents, that push the firms to the edge of loss, are the antecedents of their solutions to strategically upgrade. These solutions are convergent for both SOE and POE groups. So SOEs in a competitive industry are predominantly driven by economic goals.

- In a competitive industry, ownership per se does not prominently impact firm's strategy making process. SOEs and POEs have similar strategic mindsets. In particular, SOEs are subtly more driven by the global market and less reliant on conventional competitive advantage (labour cost). In the dominant threat context, SOEs also respond with more circumspection compared to POEs.
- In a competitive industry, ownership impacts firm's strategy implementation process. In particular, it is the (path dependent) slack organizational culture that impedes efficient strategic implementation. This, compounded by the social burden of keeping redundant employees, disadvantages SOEs in market competition.
- In a competitive industry, ownership does not prominently differentiate firms' strategic choice to internationalize. Under mutually reinforcing institutional pressures (that potentially lead to economic and resource loss), both SOEs and POEs are compelled to move into international markets. However, while the loss of country-specific advantage (e.g. via increased labor cost) pushes them to seek overseas markets, the large scale of the domestic market acts as a disincentive to

³⁵ This mainly indicates government environment protection policy under the national economic strategy of development mode transition. In this sense, the government coercive pressure demands firm to upgrade this business into environment friendly mode rather than continue the same production and business model.

internationalisation. Also, both SOEs and POEs benefit equally from the political capital that accompanies synchronisation with the government's economic strategy.

9.2 Elaboration of findings and implications for the research question

9.2.1 Key finding: SOEs and POEs have convergent core strategic cognition

A key finding of this research is the convergence of the core strategic cognition of SOE and POE groups. Combined threats of economic and market resource loss exerted by multiple institutional components lead to isomorphic strategic responses by SOEs and POEs. Figure 54 illustrates the perceived pressure that prompts the consideration of such convergent solutions. The strength of the institutional influence is illustrated by the size of the arrow.

In particular, the congruent core maps demonstrate that, among all the institutional constituents, the domestic supply chain is the most influential factor that pushes a convergent solution of SOEs and POEs. This change of domestic supply chain is perceived to be related to macro-economic uncertainty as well as domestic government economic strategy transition and market intervention.

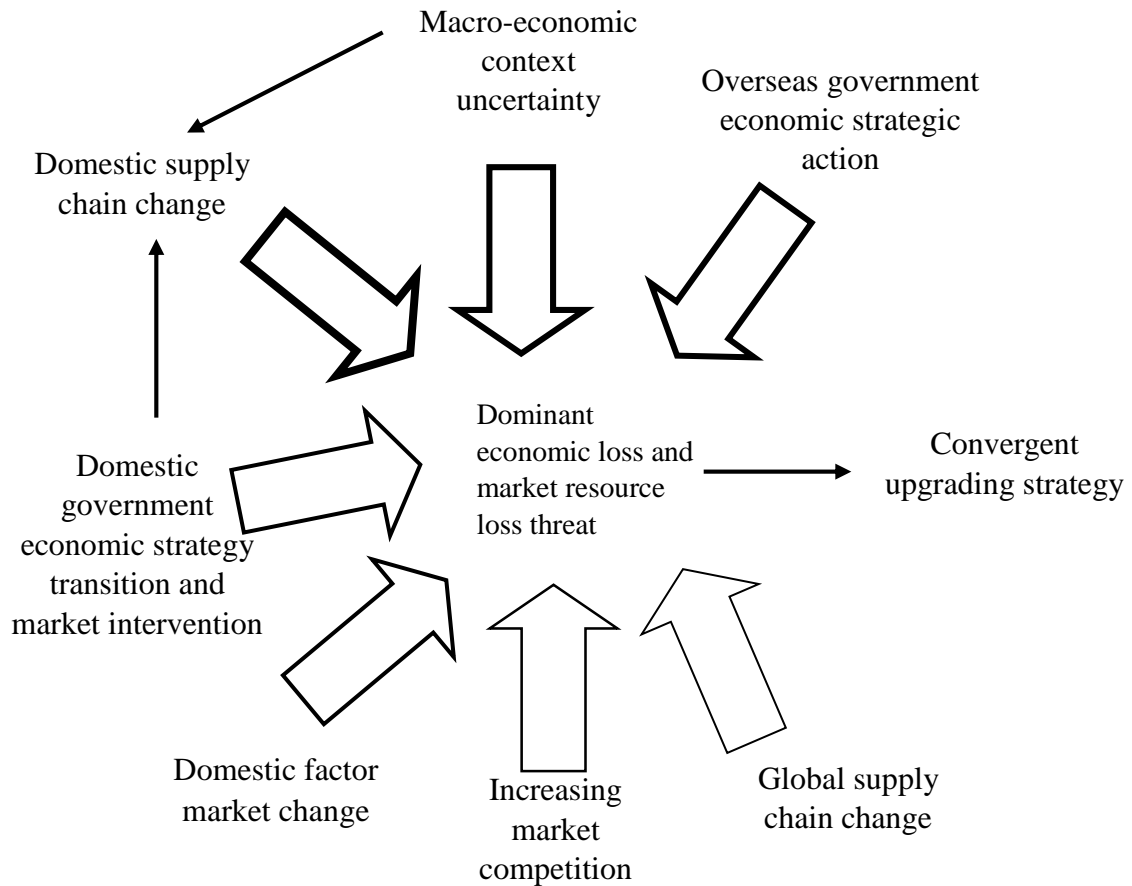


Figure 52 Salient antecedents for convergent strategic solutions in the congruent core strategic cognition map

Note: (1) domestic supply chain change indicates a decline in the auto manufacturing industry (upstream of the auto parts industry) and industry upgrading, with a drop in auto manufacturer performance and price competition; (2) overseas government economic strategic action indicates overseas government international trade protectionism and US quantitative easing policy; (3) domestic government economic strategy transition indicates environmentally friendly development mode and legal, regulative policy implementation while market intervention indicates contractionary monetary policy; (4) domestic factor market change indicates labour cost, energy price, and raw material price increases.

From the micro-level strategic perspective, scholars have demonstrated that core strategic elements have significant depth of meaning to managers and are long-lasting (Lyles et al. 1992; Weick et al. 1986). The results here confirm that the government, as the actual controller, does not significantly influence SOEs' organizational missions and goals compared to those of POEs. In particular, 'economic loss' and 'market resource

loss' evaluations are attributed to the same external environmental factors by both groups and lead to similar solutions. Neither SOEs nor POEs respond to coercive government pressure directly; economic loss and market resource loss are the immediate antecedents leading to similar solutions. Hence both SOEs and POEs are primarily market-oriented and pursue predominantly economic goals.

9.2.2 Implications for the research questions

This research is based on two broad theoretical research questions, i.e. *What salient institutional dynamics drive the strategic responses of SOEs and how is this manifest? How do these institutional dynamics and strategic responses resemble or differ between SOEs and POEs?*

The answer to these two research questions also have practical implications to the 'Trump Hypothesis' that is prevailing among western politicians.

- **Theoretical questions: The institutional dynamics that drive the strategic responses of SOEs and POEs**

The following findings answer the theoretical questions:

In competitive industry, ownership does not impact firm strategy making

The convergent finding indicates SOEs are dominantly economic goal driven organization. On one hand, the results, indicating a convergent strategic mindset between SOEs and POEs, add to the findings of Tan et al. (2005) as well as Tan (2007) that SOEs have an increasingly entrepreneurial strategy in countries under economic transition. On the other hand, these results do not support explanations based on soft

budget constraints for the strategic behavior of SOEs. According to some scholars, SOEs are predicted to not be responsive to market change and to not be concerned about competition (e.g. Goldeng et al. 2008). However, the congruence of the core strategic cognitions of the POE and SOE groups demonstrates that they have a similar perception of competitive pressures leading to similar responses to those pressures. In particular, SOEs are more driven by the global market and less reliant on conventional competitive advantage (labour costs) compared to POEs. In the dominant threat context, SOEs also respond with more circumspection compared to POEs.

In competitive industry, ownership impacts strategy implementation

SOEs' have potential disadvantages in market competition that can negatively impact their performance. These disadvantages stem mainly from the firms' strategy implementation process.

Firstly, the idiosyncratic strategic cognitive elements (compared with POEs) suggest that SOE's slack organizational culture impedes efficient strategy implementation.

Also, consistent with the social burden argument (Bai et al. 2000; Bai, CE & Xu, LC 2005), even in a competitive industry, SOEs still struggle with an imposed organizational role focused on enhancing social stability through full employment. Although their main concerns are with economic and market resource loss, SOEs still maintain the redundant employment that is inconsistent with optimising financial performance.

Internationalisation of both SOEs and POEs

In their congruent core strategic cognitive maps, 'comprehensively upgrade firm boundary' is a common solution for SOEs and POEs. This result supports Estrin et al.

(2016) argument for the convergent internationalization strategies of listed SOEs and POEs. However, as distinct from a purely top-down institutional explanation focusing on strategic control, a bottom-up approach of institution perspective to collect the convergent content of managers' sensemaking in strategy reveals institutional antecedents of their strategic responses:

- *Outcome of reinforced pressures: 'Escape' as a motivation for internationalization (for both SOEs and POEs)*

The salient antecedents of their common solution of 'firm boundary upgrading' indicate that both SOEs and POEs are compelled to go overseas. This supports the 'escape motivation' explanation for EMNEs' internationalization (e.g. Cuervo-Cazurra et al. 2015; Stoian et al. 2016; Witt et al. 2007). Referring to the results from the congruent core maps, it can be added that a number of 'push' factors drive internationalization. These include overseas government economic strategic action, macro-economic uncertainty, domestic supply chain change, domestic government economic strategy transition and market intervention, domestic factor market change, as well as increasing domestic market competition.

- *Market power: different role of country-specific advantages in internationalization (for both SOEs and POEs)*

Some previous studies see EMNEs' internationalization as the result of exploiting home country comparative advantages, such as low cost labor, bank financing, natural resources, and economies of scale (e.g. Bhaumik et al. 2016; Rugman 2010). However, the congruent core and peripheral cognitive maps demonstrate that this may not be the case.

First, instead of exploiting conventional country-specific advantages, it might be the loss of such advantages that compels firms to go overseas. As illustrated in Figure 56 above, one of the salient pressures that lead to such a convergent solution is ‘domestic factor market change’. In particular, labor costs are increasing and this is perceived as threatening economic performance for both SOEs and POEs.

Moreover, rather than facilitating firm internationalization, the domestic economic scale might be an impedance that discourages firm internationalization. The congruent peripheral maps illustrate that in a dominant threat context, market opportunities from domestic economic scale³⁶ do not lead to the solution of ‘firm boundary upgrade’ (in which internationalization is included), instead, ‘consolidate firm boundary’ (domestic market focus, enhance and synergize firm boundary) is the common solution for both SOEs and POEs. Therefore, when the domestic market has the advantage of scale, such as is the case for the Chinese market, the firm lacks the strong motivation to expand overseas even in a context of dominant threat, as the domestic market opportunity is large and is close at hand.

In sum, it is the loss of conventional country-specific advantages that motivate firms to go overseas, but at the same time, the advantages of Chinese domestic scale discourages such internationalization. Hence the argument for EMNE internationalization, especially for Chinese EMNEs, being a result of exploiting country-specific advantage merits further exploration.

- **Practical implications to prevailing ‘Trump Hypothesis’**

³⁶ Congruent peripheral maps show that the domestic market opportunity mainly comes from global auto MNEs entering the domestic market, domestic consumption development and government urbanization, all of which contribute to a domestic scale advantage.

As the most important practical implication, two findings could provide evidence and address the ‘Trump hypothesis’ that is prevailing among western politicians:

SOEs and POEs have convergent strategic mindsets

As discussed previously, although this research did not focus directly on performance or firm internationalization, it supports the argument that state ownership per se is not an issue by providing evidence of a convergent strategic mindset for SOEs and POEs.

Building political capital (aligning with government strategy) applies to both SOEs and POEs (and is an international dynamic)

The congruent and idiosyncratic maps show that the interpretations of the threat of ‘economic loss’ and ‘market resource loss’, as well as the interpretation of opportunity of ‘certainty’ are both closely related to the domestic government economic strategy transition (an environmentally friendly economic development mode). In the congruent core map, this domestic economic strategy transition is noted by both SOEs and POEs as government legal enforcement and is interpreted as *threatening* firm economic performance and market resources. In contrast, the domestic economic strategy transition is noted by some POEs as the government’s environmentally friendly encouragement policy and interpreted as ‘certain’ (i.e. an opportunity) in the POEs’ idiosyncratic map. Although focusing on different aspects of government economic strategic action (legal regulation constraints vs. encouragement policy), both perceptions have led to the ‘firm boundary upgrade’ solution (which incorporates internationalization).

These results indicate that the issue of political capital is conditional on aligning with government strategy, for both SOEs and POEs. In the case of the Chinese auto parts

industry, the domestic government's strategic transition from a focus purely on economic development towards a more environmentally friendly set of goals, is a common home country institutional factor that has prompted both SOEs and POEs to go overseas. However, firms' motivation to go overseas is slightly different. In the congruent core map, the economic loss that is perceived as being related to the government's strategic transition indicates that firms have failed to align with the government's strategy, therefore most of the firms are 'pushed' to go overseas. In the idiosyncratic periphery map of POEs, some POEs are positive about the macro-context due to the government's policy of encouragement and the technological accumulation within the industry. This indicates that firms that are prepared to align with the government's economic strategic transition can gain more legitimacy in the domestic market, and therefore these firms go overseas more 'proactively' rather than through economic necessity.

Therefore, the substance of political capital might not simply be preferential treatment from the government (e.g. cheaper bank loans) as suggested by scholars (e.g. Meyer et al. 2013). Instead, it could be more about attaining domestic market advantage as firms synchronize with governmental economic strategies. This political capital works equally for both SOEs and POEs as it does for all companies in all countries,

In sum, these two findings refute the Trump Hypothesis, i.e. China is the same as everywhere else.

9.3 Contributions

9.3.1 Theoretical contribution

Corresponding to the call to bringing ‘agency’ back into neo-institutionalism (Suddaby 2010, p. 17), this research extends the application of neo-institutional theory to the discussion of SOEs’ strategic behavior by adopting a bottom-up approach of institutional theorizing. In particular, Weber et al. (2006)’s work is referred to as a theoretical framework to bridge micro-level sensemaking, from a strategic cognition perspective, and the macro-level institutional context. This paves the way for a research design that reveal the salient institutional dynamics that drive managers’ strategic sensemaking and enables the construction and comparison of the strategic cognitive maps of SOEs and POEs.

The result of the map analysis sheds light on the explanatory power of institutional theory in the discussion of firm strategic behavior. In general, DiMaggio et al. (1983)’s institutional isomorphism is supported as convergence between SOEs and POEs is demonstrated. In a competitive industry where SOEs and POEs coexist their core strategic orientations are indistinguishable from each other.

While the overall conclusions are consistent with the homogeneity pressures posited by DiMaggio et al (1983), the more detailed results of the map comparisons add a configuration of local institutional antecedents and cognitive underpinnings to the predictive model of heterogeneity proposed by Oliver (1991, 1992). These configurations and cognitive underpinnings partly resolve the contradictions between the two perspectives (homogeneity vs heterogeneity).

Based on findings from this research, four propositions can be derived to delineate how configurations of institutional antecedents and cognitive underpinning are likely to lead to either heterogeneous or homogeneous strategic responses.

Prediction of individual firm strategy

The congruent core maps show that firms experience multiple government coercive pressures and functional pressures from the market in an uncertain economic

environment. These pressures reinforce each other and lead to potential economic and market resource loss.

Under these combined pressures, the corresponding strategy that firms consider is to ‘comprehensively upgrade’ firm competencies and firm boundaries. This signifies that firms depart from established action pattern, as all kinds of ‘movement extent’ especially ‘expand’, ‘extend’, and ‘transform’ are included. This indicates a deinstitutionalization of firm strategic pattern. Also, under these combined pressures, firms are compelled to go overseas to avoid market resource loss and dominant threats to their economic performance. Both of these strategic responses indicate a heterogeneous process.

These observations imply the following propositions:

Proposition 1: In uncertain environments, where multiple institutional constituents exert pressures through coercive and functional channels that may cause economic or resources losses for the firm, the firm tends to deinstitutionalize its strategy to escape the pressures, i.e. heterogeneity of response.

The findings from the idiosyncratic map of a few POEs demonstrate that the same ‘comprehensively upgrade’ strategic response can appear under a government environment-friendly encouragement policy. It signifies that a voluntary course of action has been undertaken. Although still classified as being within a dominant ‘uncertain’ context, the encouragement policy contributes to firms’ perception of ‘certain’ and prompts them to actively upgrade their strategies. This is consistent with the norms that the government wants to diffuse in the field. Therefore, it indicates a homogeneous response.

This observation implies the following proposition:

Proposition 2: In uncertain environments where institutional constituents facilitate the diffusion of a voluntary norm in the field, the firm tends to conform to the normative pressures.

Prediction of collective isomorphic responses

According to the findings, SOEs and POEs have convergent responses towards the perception of combined pressures related to economic loss and market resource loss, but more diverse responses towards the perceptions of institutional context related to opportunity or threat of losing control. This observation brings in the cognitive underpinning of the isomorphic responses for firms in the same field. Two propositions are developed as follow. One implies isomorphic actions addressing a homogeneous process, another one implies non-isomorphic actions addressing a heterogeneous process.

Proposition 3: *firms that perceive combined pressures related to threats of resource loss and economic loss are likely to initiate isomorphic actions.*

Proposition 4: *firms that perceive an institutional context related to opportunity or loss of control are likely to initiate non-isomorphic actions.*

9.3.2 Empirical contribution

Reconciliation of the competing arguments in the discussion of SOEs

As discussed in chapter 3, the competing arguments in the privatisation debate (performance focused) and the discussion of SOEs' internationalization are based on contradictory assumptions underpinning the explanation of SOEs' strategic behavior.

The findings of this research answer the political/practical question, and address the theoretical issues concerning the institutional dynamics that drive SOEs' strategic behavior. These findings reconcile previous debates and conflicts. In particular, SOEs in competitive industry are organizations, like POEs, driven by economic goals but at the same time maintain a role as tools of social stability. They are not passive government policy follower and have similar strategic mindset as POEs. The key

difference between SOEs and POEs is not in their strategy making but in the slack culture of SOEs that impedes the efficiency of their strategic implementation.

Extend the explanation of SOEs' internationalization

The convergent strategic mindset finding indicates that the assumption of absolute state control and the SOE as a passive government policy follower is not valid. In particular, the escape motivation for SOEs, which is the same as that of POEs, is added to the explanation of their internationalization. The government coercive pressure, allied with market pressures, push both SOEs and POEs to expand overseas to avoid dominant threat context in the domestic market, at the same time, in search of new markets, and/or new technological and brand resources to upgrade their own businesses.

9.3.3 Contribution to methodology

Several techniques from previous cognitive theory-based perspectives have been integrated to benefit the investigation. In particular, the language-based cognition analysis has been extended into the Chinese context. This provides support for future Chinese context-based analysis.

Following Weber's juxtaposition of sensemaking and institutionalism (e.g. Weber 2005; Weber et al. 2003; Weber et al. 2013), the strategic cognitive perspective at the micro-level and institutional antecedents at the macro-level have been bridged. The methodological implication from the theoretical framework is that salient institutional types can be identified by collecting the convergent output of sensemaking of managers (Weber et al. 2006).

Corresponding to this methodological implication, causal mapping from a strategic cognitive perspective (e.g. Nadkarni et al. 2007a) and several other techniques such as repertoire profile plots from a toolkit view of culture (Weber 2005) have been integrated into this research. As these techniques are both cognitive-theory based, and focus on different characteristics of human cognition (e.g. the causal map uses concept network-based analysis, repertoire profile plots use a toolkit-based comparison), the integration of these techniques produces a more systematic and comprehensive assessment.

In particular, the text-based analysis approach used here has several advantages compared with traditional qualitative methods, survey-based typology assessment, and conventional content analysis. Compared with a traditional qualitative method such as a case study, the text-based causal mapping technique is a more systematic and structured way to code the data, and it reduces contamination from the researcher's own interpretive frame in the coding process. It, therefore, increases confidence in the reliability and validity of the data interpretation.

Compared with a close-ended survey, such as the strategic typology assessment by Peng et al. (2004) and the strategic orientation test by Tan (2007), the approach used here contextualized managers' thoughts without any pre-conceived constraints and intervention. The content of their sensemaking is incorporated in the vocabulary structure manifest in the text (Carley et al. 1992; Weick 1995 p. 111). How managers make sense of their local situational context and their essential reasoning are revealed and reflected in their choice of language.

Compared with other content analysis approaches in which some chosen unit of text is counted and quantitatively analysed (Weber, 1983), map-based analysis has theoretical support in assessing human cognition (Carley et al. 1992). As suggested by

Loewenstein et al. (2012), faulty conclusions might be drawn if the same concept dictionary is used across groups in the case of computer-automated text analysis, because the vocabulary toolkits of actors are organized based on pragmatic principles, rather than coherent or systematic logic. For example, the lack of a word does not indicate a lack of knowledge or attention. Other words might be used to express the same meaning; the same word does not necessarily mean the same thing in different situations. In the approach used in this thesis, causal reasoning is recognized as the basic logic humans impose on the context to make sense of the situation (Heider 1944; Keil 2006; Sloman & Lagnado 2004). Since concepts and categories are causally linked and the context is embedded in the map, the meaning-in-context is elicited (Carley 1997).

9.4 Implications for practice

This research chose the auto parts industry. As this industry is emphasized by the Chinese government as one of the major economic priorities in national economic development (Bill et al. 2013), government influence on firm strategy could be more prominent. Hence, this research can be taken as a typical case study that represents the mindset of Chinese SOEs. In addition, as a core group of firms in the industry was chosen, the findings from this research can be generalized to the strategic logic of key SOE and POE players in industries similar to the auto parts industry.

For domestic policy makers

Government national strategy to de-emphasise GDP goals and transform the economy into a more environmentally friendly economic development mode, demands that firms upgrade their businesses into more R&D oriented and higher value-added

manufacturing. However, this coercive policy has increased the uncertainty of the domestic economic context and acted as an impetus for some firms to escape the domestic market. Contrary to this, the policy of encouragement has reduced uncertainty in this context and has guided a few firms to upgrade their strategy. These findings indicate that in a predominantly uncertain global and domestic economic situation, coordination of different government policies to secure a relatively certain context and to guide industry with positive policy orientations might benefit the proposed economic strategy implementation of the government.

For overseas policy makers

This research indicates that many governments in the 21st century have realized that profitable SOEs make the state stronger. In the light of this, FDI receiving country might need to accommodate in a more nuanced fashion to the growing market power of SOEs. Instead of evaluating the foreign investor primarily based on ‘who they are’, or ‘where they come from’, a pragmatically-oriented inward FDI policy that both facilitates investment and at the same time properly governs the investment operation to benefit the local economy, might be a better option.

For POE managers

POE managers need to realize that SOEs have become part of the world’s business system. Rather than fear them, understanding their way of doing business and the problems they have might benefit POEs and enable the firm to grasp business opportunities based on cooperation.

For SOE managers

SOE managers need to realize that political capital is not idiosyncratic to SOEs, but is essential for all influential players in national economics. In particular for the Chinese market, the government's economic strategic orientation is an important indicator for changes in the resource configuration of industry. So whether SOE or POE, accurately predicting policy trends and synchronizing with governmental economic strategy is important for firm success in China. A proactive strategic style is necessary to prepare for a potential risk as well as potential opportunities that government policy changes might bring about.

9.5 Limitations and future research

Due to the constraints of access to firms and the lack of publicly available speech transcripts, this research only uses annual reports as the data source. Nevertheless, considering this research is more exploratory and tries to gain new insight rather than being confirmative, and annual reports have been used and suggested by previous strategic cognition studies as a valid data source, annual report-based text analysis is argued to be adequate for this research. In future studies, there could be an improvement if more extensive data sources are available, such as direct observation, cognitive interviews, group meetings etc., and a combination of cognitive eliciting tools could be used to represent a more comprehensive strategic knowledge of the firm.

Due to the limitations of financial resources and time³⁷, this research could only analyse one years' annual reports. A longitudinal study can be conducted in the future to observe the evolution of collective strategic cognition, and provide more in-depth knowledge about the dynamics of firm strategy in a transitional context.

This research only analysed firms' strategic cognition in one competitive industry in China where SOEs coexist with POEs. To complement the picture of SOEs' strategic thoughts, future research could focus on other industries especially in those considered critical for the national economy. The same research design could be conducted in other countries and the results could be compared with this research and hence improve understanding of SOE issues in different institutional contexts.

Although organizational research has been conducted in many POEs or public institutional contexts, few studies have been done in the SOE context. As the results of this research indicate, the informal institutions that are closely related with organizational perception might constitute major issues in SOEs. Future research could look at SOEs' issues from an organizational behavior perspective. This can contribute to the area itself, and also to the reform of SOEs' practices.

9.6 Conclusion

Based on the results of this study, SOEs and POEs share similar strategic mindsets. Rather than being passive government policy-followers, SOEs are predominately driven

³⁷ The data analysis approach is very time-consuming as the natural language has to be processed by human rather than computer. Also, independent raters are needed to assure the reliability and validity. This limitation might be overcome in future research through access to recent developments in artificial intelligence.

by economic goals and at the same time still assume the mission of social stability. In particular, ‘escape’ is the main motivation for both SOEs and POEs to go overseas.

Compared with POEs, SOEs focus more on global markets and less on domestic factor market advantage. However, SOEs are facing the challenge of inefficient strategy implementation due to the path dependence slack organization culture.

On identifying the institutional dynamics underpinning firm strategy response and comparing between SOEs and POEs, this research has contributed to institution theory and knowledge in the field of strategic management. Empirically, the findings of the research reconcile debate in previous literature and add to the motivation of SOEs’ internationalization.

Aligned with the micro-macro level institution framework, this research extends language-based cognition analysis in Chinese context, and provides support for future Chinese context-based analysis. This research also demonstrates how the different cognitive analysis techniques could be integrated to conduct a more rigorous, systematic and comprehensive assessment of collective strategic cognition to reveal the dominant institution dynamics in the field.

Appendices

Appendix I : Core group of SOEs and POEs in the Chinese auto parts industry

Considering firm privacy, all firm ID related information is excluded from the table.

No.	Ownership classification	Total Assets USD 2013	Sales USD 2013	Number of employees 2013	Age (till 2016)
1	SOE	8,967,941	10,975,370	8,655	24
2	POE	2,390,385	1,833,697	19,334	24
3	POE	1,596,534	1,424,589	11,025	23
4	SOE	2,142,474	839,813	5,140	24
5	SOE	934,533	1,519,829	5,814	23
6	SOE	1,101,090	1,340,918	6,932	23
7	POE	1,158,745	1,128,111	8,299	15
8	SOE	1,092,035	889,372	8,256	21
9	SOE	677,819	850,053	7,133	16
10	POE	473,816	651,364	Not available	38
11	POE	637,097	447,264	2,248	28
12	SOE	528,301	406,425	7,012	17
13	SOE	575,407	192,269	3,249	18
14	POE	460,413	140,269	2,739	18
15	POE	418,949	147,695	1,587	20
16	SOE	343,235	196,714	3,634	17
17	SOE	352,950	139,417	2,358	23
18	SOE	265,731	212,277	2,049	17
19	SOE	143,394	106,096	1,022	18
20	POE	114,892	61,571	695	19
21	POE	67,200	40,756	791	19

Appendix II : Illustration of the four steps to construct individual raw causal maps

Step 1: identify causal statement

<p>Example of a causal statement: Original text: 国内同行业竞争更加激烈，保持并发展国内高份额市场占有率面临挑战，为此公司加快新产品开发 Translation: The competition in the industry is increasing. We are facing a challenge to maintain and expand the high market share. Therefore, we accelerated new product R&D.</p>

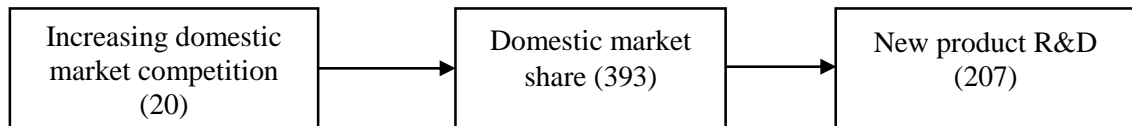
Step 2: Construct raw causal map

Raw causal phrase	Causal connector	Raw effect phrase
competition in the industry is increasing	challenge	maintain and expand the high market share
maintain and expand the high market share	therefore	accelerate new product R&D

Step 3: Develop raw concept and coding scheme

Raw phrases	Corresponding raw concept in coding scheme
competition in the industry is increasing	increasing domestic market competition (20)
maintain and expand the high market share	domestic market share (393)
accelerate new product R&D	new product R&D (207)

Step 4: Recast raw preliminary causal map into raw causal map



Appendix III: coding protocol and indicators

1. Causal phrases identification rule (abstract)

- (1) All causal statements are coded into basic level meaning
- (2) keep original wording
- (3) Keep the verb indicator
- (4) Sometimes key indicator might connect multiple reasons with the same outcome, or bridge sole reason to a different outcome. Causation chain could also appear.
- (5) Separate past and future discussion in coding process

2. Principle and key indicator to help identify causal-effect relationship

Principle	Preposition indicator		Verb indicator	
	Example	Positively effect example	Negatively effect example	
Does A precede B in time?	随着 in the wake of	解决了...问题 solve (negative issue) 导致[正面结果] lead to (positive outcome)	恶化了 deteriorate 导致[消极结果] lead to (negative outcome)	
Does A logically precede B?	因为 because 由于 due to 目的是 in order to	促成（进） facilitate, expedite 实现...目标 expedite (objective attainment) 提高...能力 advance (capabilities)	阻碍了 Impede, inhibit, hinder 面临挑战 challenge	
Is A necessary before B?	凭借 by virtue of	为...奠定了基础 is necessary for 为...创造（提供）了条件 provide the premise for		

3. Semantic indicator for solution concept categorizing- key verb and noun

Movement extent	Verb or noun form of verb indicator example	Example
Enhance	Chinese indicator: 建立, 设立, 夯实, 加强, 营造, 保持, etc. Establish translation: construct, build up, set up enhance, maintain. etc.	Chinese concept: 建立核心竞争力 English translation: construct/improve core competency
Synergize	Chinese indicator: 整合, 优化, 调整, 协同, 协作, 同步 English translation: integrate, optimize, adjust, Synergize, cooperation, synchronize	Chinese concept: 集团资源整合 English translation: integrate business group resources
Expand	Chinese indicator: 扩展, 加速, 开发 Establish translation: expand, accelerate, develop	Chinese concept: 进一步扩展研发团队 English translation: expand R&D team
Extend	Chinese indicator: 多元化, 系统化 Establish translation: diversification, systematize	Chinese concept: 业务多元化 English translation: business diversification
Transform	Chinese indicator: 改造, 升级, 改革, 转换, 转型, 重构 Establish translation: transform, upgrade, reform, transition, restructure	Chinese concept: 产品价值升级 English translation: product value upgrade

Appendix IV: Coding scheme

Primary area	2nd level area	3rd level area	4th Level area	5th level concept	Raw concept	C#	Basic level concept with key words	
environment	Macro-environment	global industry environment			global energy market	1	global crude oil price rise	
					global industry structure transition	2	global auto MNEs transfer to domestic market	
							MNEs new technology scale implementation in global market	
		economic environment				global economy environment	3	global auto industry recovery
								crisis in developed economy
								Europe debit crisis
								emerging economy development
								global political, economic environment uncertainty
		domestic economic environment					4	global economic recession
								complex domestic economic environment
								inflation
		political environment				international political environment	5	RMB appreciation
								international political environment
		government intervention				domestic political environment	6	domestic political environment
domestic political environment								
government intervention				international government economic intervention policy	7	international government monetary policy		
						US quantitative easing		
						international trade protectionism		
					8	domestic government contractionary monetary policy		
						domestic government fiscal policy		

			domestic government economic intervention policy		domestic government auto industry subsidy incentive policy fade out		
					domestic government macroeconomic regulation and control		
			domestic government administrative control	9	national level administrative control		
							local government constrain auto purchasing to manage traffic jam
				domestic government legislation control	10	government environment protection policy implementation	
						industry level legislation regulation	
		government strategy plan and implementation	central government strategy plan and implementation		11	domestic government urbanization implementation	
						government economic development mode transit	
						government encourage energy conservation	
						domestic government drop GDP goal	
						government encourage new energy auto development	
						domestic government support auto industry	
				local government strategy plan and implementation	12	regional strategy plan and implementation	
				foreign country government industry policy	13	foreign country government industry policy	
		government institution reform	domestic government institution reform	14	implementation of domestic government reform		
		social, cultural, demographic environment	international social, cultural, demographic environment	15	international social, cultural, demographic environment		
			domestic social, cultural, demographic environment	16	domestic consumption economic development		
global force	17		global force				

	industry environment (auto parts industry)	competitive environment (auto parts market)	industry growth	18	industry growth
					positive impact on international market capacity increase
					positive impact on domestic market capacity
					negative impact on domestic market capacity
			industry structure	19	fragmented/consolidated industry structure
					reduced technology gap with FOEs
			industry competition	20	increasing domestic market competition
					global competition
					domestic industry competition
					international market competition
					high-end market competition increase
			industry profit margin	21	mid-market and lower market competition increase
					industry profit margin
					market saturation
			industry technology trend	22	market volume
					domestic firm core technology and capability improvement
industry upgrading					
competition mode	23	industry new technology development			
		industry competition mode			
development mode	24	industry firms improve technology innovation			
		industry firm development mode transition			
strategy attitude	25	Integration, modularization, systematization trend of international peer group strategy			
		proactive strategy action			
customer environment	customer market structure	26	market fragmentation		
			market convergence		

					diversity of market segments
					emerging market segments
			customer demand feature	27	auto industry environment-friendly transition
					new market needs
					domestic auto industry upgrading
			customer industry growth	28	domestic auto industry growth decline
					auto industry production decline
			customer industry competition	29	competition of the customer industry/market
			customer industry profit margin	30	life cycle of customer industry
					decreasing profit margin
					excess capacity
			industrial restructuring	31	industrial restructuring
			industrial transformation	32	industrial transformation
			change of industry price	33	change of industry price
			change of product trend	34	change of product trend
			international customer	35	international customer
					developed economy customer
					emerging economy customer
			domestic customer	36	domestic customer
					domestic joint venture customer
					domestic home brand customer
			supply chain strategy	37	global auto MNEs global sourcing
					global auto MNEs localization of parts and components
			marketing strategy	38	auto industry firms price competition strategy

					market penetration
					low cost
		strategy transition	39	technology upgrade	product upgrading
					continuous product updating
		brand/ reputation	40	brand/ reputation	
		autonomous development ability	41	fragile for government policy change	fragile for macro environment change
		customer performance	42	international customer market performance drop	growth of exporting
					domestic customer performance drop
		End user market	43	End user market	
	factor market	scarce resource market	44	energy price increase	raw material price increase
					financial market price rise
		endowment resource market	45	labour cost increase	insufficient labour
					land price
	supporting industry development	process related industry	46	high-end equipment manufacturing industry development	
		material related industry	47	new material equipment manufacturing industry development	
	substitute/cross-border industry competitor	substitute/cross-border industry competitor	48	substitute/cross-border industry competitor	
	complementors	complementary industry development	49	complementary industry development	government support of complementary industry
					pioneering phase of the industry
			50	aggressive strategy action	

		potential new competitors	potential new competitors strategy		imitators
		technology environment (general auto industry)	industry technology transition	51	new technology application in the industry
					new materials and process technology application
			customer industry technology transition	52	new energy technology application in customer industry
meso level	competitive group analysis	group cluster criteria	ownership	53	ownership
			geographical	54	geographical
			size	55	size
		strategy implementation competency	operation competency	56	efficiency
			R&D competency	57	FOE competitive advantage-innovation/technology
					FOE competitive advantage-core/key technology intellectual property
					FOE competitive advantage-technical standard of core/key technology
			institution competency	58	POE competitive advantage-flexible mechanisms
		organization competency	59	FOE competitive advantage-management advantage	
		competitive strategy competency	product competency	60	quality
			service competency	61	customer responsiveness
		competitive strategy competency	customer value competency	63	focus on home brand customer only
marketing strategy	market introduction strategy	64	market penetration		

				market growth strategy	65	accelerate industry/market deployment
						FOE M&A competition strategy
						market development
				market maturity strategies	66	push out the competitor with technical barrier/technology blockage
				marketing tactics	67	pricing
			customer relationship management	customer structure upgrade	68	target on the high-end market
			competitor group resource and capability accumulation	competitor group resource and capability accumulation	69	increasing capabilities
						improved technology
			competitor group performance	operation performance	70	rapid growth and development
				market performance	71	decreasing sales
			difficult to enter into the supply chain of joint venture customer			
			competitive group market position	competitive group market position	72	market leader
						market challenger
						market follower
						market nicher
business group analysis	business group Synergize strategy	73	R&D cooperation			
			R&D and manufacturing base/industrial park construct			
	business group resources integration	74	subsidiary supply capacity expansion satisfy group needs			

						enhance group financial resource configuration efficiency
			business group strategy integration	62		business group strategy integration
		internal mechanism	strategy-control mode	75		production and operations management
						integrated quality management system
			financial-control mode	76		financial control mode
						adjust internal control system of newly incorporated firm
			culture-control mode	77		culture
			business group control mode transform	117		business group control mode transform
		business group performance	market performance	78		product price slump
						decreasing market share
			scale expansion	79		increasing group members
		group members identity				increasing coverage of industries
			integration member	80		customer industry firm
						newly merged firm
						oversea project
			diversification member	81		divisional unit
		specialization member	82		R&D company	
		spin-off member	83		subsidiary and branch	
		active player	decision-making level	84		board of directors
						executives
			core staff	85		core staff
		employee	86		employees	
		corporate strategy	business portfolio competency	87		low growth of primary business
						concentrated industry of the firm

		firm weakness analysis	competency	relational capital	88	unstable strategic alliances with customer
			competitive strategy competency	product competency	89	quality distance with customer needs
						product position distance with customer needs
						low-end oriented product structure
			functional-level competency	manufacturing competency	90	deficient flexible manufacturing capability
				immature production		
			supply chain competency	91	fragile/uncompetitive supply chain	
					distance to the customer and supplier	
					high logistics cost	
			capital operation capability	92	investment life cycle	
			R&D competency	93	technological gap in higher market segment	
					technological gap to domestic and international well-known firm	
					immature technologies	
					technology reserve	
			operation competency	94	increasing cost	
		decreasing profit				
		institution-level competency	95	insufficient employee welfare		
		organization competency	human resource competency	96	scarcity of talent	
			human resource deficiency			
		managerial competency	97	managerial capability deficiency		
				slack culture of the management team		

		firm strength analysis	available factor endowment competency	available factor endowment competency	98	local factor endowment	
			general firm capability competency	synthetic competency	synthetic competency	99	holistic competitive advantage
				core competency	core competency	100	core competency
				sustainable development capability	sustainable development capability	101	sustainable development capability
				risk resistance capability	risk resistance capability	102	risk resistance capability
							ability to withstand market volatility
			market adaptability	market adaptability	103	market adaptability	
			functional-level capability competency	R&D competency	R&D competency	104	technology resources
							technology advantage in middle market segment
							innovation/technology
			operation competency	operation competency	operation competency	105	cost advantage relative to FOE
							cost
							efficiency
			corporate strategy competency	business portfolio competency	business portfolio competency	106	scale advantage relative to FOE
							scale advantage from industrial consolidation
		competitive strategy competency	product competency	product competency	107	product variety	
						product cost performance advantage relative to FOE	
						quality	
		service competency	service competency	service competency	108	responsiveness advantage relative to FOE	
						customer responsiveness	

				marketing strategy competency	109	pre-existing market advantage
			firm status analysis	capacity expansion	110	growth of high-end product scale –deficient human resource
						rapid growth of firm scale-deficient managerial capability and human resource
						increasing production and operation scale
				inter-firm integration	111	business group expanding
				economies of scope	112	concentric diversification
						horizontal diversification
				position within business group	113	core components supplier of customers within the business group
						backbone of business group' branch business
				position in the industry	399	industry position/status
				operation pressure	114	financial operation pressure
			market development pressure			
			manufacturing and operation pressure			
			capacity pressure/insufficient capacity			
			employee welfare pressure	115	employee setting pressure	
			strategy situation evaluation	116	development speed and mode pressure of group business	
					international M&A opportunity	
					firm product upgrading opportunity	
					pressure-just complete strategic transition	
strategy	strategy content	corporate strategy	vision/strategic intention	industry position-driven	119	industry leadership
						global industry leadership
				world brand		
			customer value -driven	121	customer focus	

						product focus	
						strategic supplier with core competency	
		strategy objectives	output oriented objective	marketing performance objective	122	international marketing performance objective	
						domestic marketing performance objective	
						general marketing performance strategic objective	
					financial performance	123	maximizing shareholders ' interests
			input oriented objective	operation objective	124	cost leadership	
						efficiency	
				innovation objective	125	Innovation-driven	
			customer value creating objective	product objective	126	product oriented strategic objective	
						high value-added product	
						synchronize with customer industry development trend	
				relationship objective	127	enhance customer relationship	
				image objective	128	image oriented strategic objective	
			function-level capability objective	technological dynamic capability	129	technology responsiveness to the international market	
						technology responsiveness to the domestic market	
						technology R&D leadership	
				autonomous innovation capability	130	independence R&D capability	
						improve R&D capability	
						R&D capabilities	
		core technology development					
			autonomous technology innovation ability				
		managerial capability and efficiency	131	improve managerial capabilities/efficiency			
		systematic	core competency	132	construct/improve core competency		
					sustainable development capability construct		
					overall competency		

				capability objective			improve risk resistance capacity
				industry competition rule make-oriented	133		industry standard formulation
							construct industry new competition connotation system
				autonomous development capability	134		autonomous development
				generic marketing strategies objective	differentiation strategy	135	differentiation
					low cost strategy	136	low cost
					diversification	406	diversification
					focus	407	focus
				position-oriented objective	supply chain position	137	Become system supplier
							integrate into global industry chain
					innovation position	138	technology advantage relative to POE
					promote domestic industry technology upgrading		
					operation position	139	cost advantage relative to FOE
				regional economy position	140	integrate into regional economy development circle	
						enter into local relative-competitive advantage industry	
				government-oriented objective	synchronize with government strategy	141	synchronize with central government strategy plan
							synchronize with provincial government strategy plan
				public interest group objective	environment legal responsibility	142	compliance with environmental regulations
				business group-oriented objective	synchronize with business group strategy	143	synchronize with group strategy

			operational objectives	output oriented objective	financial performance focus	144	financial objectives		
									improve enterprise economic benefit
									improve earning power
						industrial output objective	145		industrial output objective
					market performance	146		expand market scale	
									increase market share
					achieve further development	147		achieve further development	
				operation objective	cost control	148		cost control	
						efficiency	149		improve efficiency
						production efficiency	150		reduce consumption
						supply chain efficiency	151		reduce procurement cost
						customer value creation	152		meet customer needs
									complete after sale service network
									improve quality
					environment ethical protecting action	153		energy economization and emission reduction	
				capability-oriented objective	technology expenditure	154		increase technical transformation input	
						R&D and innovation speed	155		accelerate R&D and innovation
					risk management	156		control operation risk	
									improve risk management capability
				managerial efficiency	157		focus on management		
								improve integration ability	
								reduce management cost	

				market acuity	158	focus on market
				managerial institution construction	159	promote management innovation
						improve technology management ability
				financial support efficiency	160	satisfy financial needs with firm rapid development
				executive efficiency	161	enhance strategy enforcement capability
				human resource competency	162	improve human resource quality
				market analysis and forecast	163	improve market forecast accuracy
				promote autonomous development	166	improve sustainable development capability
						promote autonomous development
			position related	supply chain position construction	164	Become system supplier
				accelerate strategy transition	165	accelerate strategic transition
		core value/principle /philosophy /believe	firm value related	technology and innovation driven	167	continuous innovation
						technology creates market
				morality driven	168	morality driven product value
				pragmatism driven	169	action based on reality
				humanism driven	170	people-oriented management
			firm institution driven	171	normalization , efficiency, vitality	
			government	economic responsibility	172	create tax revenue
						create employment opportunities
			shareholder	economic responsibility	173	create shareholder profit
						create economic benefit for the firm
			employees	ethical and voluntary responsibility	174	create welfare for employee
						employee-centered development philosophy

			portfolio strategy	complementary strategy	175	complementary capabilities across acquired/merged business units	
				consolidation strategy	176	horizontal integration	
						vertical integration	
						consolidate primary business	
				optimum and balance strategy	177	business integration	
						business structure adjustment	
						optimize and balance business mix	
						adjust/optimize market structure	
				turnaround strategy	178	turnaround strategy	
				divestiture/sale of business units	179	divestiture/sale of business units	
				business diversification	180	general market diversification	
				business focus	181	focus on primary business	
		regional strategy	global market strategy	global presence	182	internationalization	
						increase oversea investment	
						international main market entry	
					global standardization strategy	183	global standardization strategy
					localization strategy	184	localization strategy
					transnational strategy	185	transnational strategy
					international strategy	186	international strategy
					domestic market strategy	187	domestic standardization strategy
				cross-region operation strategy	188	domestic adaption strategy	
				ownership-oriented	189	M&A	

			investment and cooperation strategy	investment mode			joint venture	
								technology and management share in joint venture
								joint stock
								establish wholly owned subsidiaries
								set up branch
								set up regional branches
								divest main business irrelevant firm share
						cooperation-oriented	190	technology introduction
								academic exchange
								construct cooperative ties/agreement
							restructuring the cooperation and alliance relationship	
					exporting	191	exporting	
				investment regions choice	investment regions choice	192	home country	
							overseas	
				target/partner of investment strategy	supplier	193	supplier	
					competitor	194	competitor	
							domestic competitor	
							international competitor	
					benchmark peer group	195	peer enterprises	
							domestic peer enterprises	
			international peer enterprises					
			customer		196	customer		
			general global players		197	global players		
			research institution		198	research institution		
			banks	199	banks			
			industry alliance	200	industry alliance			

			strategy transition	new source of profit growth	201	find the new source of profit growth
				growth and development mode transition	202	transform the growth and development mode
				product upgrade	203	product transition and upgrading enlarge product advantage
				technology upgrade	204	technical innovation and updating
				marketing strategy update	205	flexible marketing strategy
		competitive strategy	service-related strategic action	service-related strategic action	206	improve service quality
			product related action	new product R&D	207	continuous/enhance product R&D input
						accelerate new product R&D
						subsidiary R&D input
			product value upgrade		208	accelerate high-end product development
						high-value-added product development
						optimize product
				technology and process R&D	209	new technology and process technique product development
				adjust/optimize product structure	210	adjust/optimize product structure product structure upgrade
				improve product cost efficiency	211	improve product cost efficiency
		customer relationship management	customer developing	212	domestic customer developing	
					international customer developing	
			customer structure upgrade	213	customer structure adjustment	
					increase strategic customer sale	
					focus on middle and high-end market /customer	

				customer divestiture	214	customer divestiture
				general customer relationship management	215	customer relationship management
		marketing strategic actions	market introduction strategies	market penetration	216	market penetration
				niche strategy	217	niche strategy
				brand construct /promotion	218	brand construct /promotion
			market growth strategies	market development	219	market development
						expand main business scale
						domestic market development/expansion
						domestic home brand market development
						oversea market development/expansion
						geographical expansion with customer out of the business group market development/expansion
			market segment expansion	220	market segment expansion	
			product expand	221	product line extension	
					product development	
			brand extension	402	brand extension/brand stretching	
			industry/market deployment	223	construct and complete domestic industry/market deployment	
					adjust industry/market deployment /structure	
		construct and complete oversea industry/market deployment				
		distribution channel construction	224	new distribution channel construction		
		maintenance strategy	225	business enhance		
				226	concentric diversification	

				market maturity strategies	diversification strategic action		horizontal diversification		
							conglomerate diversification		
					focus strategic action	227	focus on key components product		
				market decline strategies	market divesting	228	market divesting		
					marketing tactics	pricing action	229	pricing action	
				marketing expenditure		230	marketing expenditure		
				market activity to promote firm brand awareness		231	advertising		
							oversea public media exposure		
				exhibition marketing	232	exhibition marketing			
					scale development action	manufacturing capacity expand	233	expand manufacturing capacity	
							scale production		
					project construction	234	speed up domestic project construction		
						accelerate cross-region project construction rate			
				productivity	235	improve capacity utilization			
						match capacity and market needs			
				general scale development action	404	scale development			
				strategy process/strategic implementation(internal oriented)	business process	R&D strategy	autonomous R&D	236	try-and-error/exploration and accumulation
									expand R&D team
									technology innovation
basic research	237	basic research capabilities construction/focus on basic research							
new technology research and application	238	new technology R&D and application							
	239	process research and application							

				process research and application		enhance process innovation
						process integration innovation
						processing equipment R&D and application
						process innovation of core components
				technology reserve	240	accelerate technology reserve
						increase higher-end product technology reserve
				R&D platform and mechanism construction	241	R&D system construct
						normalize R&D process
						technology innovation mechanism construction and implement
						R&D platform construct
				R&D Synergize	242	internal R&D resource and capability integration
						R&D cooperation with domestic research institute
						R&D cooperation with oversea institute
						horizontal cooperative innovation
				market-driven R&D action	243	synchronous R&D with the customer R&D
						synchronize R&D capabilities construct with industrial transition
						proactive R&D
				cost-driven R&D action	244	manufacturing cost considered R&D
				technology path choice	245	technology path choice
				R&D capability expand	246	equipment and mold R&D
						substitute material R&D
			manufacturing process	production efficiency action	247	lean production/management
						improve automation
				process improvement action	248	process improvement
						process substitute/upgrade

			strategy action			improve core manufacturing capabilities			
							improve process capability		
			construct quality management mechanism	249		quality management system construct and normalization			
								production process management	
				environment - responsiveness manufacturing	250		construct flexible manufacturing system		
							construct cleaner production		
							construct agile adjustment of manufacturing process		
			supply chain strategy	supplier management mode choice	251	enhance competition/price model oriented supply chain management			
								enhance cooperation model oriented supply chain management	
				supplier management mechanism	252		improve supplier management		
									enhance distribution channel governance
									supplier management mode construction and improvement
				supplier training	409		supplier training		
				supplier development	253		supplier development		
				supplier optimization and integration	254		supplier optimization and integration		
			logistics optimum	255		improve Inventory management			
								improve logistic efficiency	
								optimize logistics system	
								construct international logistics capability	
			synergic procurement	256		change logistics transportation arrangement			
								purchasing alliance	
								centralized procurement	
						strategic stockpile			

			supply chain construction	260	supply chain construction
		value chain management	whole value chain cost management	257	whole value chain cost management
			outsourcing	258	outsourcing
			resource configuration	259	enhance value chain resource configuration capability
		information related strategy	e-commerce	261	e-commerce
			knowledge management system	408	knowledge management system
			management information system	262	management platform
				improve firm information management system	
			enterprise resource planning(ERP)	263	improve enterprise resource planning(ERP)
			general environment analysis	264	environment evolving analysis
				improve risk precaution ability	
				improve predictive ability	
			policy analysis	265	government policy analysis
				international trade policy analysis	
			industry analysis	266	industry evolving analysis
				improve market forecast accuracy	
				important customer R&D trend analysis	
		competitor tactics analysis			
		firm value chain analysis	267	whole value chain analysis	
		experiential learning	268	learn from peer group's experience	
			learn from firm international trade experience		
		anti-counterfeit and shoddy products action	269	anti-counterfeit and shoddy products action	

			anti-dumping barrier coping action	270	anti-dumping barrier coping action
			firm adaptive management mode construct	271	firm adaptive management mode construct
	Public relations strategy		corporate news spokesman mechanism	272	corporate news spokesman mechanism
			legal responsibility	273	proactively following government laws and regulations
			voluntary responsibility	274	initiate industry association to support government regulation implementation organize industry symposium
			lobby and ethical responsibility-adequate information	275	proactively communicate with government
					organize industry symposium
			ethical responsibility-adequate information	276	proactively communicate with holding company
		project management		project management	277
	finance management strategy		efficiency-driven investment	278	focus on investment efficiency focus on economic benefit
			risk control-driven investment	279	moderate finance management enhance feasibility study step-by-step investment
			investment control institution construction	280	investment budgeting normalize investment decision making and implementation
			capital operation	281	marketization of firm capital accelerate capital operation

					improve capital operating capability	
				private placement	282 private placement	
				financing expand strategy	283 expand finance source	
					utilize new financial instruments	
					construct financing platform	
					effective financing tactic	
				financing stability strategy	284 optimize financing structure	
				financial operation management improvement	285 account receivable management improvement	
					customer credit management improvement	
					total budget management improvement	
					optimize capital structure	
				dividend strategy	286 dividend strategy	
				improve financial management	287 improve financial management ability	
					improve finance operation efficiency	
		human resource management strategy	infrastructure mechanism strategy	compensation and incentive mechanism construction	288 salary and incentive mechanism	
						technology/talents team promotion mechanism
				human resource governance mechanism construction	289	accountability system
						position management system
				human resource configuration mechanism construction	290	efficient human resource configuration system
				human resource cultivation mechanism construction	291	technology/talents team cultivation mechanism
		employee career development management				

			update human resource management institution	292	update human resource management institution	
			improve basis management	293	improve basis management	
					enhance and detailing organization process	
		employee voice mechanism	employee involvement in function-level strategy making	294	basic level employee investigation and suggestion request	
					technology and management innovation co-creation activity	
			employee engagement in firm operation	295	transparent management	
			democratic decision-making mechanism	296	democratic decision-making mechanism construction	
		human resource configuration	TMT construction	297	TMT construct	
			talents absorb		298	talent introduction
						construct external technical talent pool
						extensively absorb talents
			talents cultivation	299	talents cultivation	
			talents team construction		300	talents team construction
						diversified talents team
						augment talents team
						talents echelon construction
			team construction		301	innovative team construct
		improve team quality				
		employee team construct				
		talents attracting strategy		302	promote firm reputation	
					quality working environment	
					localize R&D platform	
				303	improve employment stability	

			human resource structure			improve age structure of employee
						optimum of human resource structure
						improve employee knowledge structure
						reduce employee and improve efficiency
			training	304	training	
					joint training	
			employee welfare management	employee material welfare	305	improve employee salary and welfare
				employee spiritual welfare	306	enrich employee's spare time cultural activity
				humanity management	307	help and support employees with difficulty
			infrastructure management	strategy implementation system	strategy implementation control mechanism	308
		enterprise planning management mechanism				
		business group project management mechanism				
		technology and R&D management mechanism				
		optimum of organization structure		309	adjust organizational structure	
					reduce management layers	
		leadership structure		310	adjust executive structure	
		optimum of process		311	optimize management process	
					normalize/standardize business operation	
		organization culture system		organization culture orientation	312	construct people-oriented organization
			construct quality-oriented culture			
construct market and customer-oriented culture						
construct learning organization						
employee perception management	313	organizational culture cultivate activity				
		improve organization alignment				

				management team perception management	314	working style cultivation anti-inaction and accountability mechanism
				Construct internal stakeholder representative committee	315	party committee construct labour union construct leadership committee construct
			internal control system	internal control mechanism construction and normalization	316	financial control system asset operation mechanism auditing of the enterprise system and decision making according to law corruption precaution and control activities
				internal control optimum	317	adjust internal control system adjust internal control system in newly incorporated firm
			corporate governance mechanism	corporate governance reform	318	reform and normalization corporate governance construct/reform and normalization performance evaluation system
				corporate governance optimum	319	corporate governance optimum
				reform and optimum orientation	320	align with business group strategy
			business group management system	Synergize-oriented operation	321	resources centralization synergetic operation internal information communication control of subsidiary and branch
				specialization-oriented operation	322	production specialization
				optimum of business group management system	323	improve and update business group management system

		strategic change	reform and reconstruction	324	restructuring internal reform		
			business management mode transformation	328	business management mode transformation		
			optimum of group resource and capability	325	resource integration improve subsidiary technology and managerial capability		
			technological renovation	326	technological renovation		
			strategic mind-set revise/updating	327	innovative thinking risk consciousness adapt to market competition adjust firm development thinking		
		general management improvement action	general management improvement action	403	management improvement action		
resources and capabilities	organizational tangible resources and capabilities	financial resource and capabilities	financial resource	329	financial resources		
			financial management capability	330	improve capital operating capability investment supervision and regulation capabilities		
		marketing resources	brand equity		331	brand image/ company reputation brand awareness word of mouth	
						332	qualifications/authentication/ Accreditation
						401	accelerate manufacturing base deploy world distribution channel
			product core competency		334	product core competency	
			service capability		335	service capability	

		marketing capabilities	market development capability	336	market development capability
		information process and responsiveness ability	market analysis capability	337	market analysis capability
			responsiveness to change	338	market response
		autonomous innovation capabilities	technology innovation and R&D capability	339	R&D capabilities
					autonomous R&D capabilities
					technology innovation capability
					autonomous technology innovation capability
			product design and development capability	340	product design capabilities
					product development capabilities
		technological dynamic capability	market responsiveness R&D capability	341	synchronous R&D capabilities with the customer R&D
			benchmark peer group responsiveness R&D capability	342	synchronous R&D and standardization capabilities with the developed economy peer group
		technology resource	core/key technology and process	343	international forefront of technology
					breakthrough of the core technology and capabilities
			product development technology	344	product development technology breakthrough
			technology path of process equipment	345	technological path of processing equipment R&D and manufacturing
			patents	346	patents
		infrastructure of	technology innovation mechanism	347	technology innovation mechanism

		technology capability	innovation application mechanism	348	innovation massive application mechanism
			process control mechanism	349	quality control system
			product test and evaluation system	350	product test capability and evaluation system
			enterprise-university-institute binding mechanism	351	postdoctoral programme
		physical capital resources	R&D and laboratory centre	352	R&D centre
					R&D platform
					national level technology centre and laboratory
			firm plant and equipment	353	firm plant and equipment
		working environment	354	good employee working environment	
		systematic manufacturing capability	core manufacturing capabilities	355	core manufacturing capabilities
			business group manufacturing capabilities		356
		core manufacturing capabilities	process capability	357	process capability
			Improvement ability	358	Improvement ability
			Innovation ability	359	Innovation ability
			Integration ability	360	Integration ability
			Acuity ability	361	Acuity ability
			Agility ability	362	Agility ability
Control ability	363		Control ability		
Responsiveness ability	364		Responsiveness ability		
	institutional capital	365	government support		

		institutional capital			social responsibility reputation
		relational capital	relational capital	373	customer loyalty
					interdependent relations with major players in customer industry
	organizational intangible resources	knowledge capital	accumulated experience know how	366	articulate customer/market knowledge
					articulate international M&A and management knowledge
					articulate technology transformation experience
					longer history/experience in the market
			innovative idea	367	innovative marketing philosophy
					innovative marketing mode
			information capital	368	information capital
		people	people	369	technology R&D team
					talent pool
					dynamic team
		managerial capabilities	general managerial capability/efficiency	370	managerial capability/efficiency
			strategy enforcement capability	371	executive efficiency
					resource configuration capability
	organizing capability				
			cost control capability		
	functional-level management capabilities		372	R&D management ability	
				project management ability	
				human resource management ability	
				internal supply capabilities	
		risk management capability			
	culture	culture	374	culture	

		leadership	leadership	375	leadership	
		alignment	alignment	376	alignment	
		teamwork	teamwork	377	teamwork	
		organisational routines	organisational routines	378	organisational routines	
performance	firm operation performance	firm moderate performance /stability	firm moderate performance /stability	379	stable production and operations	
					healthy and stable development	
					stable and rapid development	
					sustainable development	
					risk under control	
		firm growth	380	rapid growth and development		
			new stage of firm development			
		firm operation performance	405	firm operation performance		
	firm strategy performance	business portfolio performance	business enhance	business enhance	381	primary business consolidation
						overall strength improvement
						market competency improvement
		business expand	business expand	382	scale development	
					growth of exporting business	
					growth of external market sale	
		business extend	383	new source of profit growth		
market competency		brand equity improvement	brand equity improvement	384	increased internal market brand awareness	
					increased international market brand influence	
	product and service value improvement	product and service value improvement	385	service improvement		
				better product and service		
cost reduction	386	cost reduction				

		distribution channel expand	387	market coverage rate		
stakeholder-related performance		customer satisfaction	388	customer satisfaction		
		government strategy plan implementation synchronization	389	government strategy plan implementation synchronization		
		friendly firm development environment	390	friendly firm development environment		
functional level performance		manufacturing performance	391	efficient production system		
				quality stability		
		R&D and innovation performance	392	technology leadership		
				breach technology blockage		
				processing equipment R&D and manufacturing		
		marketing performance			393	domestic market share
						international market share
product competency improvement						
market position						
ultimate performance		ultimate performance	394	super profit		
				economic benefit		
				financial/accounting performance		

Appendix V Environment domain clustering in the perception aspect of sensemaking (Past discussion)

Environment domain	C#	Environment description
Macro level		
Global political, economic context uncertainty	1	global crude oil price rise
		international trade protectionism
		Europe debit crisis
		global economic recession
		US quantitative easing
		global political, economic environment uncertainty
Divergent global regional market	2	emerging economy development
		domestic consumption economic development
		crisis in developed economy
Complex domestic economic environment	3	complex domestic economic environment
		RMB appreciation
		inflation
Complex domestic factor market	4	energy price increase
		labour cost increase
		raw material price increase
government economic strategy transition	5	domestic government urbanization implementation
		government encourage energy conservation
		domestic government drop GDP goal
		government economic development mode transit
government macro-economic intervention	6	domestic government contractionary monetary policy
		domestic government macroeconomic regulation and control
government industry intervention	7	domestic government support auto industry
		government encourage new energy auto development
		domestic government auto industry subsidy incentive policy fade out
government legal and administrative regulation	8	local government constrain auto purchasing to manage traffic jam
		environment protection policy implementation
Industry level		
global supply chain change	9	global auto industry recovery
		global auto MNEs transfer to domestic market
		global auto MNEs global sourcing
		international customer market performance drop
domestic supply chain change	10	domestic auto industry upgrading
		auto industry environment-friendly transition
		domestic auto industry growth decline
		domestic customer performance drop
		auto industry firms price competition strategy
industry technology transition	11	industry new technology development
		domestic firm core technology and capability improvement
Increasing market competition	12	increasing domestic market competition
		FOE competitive advantage
		POE competitive advantage

		FOE M&A competition strategy
		MNEs new technology scale implementation in global market
		international market competition
Firm level		
Resource and capability deficiency for firm growth speed	13	rapid growth of firm scale-deficient managerial capability and human resource
Resource deficiency for firm product portfolio change	14	growth of high-end product scale –deficient human resource

Appendix VI Environment-outcome-(impact) linkage clustering and interpretation categorizing (past discussion)

Environment element	Outcome	Impact to firm (interpretation category)
O: Positive-gain		
emerging economy development	positive impact on international market capacity increase	Market resource gain (15)
global auto industry recovery		
global auto MNEs transfer to domestic market	positive impact on domestic market capacity	
global auto MNEs global sourcing		
domestic government support auto industry		
domestic government urbanization implementation		
domestic consumption economic development		
domestic auto industry upgrading		
auto industry environment-friendly transition		
crisis in developed economy	international M&A opportunity	
O-control enhancing		
government encourage energy conservation	firm product upgrading opportunity	Certain-predictable external environment (16)
government encourage new energy auto development		
industry new technology development		
domestic firm core technology and capability improvement	reduced technology gap with FOEs	
T: Negative-loss		
domestic government contractionary monetary policy	negative impact on domestic market capacity	Market resource loss (17)
domestic government macroeconomic regulation and control		
domestic government drop GDP goal		
domestic government auto industry subsidy incentive policy fade out		

local government constrain auto purchasing to manage traffic jam		
global crude oil price rise		
domestic auto industry growth decline		
domestic auto industry upgrading		
increasing domestic market competition	domestic market share	
FOEs competitive advantage	high-end market competition increase: technology , management and deployment competition	
POEs competitive advantage	mid-market and lower market competition increase: price, technology, equipment, institution flexibility, and deployment competition	
FOE M&A competition strategy	manufacturing competency advantage of FOEs:	
MNEs new technology scale implementation in global market	technology competency, quality competency, capacity competency, management competency	
international market competition		
domestic auto industry upgrading-scale development mode transit to core technology accumulation and high-quality product mode	domestic auto industry upgrading	
auto industry environment-friendly transition		
international trade protectism		Economic loss (18)
Europe debt crisis		
global economic recession		
The US quantitative easing		
global crude oil price rise	auto industry production decline	

RMB appreciation		
inflation		
domestic government contractionary monetary policy		
government environment protection policy implementation		
local government constrain auto purchasing to control traffic jam		
domestic government drop GDP goal		
international customer market performance drop		
domestic auto industry growth decline		
domestic customer performance drop		
auto industry firm price competition strategy		
energy price increase		
labour cost increase		
raw material price increase		
increasing domestic market competition		
T-Control reducing threat		
government economic development mode transit	industry upgrading trend: technology capability upgrade, cost efficiency	coercive-increasing external controlling (19)
government environment protection policy implementation		
rapid growth of firm scale-deficient managerial capability and human resource	necessity for managerial capability expansion, human resource deficiency	impeding -less controllable internal environment (20)
growth of high-end product scale –deficient human resource	human resource deficiency	
global political, economic environment uncertainty		ambiguous-less predictable external environment (21)
complex domestic economic environment		

Appendix VII Basic level action concept clustering for solution aspects of sensemaking (past discussion)

Movement extent	Main strategy content	Strategy content	Higher level concept	C#	Basic level concept	C#
enhance (construct)	resource and capability	firm resources	platform resource	1	e-commerce	261
					management information system	262
					construct financing platform	283
					R&D and laboratory centre	352
					knowledge management system	408
			human resource	3	TMT construction	297
					improve human resource quality	162
					training	304
					improve employment stability	303
					talents cultivation	299
					construct effective performance evaluation system	318
					technology/talents team construct	300
					reduce employee and improve efficiency	303
			public relations	96	proactively following government laws and regulations	273
					organize industry symposium	275
					proactively communicate with government	275

					market activity to promote firm brand awareness	231
					proactively communicate with holding company	276
		firm capability	technology capability (general R&D and innovation)	4	autonomous technology innovation ability (自主创新能力)	130
					Innovation-driven	125
					technology and innovation driven	167
					increase technology expenditure	154
					experiential learning	268
					accelerate R&D and innovation	155
					accelerate technology breakthrough	155
					accelerate technology reserve	240
					autonomous R&D	236
					manufacturing capability (Process, improvement, innovation, integration, acuity, agility, control, responsiveness, capacity)	89
			process improvement	248		
			production efficiency action	247		
			improve process capability	248		
		improve core manufacturing capabilities	248			
		construct flexible manufacturing system	250			
		construct cleaner production	250			
		processing equipment R&D and application	239			
		substitute material R&D	358			

					quality management system construct and normalization	249	
					improve capacity utilization	235	
				information analysis capability	6	industry evolving analysis	266
						important customer R&D trend analysis	266
						improve market forecast accuracy	163
						competitor tactics analysis	266
						learn from firm international trade experience	268
						improve predictive ability	264
						improve risk precaution ability	264
						policy analysis	265
					managerial capability	7	improve managerial capabilities/efficiency
						risk management	156
						promote management innovation	159
						technology management ability	159
				finance management ability	9	satisfy financial needs with firm rapid development	160
						improve financial management ability	287
						improve financial operation efficiency	287
				financing capability	10	improve capital operating capability	330
						marketization of firm capital	281
					11	construct/improve core competency	132

			autonomous development capabilities (general relative to technology ability)		improve sustainable development capability	166		
					autonomous development	134		
	competition focus	product and service		12	customer value creation	152		
						morality driven product value	168	
						focus on key components product	227	
						improve product cost efficiency	211	
						improve service quality	206	
		market resource	customer resource		13	customer relationship management	215	
							enhance customer relationship	127
			market power		14	maintain market share	225	
			brand resource			15	brand construct /promotiong	218
								anti-counterfeit and shoddy products action
		industry/market deployment			16	distribution channel construction	224	
							construct and complete industry/market deployment	223
		firm boundary	geographical boundary focus (domestic expand)		95	set up regional branches	189	
							geographical expansion with customer	219
							speed up domestic project construction	161
	ownership boundary (derivative)		17	set up branch	189			
					establish wholly owned subsidiaries	189		

			industry boundary (focus)	18	focus on primary business	181
					business enhance	225
					expand main business scale	319
	institution	formal	corporate governance	20	improve corporate governance	319
			organization structure and process	19	normalize R&D process	241
					enhance and detailing organization process	293
					technology innovation mechanism construction and implement	241
					managerial institution construction	159
					R&D platform and mechanism construction	241
			supply chain management	21	supplier management mode construction and improvement	252
					improve supplier management	252
					improve inventory management	255
					improve enterprise resource planning(ERP)	263
					enhance distribution channel governance	252
					supply chain construction	260
					supply chain efficiency	151
					supplier training	409
					supply chain efficiency	151
					improve supplier management	252
			improve logistic efficiency	255		

				construct international logistics capability	255	
			human resource management	22	compensation and incentive mechanism construction	288
					human resource governance mechanism construction	289
					human resource configuration mechanism construction	290
					human resource cultivation mechanism construction	291
					improve employee salary and welfare	305
			strategy implementation control	23	enhance strategy implementation control mechanism	308
					enhance strategy enforcement capability	161
					enhance contract management	277
					enhance project management and control	277
			internal control	24	internal control mechanism construction and normalization	316
			investment control	25	investment control institution construction	280
			financial operation management	26	account receivable management improvement	285
					customer credit management improvement	285
					total budget management improvement	285
					optimize capital structure	285
			Operation and investment norm	27	enhance cost management/operation efficiency	308
					improve operation efficiency	287
					focus on investment efficiency	278
					improve enterprise economic benefit	144

		informal	informal organization construction	28	construction internal stakeholder representative committee	315
			Organization perception management	29	management team perception management	314
					organizational culture cultivate activity	313
					transparent management	295
					employee involvement in function-level strategy making	294
					construct learning organization	312
					improve organization alignment	313
					democratic decision-making mechanism construction	296
					enrich employee's spare time recreational activity	306
			humanity management style	30	help and support employees with difficulty	307
					placement of redundant employees	307
			strategy orientation (moderate)	31	focus on investment efficiency	278
					economic benefit-driven investment	278
					domestic standardization strategy	187
					risk control-driven investment	279
Synergize (adjust, integrate)	resource and capability	firm resources	technology resource	32	R&D resource integration	242
			business group resources	33	optimum of group resource and capability	325
					business group R&D Synergize	73
					business group resources integration	74

			supply chain	34	supplier optimization and integration	254
					synergic procurement	256
					enhance cooperation model oriented supply chain management	408
			human resource	35	optimum of human resource structure	303
					construct external technical talent pool	298
					adjust executive structure	310
			finance/assets resource	88	optimize financing/capital structure	284
					enhance group financial resource configuration efficiency	74
			firm capability	configuration capability	36	complementary strategy-complementary capabilities across acquired/merged business units
		enhance value chain resource configuration capability				259
		improve integration ability				157
		technology capability (cooperation)	90	internal R&D resource and capability integration	242	
				R&D cooperation with domestic research institute	242	
				R&D cooperation with oversea institute	242	
				horizontal cooperative innovation	242	
		manufacturing capability	8	match capacity and market needs	235	
				improve capacity utilization	235	
				process integration innovation	239	
		competition focus	product and service	37	adjust/optimize product structure	210
			customer resource	38	customer structure adjustment/optimize	213

		market resource			focus on middle and high-end market /customer	213	
						increase strategic customer sale	213
			industry/market deployment	91	adjust industry/market deployment /structure	223	
		firm boundary	ownership boundary	39	divest main business-irrelevant firm share	116	
			industry boundary		40	optimize and balance business mix	177
						business integration	177
						industry alliance	200
						construct corporative ties/agreement	190
	institution	formal	internal control system	41	adjust internal control system	317	
			organization structure and process		42	adjust organizational structure	309
						reduce management layers	309
						optimize management process	311
						outsourcing	258
			business group governance and management		43	update business group management system	323
					adjust internal control system of newly incorporated firm	76	
			supply chain management	87	optimize logistics system	255	
			informal	strategy orientation (synchronize with internal market)	44	synchronize with business group strategy	143
						synchronize with customer strategy	126
						business group strategy integration	62

expand (boundary)	resource and capability	firm resources	financial resources	45	private placement	282
					financing expand strategy	283
			human resource attracting	46	talents attracting strategy	302
					talents absorb	298
					expand R&D team	236
		supply chain	47	supplier development	253	
		firm capability	manufacturing capability (scale)	48	expand manufacturing capacity	233
					general scale development action	404
			technology capability (interactive and responsive)	49	technology path choice	245
					new technology research and application	238
					new industry innovation capability construction	243
					manufacturing cost considered R&D	244
					market-driven R&D action	243
			synchronous technological capability with customer	129		
	finance ability	50	marketization of firm capital	281		
	Cross-border operation capability	51	anti-dumping barrier coping action	270		
	competition focus	product and service	52	product expand	221	
				new technology and process technique product development	209	
				accelerate new product R&D	207	
			customer resource	53	customer developing	212

		market resource			market development	219	
					increase marketing expenditure	230	
			market power	54	expand market share	393	
					expand market coverage rate	387	
			industry/market deployment	93	accelerate manufacturing base deploy	401	
					construct and complete oversea industry/market deployment	223	
					new channels of distribution	224	
			firm boundary	geographical boundary (international expand)	55	global presence	182
						accelerate cross-region project construction rate	234
		98			oversea market development/expansion	219	
		ownership boundary (joint share)		56	joint stock	189	
					technology and management share in joint venture	189	
					joint venture	189	
		industry boundary (expand within the related industry)	57	consolidation strategy	176		
		institution	formal	supply chain management (whole value chain)	58	whole value chain cost management	257
						whole value chain analysis	267
			informal	strategy orientation (responsive, adaptive to external market)	59	domestic adaption strategy	188
synchronize with customer industry development trend	126						
flexible marketing strategy	205						

					localization strategy	184
					market response oriented	338
					supply chain position objective-system supplier	137
					supply chain position objective-integrate into global supply chain	137
					firm adaptive management mode construct	271
					market-driven R&D action	243
					environment-responsiveness manufacturing	250
extend (boundary)	resource and capability	firm capability	technology capability (beyond current boundary)	60	substitute material R&D	246
					equipment and model R&D	246
					basic research capabilities construction/focus on basic research	237
	competition focus	product and service		61	market segment expansion	220
					brand expand	402
					diversification strategic action	226
					Become system supplier	164
		firm boundary	ownership boundary	62	M&A	189
					accelerate capital operation	281
		institution	informal	strategy orientation (proactively change environment)	64	industry competition rule-maker oriented
promote domestic industry technology upgrading	138					
technology R&D leadership	129					

transform	resource and capability	firm capability	technology capability	65	technical renovation and updating	204	
					increase higher-end product technology reserve	240	
			manufacturing capability	100	process substitute/upgrade	248	
	competition focus	product and service			66	product value upgrade	208
						accelerate high-end product development	208
						Product structure upgrade	210
						product upgrade	203
	institution	formal	organization structure and process		67	reform and restructuring	324
							promote management innovation
			corporate governance		68	corporate governance reform	318
			business group governance		97	business group control mode transform	117
			human resource management		69	update human resource management institution	292
		informal	strategic mind-set (revise)		70	strategic mind-set revise/updating	327
			strategy orientation (transition)		71	find the new source of profit growth	201
						accelerate strategy transition	165
				transform the growth and development mode	202		

Appendix IX Aggregated adjacency matrix

SOE group

	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		
1	0	0	0. 01 36 61	0. 04 91 8	0	0	0. 00 54 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0. 00 40 98	0	0	0. 00 27 32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0. 02 86 89	0	0	0. 00 54 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0. 03 96 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0. 00 40 98	0	0. 01 36 61	0. 01 36 61	0. 00 27 32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0. 02 73 22	0. 01 91 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0. 00 40 98	0	0. 01 36 61	0. 00 54 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0. 02 73 22	0. 02 32 24	0. 00 27 32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0. 00	0	0	0. 01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

POE group

	1	15	16	17	18	19	20	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	45	46	47	48	50
1	0	0	0	0.014228	0.050813	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0.010163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0.03252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0.04878	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0.00813	0.002033	0.014228	0.01626	0.004065	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0.028455	0.01626	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0.00813	0.002033	0.014228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0.014228	0.03252	0.004065	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0.018293	0	0	0.01626	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0.028455	0.04878	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix X Congruent-variant cognition representation

1. Aggregated adjacency matrix

Congruent core map

	17	18	22	23	24	25	27	30	32	33	34	39	40	41	42	50
1	0.02788 9	0.09999 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0.06120 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0.08839 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0.02788 9	0.02992 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0.05577 8	0.03538 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0.04155	0.05574 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0.03265 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0.05577 8	0.08566 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0.03398 6	0.02515 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0.02585 6	0.02115 8	0.01432 8	0.04218 3	0.02519	0.02315 7	0.03202 1	0.01499 4	0.01769 3	0.02179 1	0.01496 1	0.00746 4	0.04015 1	0.01156 2
18	0	0	0.02315 7	0.02112 5	0.00613 1	0.03945 1	0.01769 3	0.01839 3	0.03332	0.00953	0.01022 9	0.01905 9	0.01019 6	0.00953	0.02788 9	0.01289 5

Congruent peripheral map

	15	19	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	45	46	47	48	50	
1	0	0	0.0 11 56 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0.0 14 26 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0.0 13 59 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	0.0 12 22 8	0.0 06 79 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	0.0 12 22 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	0	0.0 06 79 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	0.0 26 48 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15				0.0 11 52 9	0.0 03 39 9	0.0 03 39 9	0.0 16 29 3	0	0.0 05 43 1	0.0 02 03 3	0.0 01 36 6	0.0 08 13	0.0 03 39 9	0.0 14 26 1	0	0.0 04 76 5	0.0 03 39 9	0	0.0 01 36 6	0.0 02 03 3	0.0 10 86 2	0.0 10 86 2	0.0 02 03 3	0.0 06 09 8	0.0 01 36 6	0.0 02 03 3	0.0 02 03 3	0.0 03 39 9	0.0 02 03 3	0.0 08 83
19				0.0 01 36 6	0.0 01 36 6	0.0 01 36 6	0.0 04 76 5	0.0 02 03 3	0.0 01 36 6	0	0.0 01 36 6	0.0 01 36 6	0	0.0 02 73 2	0.0 02 73 2	0	0.0 01 36 6	0	0.0 01 36 6	0.0 02 73 2	0	0.0 02 03 3	0.0 02 03 3	0.0 01 36 6	0.0 01 36 6	0.0 02 03 3	0.0 02 03 3	0.0 01 36 6	0.0 01 36 6	
21				0.0 08 83	0.0 09 53	0.0 04 76 5	0.0 10 19 6	0	0.0 19 06 6	0.0 03 39 9	0.0 01 36 6	0.0 06 13 1	0.0 03 39 9	0.0 10 89 6	0.0 02 73 2	0.0 01 36 6	0.0 06 13 1	0.0 01 36 6	0.0 01 36 6	0.0 03 39 9	0.0 04 76 5	0.0 03 39 9	0.0 05 43 1	0.0 02 13 5	0.0 01 36 6	0.0 02 03 3	0.0 02 03 3	0.0 06 13 1	0.0 01 36 6	0.0 03 39 9

Idiosyncratic map (POEs)

	16	20	22	23	24	25	27	28	30	32	38	39	40	41	42	43	50
5	0.00203 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0.00203 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 1	0.00406 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 3	0	0.00406 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 4	0	0.00406 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 6	0	0	0.00406 5	0	0	0.00406 5	0.00203 3	0.00203 3	0.00406 5	0.00406 5	0.00203 3	0.00406 5	0.00406 5	0.00203 3	0.00203 3	0	0.00203 3
2 0	0	0	0.00203 3	0.00203 3	0.00203 3	0	0.00203 3	0	0	0				0	0.00203 3	0.00203 3	0

2. Ranking of aggregated linkage strength

(1) Congruent core map

Environment category node	Strength	Ranking	Solution	Strength	Ranking
10	0.141443	1	comprehensive upgrade internal competency	0.262095	1
1	0.127882	2	comprehensive upgrade firm boundary	0.105424	2
8	0.097294	3	comprehensive upgrade external competency	0.098727	3
6	0.091164	4	Consolidate external competency	0.087865	4
4	0.088398	5	Consolidate formal institution	0.068039	5
3	0.061209	6	comprehensive upgrade informal institution	0.030621	6
12	0.059143	7	Upgrade informal institution	0.011562	7
5	0.05781	8	Synchronize informal institution	0.00953	8
9	0.032654	9			
7	0.027889	10			
11	0.006131	11			

(2) Congruent peripheral map

Environment category node	Strength	Ranking	Solution category node	Strength	Ranking
9	0.026489	1	comprehensive upgrade internal competency	0.046915	1
5	0.019026	2	Consolidate internal competency	0.039384	2
2	0.014261	3	Consolidate external competency	0.04285	3
3	0.013595	4	Consolidate firm boundary	0.021725	4
7	0.012228	5	comprehensive upgrade firm boundary	0.016993	5
1	0.011562	6	Consolidate formal institution	0.013595	6
8	0.006797	7	Synchronize external competency	0.00953	7
			Upgrade informal institution	0.00883	8
			Synchronize informal institution	0.006797	9
			Consolidate informal institution	0.006131	10
			Synchronize internal competency	0.005431	11

(3) Idiosyncratic causal map (POE)

Environment category node	Strength	Ranking	Solution	Strength	Ranking
11	0.004065	1	comprehensive upgrade internal competency	0.012195	1
13	0.004065	2	comprehensive upgrade firm boundary	0.012195	2
14	0.004065	3	Consolidate external competency	0.00813	3
5	0.002033	4	Consolidate internal competency	0.006098	4
7	0.002033	5	Consolidate formal institution	0.006098	5
			Synchronize internal competency	0.002033	6
			Upgrade informal institution	0.002033	7

Appendix XI Abstract solution category configuration into higher level category scheme

Movement extent \ Strategy content	Resource	Capability	Product and service	Market resource	Firm boundary	Formal institution	Informal institution
	Internal competency		External competency				
Enhance	(51) Consolidate internal competency	(51) Consolidate internal competency	(55) consolidate external competency	(55) Consolidate external competency	(59) Consolidate firm boundary	(62) Consolidate formal institution	(65) Consolidate informal institution
Synergize		(52) Synchronize internal competency	(56) Synchronize external competency		(60) Upgrade firm boundary		(66) Synchronize informal institution
Expand		N/A	(53) Upgrade internal competency		(57) Upgrade external competency		N/A
Extend	N/A	(53) Upgrade internal competency	(57) Upgrade external competency	N/A	N/A	(63) upgrade formal institution	(67) Upgrade informal institution
Transform	N/A			N/A			
If all possible movement extent included	(54) Comprehensively upgrade Internal competency		(58) Comprehensively upgrade external competency		(61) Comprehensively upgrade Firm boundary	(64) Comprehensively upgrade Formal institution	(68) Comprehensively upgrade informal institution

Appendix XII Detached strategic cognitive map based on coreness of sensemaking aspects

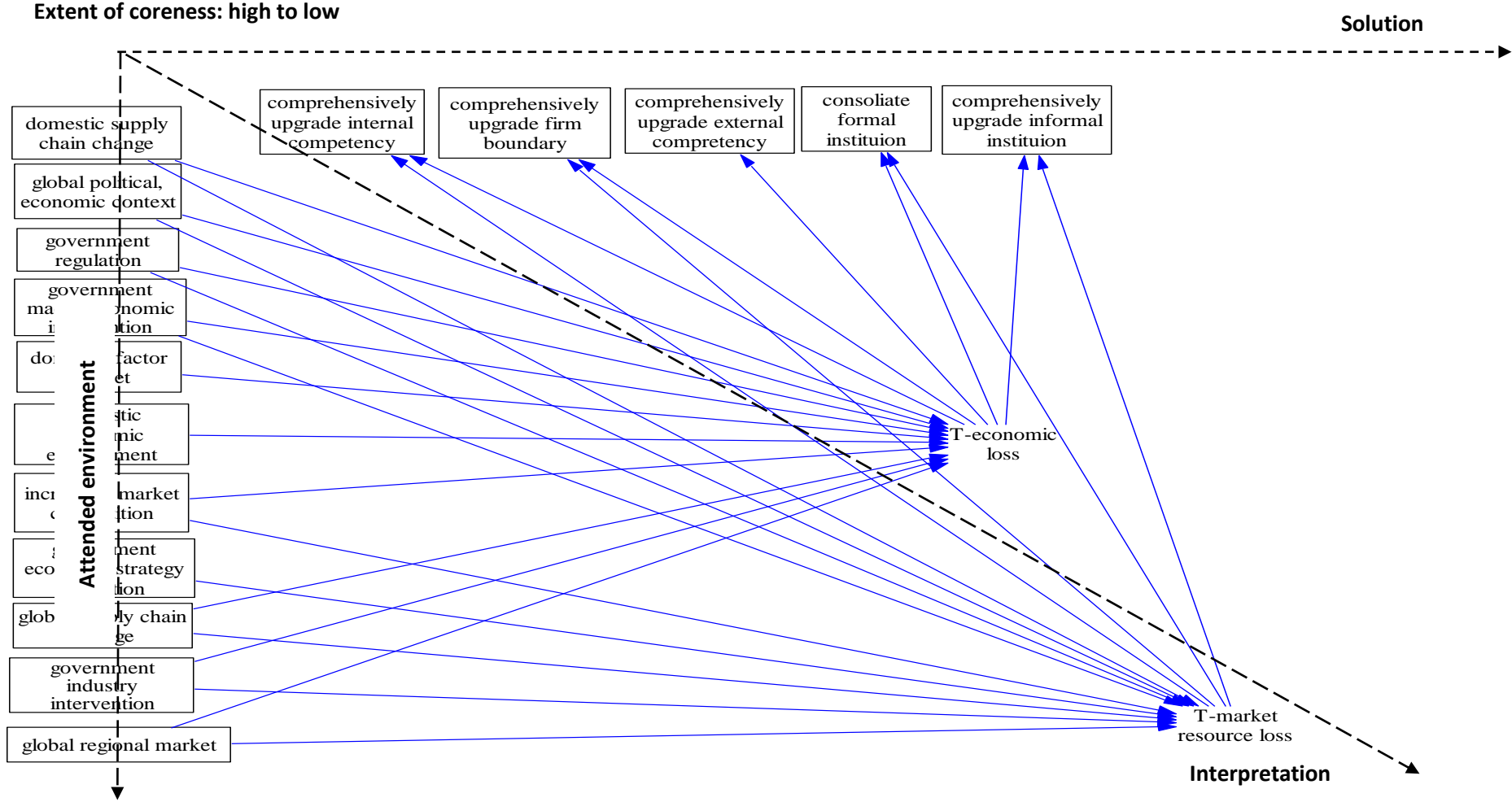


Figure 1. Core congruent causal understanding summary

Extent of coreness: high to low

Solution

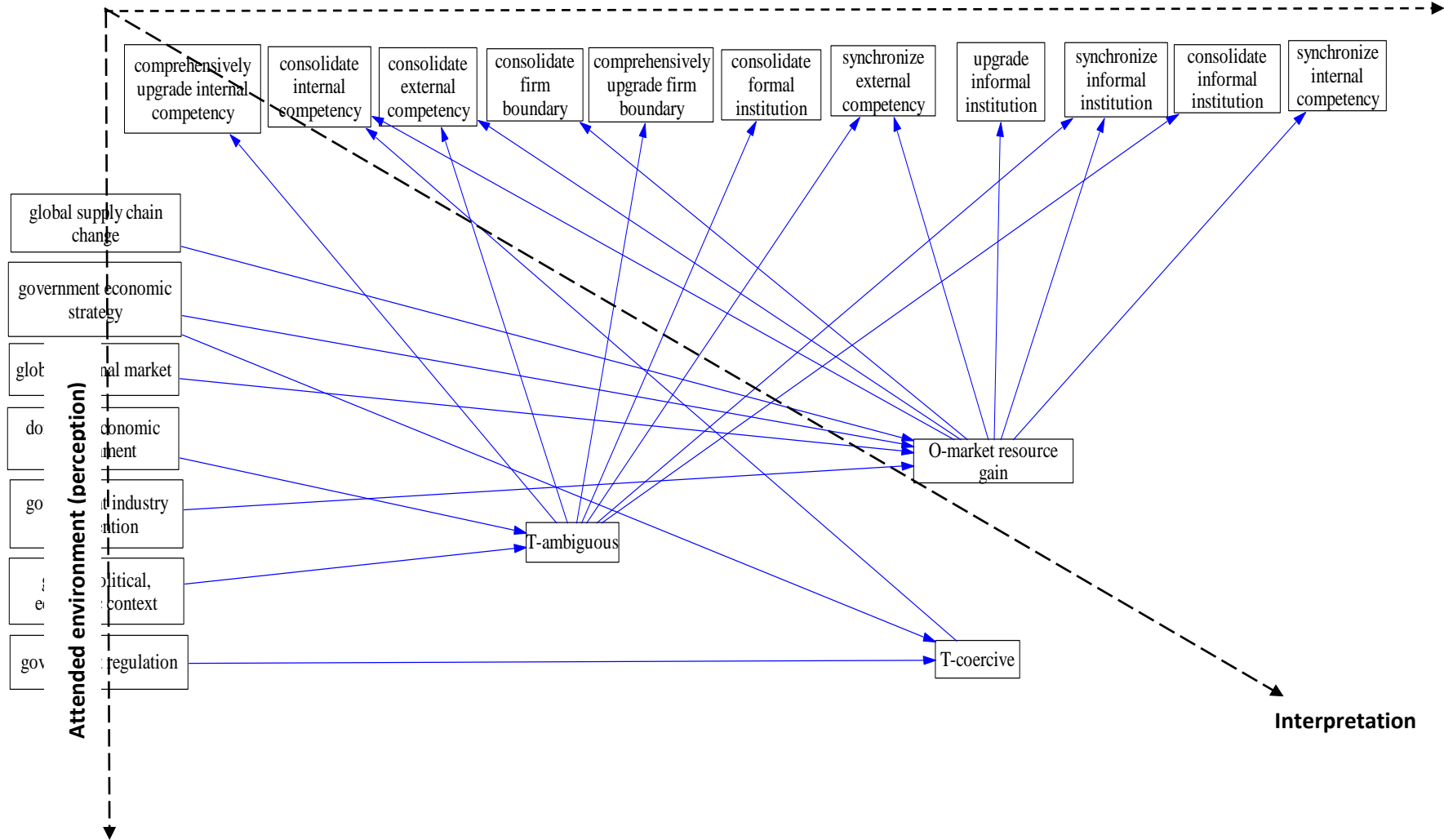


Figure 2. Peripheral congruent causal understanding summary

Extent of coreness: high to low

Solution

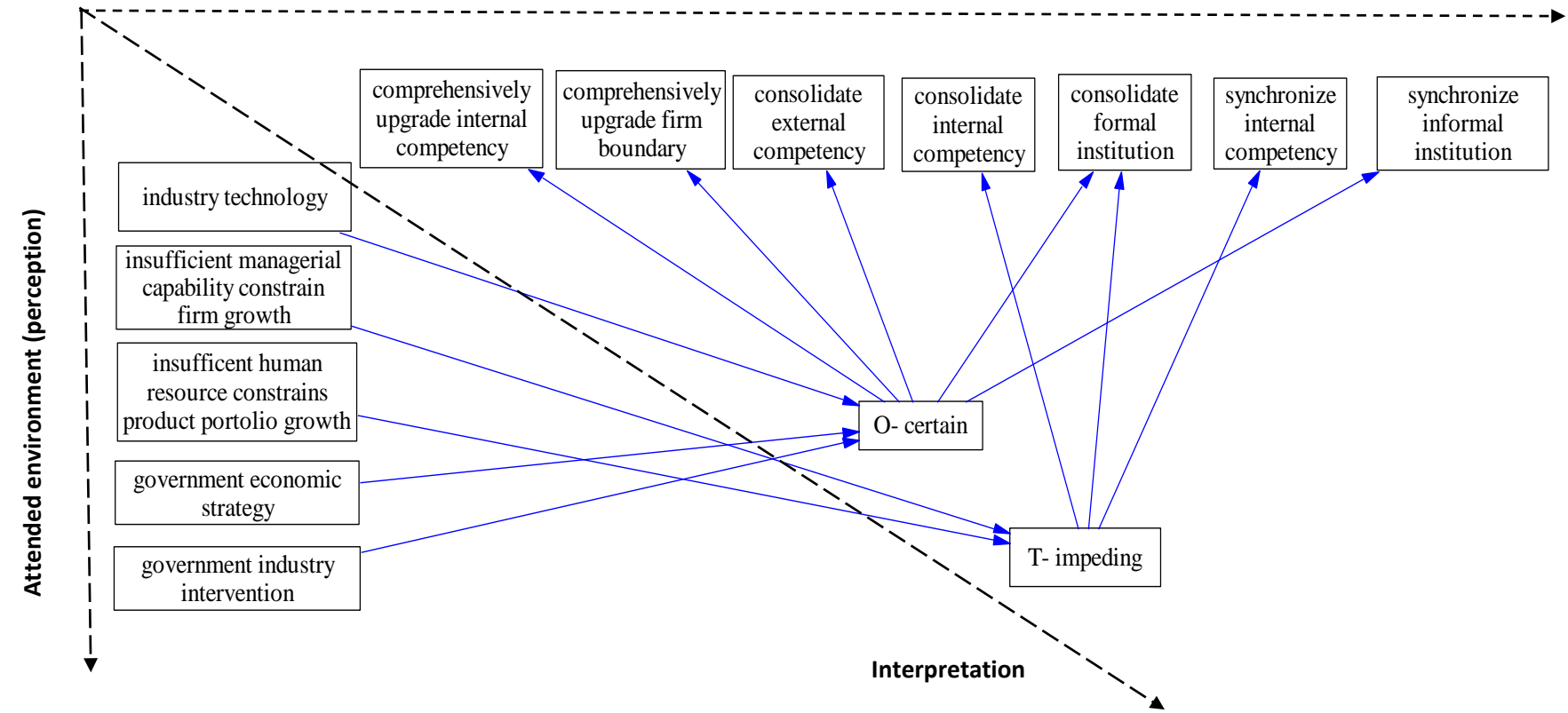


Figure 3. Peripheral idiosyncratic causal understanding summary-POEs

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