## Firm Survival and Innovation in Emerging Markets

Yang, C.

2020

***document version***
Publisher's PDF, also known as Version of record

# Chapter 1

# Introduction

Emerging markets have become increasingly integrated into the development of the global innovative economy. Under such conditions, how firms survive and innovate has attracted an increasing attention in innovation academia as well as in business practice. Generally, the successful innovators in emerging markets are those that can properly mobilize their internal resources and can appropriately manage their external environments. Although scholars have recognized the value of an internal-external lens for unpacking the why's and how's of firms being successful and competitive, knowledge that is based on empirical evidence of internal-external determinants of firm survival and innovation in emerging markets is still limited and inconsistent. Using China as the research context, this dissertation is designed to deepen the understandings of the influence mechanisms by which organizational internal assets and external environments contribute to firm survival and innovation.

## 1.1 Contextualizing the study

### 1.1.1 Institutional transition and firms' strategic responses in China

Since 1978, Chinese governments at all levels conduct a series of pro-market reforms that lead to an institutional transition by which the country transforms from a state-planned economy to a more market-driven economy. As reforms develop, Chinese governments gradually retreat from market interventions, and the market rules steadily govern business transactions (Fan et al., 2016; Peng, 2003). Generally, China's pro-market reform is characterized by gradualism and experimentalism, which may be divided into three stages (Cai, 2018; Gao, 2018). Stage I (1978-1992) concentrated on smashing the institutional bonds of a planned economy, introducing private enterprises, and building a planned commodity economy; Stage II (1992-2002) focused on the reform of state-owned enterprises aiming to introduce modern corporate system; additionally, non-public sectors became an important component of the economy and the socialist market economic system had been preliminarily established; Stage III (2002-present) concentrates on the improvement of the market economic system and transforming to a high-quality, innovation, and sustainable economic system. These reforms play a crucial role in stimulating and sustaining highly rapid growth of China's economy.

After 30 years of high-speed development, however, the growth of the Chinese economy is weakening due to a lack of indigenous innovation and technology (Vinig and Bossink, 2015). To achieve high-quality development, the government increasingly concentrates on reforms that aim to provide legal, market, and social supports for firm innovation (Mahmood and Rufin, 2005; Yi et al., 2017). Accompanying with such innovation-oriented reforms, China, one of the most important emerging economies in the world, gradually moves towards a more innovation-oriented and technology-driven economy. As a result, the market and institutional environments that firms are used to are changing, which challenge the given routines for firms' survival as well as innovation and compel firms to respond simultaneously.

First, the market becomes more competitive. During the economic and institutional reforms, governments withdraw their role of market participation with expected steps. For example, finance and telecommunication sectors that were exclusively monopolized by state-owned enterprises (SOEs) are steadily opened to private and foreign participants. The entry of a huge number of heterogeneous agents leads to an increasingly competitive environment (Hermelo and Vassolo, 2010). To survive and compete in such environments, firms have to change their strategies. Generally, firms' strategic responses are to heavily focus on how to build internal capabilities and how to deal with external uncertainties (Gao et al., 2017; Tripsas, 1997; Yi et al., 2017). In other words, the increasing competition propels firms to invest more in prospective technologies and in new product development that can improve their market competitive positions, and compels firms to interact with outside agents that help them to manage environmental turbulence, uncertainty, and risk.

Second, business-government interactions become diverse and complicated. Before 1978, almost all Chinese firms were affiliated with and controlled by multiple levels of the government (Tan et al., 2007). A firm operated as a tiny component of the national production system which was designed, controlled, and coordinated by the government. In other words, firms' producing activities should comply with the governments' orders, plans, and coordination. Such a scenario has been changed since the reform began in 1978. That is, the governments have gradually withdrawn their market interventions after 1978, and the introduction of market power compelled firms to compete for resources in the market. However, the government still designs and implements the reforms, particularly the government still plays an important role in distributing crucial economic resources such as land and financial capital (Ding et al., 2018). Considering this situation, all types of Chinese firms are likely to develop, build, and maintain all kinds of connections with various levels of governments, to acquire governmental resources, to obtain policy favors, and to secure firms' advantages (Arnoldi and Villadsen, 2015; Li et al., 2018). That is, various kinds of

political connections (e.g., manager—officials' personal relationship, state-owned shareholdings, and government affiliations) are key channels through which firms can better adapt to the changing circumstances that are often induced by the government's reforms.

Third, institutional reforms often induce institutional voids and uncertainties. Generally, market institutions cannot be established in one day. On the one hand, the 'institutional voids' emerge when the market-supporting institutions are absent or limited (Khanna and Palepu, 1997; Peng, 2003). For instance, the intellectual property protections are often weak, incomplete, and ineffective during the early stage of reforms. Such inadequate law environments lead to high costs of patent application and protection, which discourages firms' investment in new technology development. On the other hand, the institutional uncertainty and turbulence arise when old regulations suddenly evaporate and new ones enter the stage at a high pace (Banalieva et al., 2015; Shi et al., 2017). For instance, when SOEs suddenly withdraw from a market, private firms are immediately exposed to a huge market void. To occupy this 'new' market, private firms should quickly learn how to spot and grasp potential market opportunities, and how to innovate, compete, and survive in the new environment, otherwise they would be crowed out (Chan et al., 2008; Zhou, 2017). Therefore, under transitional conditions, institutional voids and external uncertainties exert new constraints and (un)expected pressures on firms' short-term market response as well as long-term strategic investments.

All in all, pro-market reforms and institutional transition dominate the current Chinese economy. In this transitional setting, firm survival and innovation confront fresh opportunities as well as new challenges that are induced by the changing market environment. To better understand the influence, existing innovation literature has been increasingly focusing on exploring what and how the unique factors drive firms' survival chances and innovation propensity in transitional China (e.g., Li et al., 2017; Peng and Luo, 2000; Peng et al., 2008). However, extant studies are far away from providing a thorough understanding of firm survival and innovation in China, which is undergoing a series of institutional reforms. This dissertation, building on the context of China's ongoing institutional reforms and institutional transition, draws ideas from classical management theories, such as resource-based view of the firm (RBV) (e.g., Barney, 1991; Barney and Arikan, 2001), institutional-based view of business strategy (IBV) (e.g., Peng et al., 2009), and resource dependence theory (RDT) (e.g., Pfeffer and Salancik, 1978), to extend and deepen the knowledge of how unique determinants influence firms' survival and innovation in transitional China.

### 1.1.2 Lessons from prior research

*Drivers of firm survival in China*

In previous studies, scholars generally investigate the determinants of firm survival through two distinguished dimensions: an external perspective and an internal perspective. The former, which focuses on the drivers outside the organizational boundary, stresses the influence of industry- and market-level factors on firm survival. In this research trend, scholars have accumulated an immense body of knowledge on the external factors that determine firms' survival chances in developed countries as well as in emerging markets like China. Such factors include competitive density (e.g., Franco et al., 2009), industrial concentration (e.g., Georoski et al., 2010), industry change (e.g., Mata and Portugal, 2002), and technology areas (e.g., Giovannetti et al., 2011). At the internal level, scholars argue that firm characteristics and internal resources largely contribute to the variation of firms' survival chances. Empirical studies reveal a substantial link between firms' survival chances and their specific characteristics such as age, size, and ownership (Audretsch and Mahmood, 1994; Taymaz and Ozler, 2007). The internal resource perspective, which generally builds on the resource-based view of the firm (RBV) that stresses that firms' unique resources are a source of competitive advantage, has attracted increasing attention in the last two decades. On this research line, empirical studies indicate that firms' valuable, rare, inimitable, and non-substitutable (VRIN) resources, such as R&D capability, employees' know-how, and financial capital, can explain the survival variations among firms in western economies and China (Coleman et al., 2013; Esteve-Perez and Manez-Castillejo, 2008; Geroski et al., 2010; Stuart, 2000; Ugur et al., 2016). Although extant literature largely explores and validates the direct positive influence of internal resources on high- and low-tech firms' survival in developed as well as in developing countries (Geroski et al., 2010; He and Yang, 2016; Howell, 2015; Tan et al., 2013), their mutually inconsistent findings deter us to depict a generalized picture of how internal drivers contribute to firm survival. Specifically, although the Chinese economy is becoming more innovation-driven, it is still relatively under-researched how Chinese high-tech start-ups mobilize internal resources to improve their survival chances. Thus, using China's high-tech industry as a research context, the findings may not only deepen the understandings of what and when internal resources drive firm survival chance that may expand the RBV's theoretical lens but also help to further clarify the puzzle of the growth and development of Chinese high-tech firms.

*Drivers of firm innovation in China*

Innovation is another critically important topic in the management research community

concerning Chinese firms. When and how firms innovate in transitional China have increasingly attracted scholars' attention. To shed light on this, as the existing literature indicates, we cannot ignore the unique factors that reside in Chinese social-economic settings when we explore the determinants of Chinese firms' innovation. Recently, scholars have stressed two such crucial indicators: firms' political connections and external institutional environments.

The former refers to firms establishing or maintaining connections with government officials and political authorities through personal ties, government affiliations, shareholding, and ownership. Building on different management theoretical streams, such as the resource-based view of the firm (RBV) (Barney, 1991), resource dependence theory (RDT) (Pfeffer and Salancik, 1978), and social capital theory (Lin, 2001), scholars have largely validated the influences of political connections on firm performance in different areas of management, i.e., marketing (e.g., Sharma et al., 2020; Sheng et al., 2011; Zhou et al., 2014), financing (e.g., Carretta et al., 2012; Claessens et al., 2008), strategy (e.g., Hillman, 2005; Liu et al., 2018; Sun et al., 2015; Zheng et al., 2017), and international business (e.g., Sun et al., 2010; Wang et al., 2012). However, research on when and how political connections determine firms' innovation propensity and performance remains incomplete in innovation academia (Shu et al., 2012; Zhang et al., 2015). Furthermore, limited extant literature of "political connections—firm innovation" links show ambiguous conclusions. For example, Lin et al. (2010) find that government ownership of firms is negatively associated with companies' R&D, Gao et al. (2017) reveal a U-shaped relationship between political ties and product innovation, while Wu (2011) suggests an inverted U-shaped influence of political ties on firms' innovation performance. These mutually inconsistent findings indicate a necessity for further investigations.

Another emerging research line concerning the drivers of Chinese firms' innovation focuses on external institutional environments. Generally, theoretical and empirical studies in this research direction build on the institutional-based view of business strategy (IBV) which views the institutions, 'the rules of the game' (North, 1990), as key determinants of firms' strategic behaviors and performance (Peng, 2003; Peng and Heath, 1996; Peng and Luo, 2000; Yang et al., 2015). The IBV perspective usually argues that the more developed institutions usually lead to lower transaction costs and higher firm performance. For example, Kafouros and Aliyev (2016) reveal that institutional reforms in Central and Eastern Europe benefit domestic firms' profitability and the reforms are disadvantageous for foreign firms. According to IBV, firms' innovation propensity and innovation decisions are determined by the dynamic interactions between institutions and firms (Peng, 2003; Yang et al., 2015). Such

institutions include not only government policies and regulatory rules but also social norms, culture, and beliefs related to knowledge diffusion, technology transfer, and scientific research. Firms conducting innovation activities would obtain substantial institutional supports (e.g., political and social legitimacy, legal protections, governmental subsidies, and policy favors) if their expectations and actions conform to institutional requirements. In turn, the institutional system transition and change, such as pro-market reforms in current China, would (re)define and (re)direct firms' further actions. To better depict and measure the institutional reforms in China, for example, Fan et al. (2010) developed a Marketization Index that captures the progress of pro-market reforms in China since 1978. This index evaluates the institutional development through five dimensions i.e., government-market interactions, non-state-owned economy development, product market development, factor market development, and legal system development (Fan et al., 2010; Wang et al., 2019). Clearly, Fan's index provides a useful tool to establish the relationship between institutional transition and firm innovation and performance, which got widely used in management studies (Liu et al., 2018; Yi et al., 2017; Zhou et al., 2017). An increasing number of empirical studies gradually establish a positive relationship between institution development and firm innovation. For example, Yang et al.'s (2015) study indicates a distinct stimulating effect of institutional development on Chinese firms' innovation i.e., firms in provinces with more developed institutions have more product innovation output; and Yi et al. (2017) indicate that lower-level of institution development curb Chinese firms' long-term technological investments.

Considering the insightful but inconsistent findings of the political connections research trend, scholars search for new research approaches. One prospective research approach is to combine the political connections perspective and the emerging institutional transition perspective (e.g., Arnoldi and Villadsen, 2015; Peng, 2003; Zhou, 2014). This interactive view argues that institutional transition factors and political connections interact with each other and their interactions have considerable merit in predicting a firm's propensity, investment, and performance of product innovation in emerging markets like China. To be specific, the influence of political connections on firm innovation would vary in different institutional environments; or, the political connections may determine the extent to which firm innovation benefits from institutional transition. A dominant theoretical prediction in this research approach is that the importance of political connections to firm performance would be declining as the institutions get more developed (Peng, 2003), which got lots of empirical support in strategic management academia (e.g., Arnoldi and Villadsen, 2015). This combined perspective provides a helpful lens and a useful starting point to unpack the innovation drivers in China, but how the interdependent of institutional factors and political

connections determine firm innovation is far away from reaching consensus. For instance, Gao et al. (2017) suggest political connections are much more valuable in regions with less developed institutions, while Yi et al. (2017) indicate that the developed market-based institutions enhance the positive influence of political ties on firm innovation in China.

### 1.1.3 Research questions

Considering the above discussion, in the transitional context of China, how and when the internal resources and the external environments drive Chinese firms' survival and innovation have not been thoroughly explored. On the one hand, although the individual internal resources are highly valued in enhancing firms' survival chances, knowledge concerning the effects of resource portfolios on firms' exit rates is largely limited. According to RBV theorists, a firm can be viewed as a bundle of resources (Grant, 1991). Specifically, individual resources may not contribute to superior performance unless they work in combinations (Hult and Ketchen, 2001; Newbert, 2007; Tripsas, 1997). That is, interdependent resources, especially complementary resources, may have considerable power in explaining the performance variation across firms (Denrell et al., 2003). This resource portfolio perspective provides a fresh lens to better capture the detailed relationship between internal resources and firm survival. Accordingly, a related research question that awaits to be answered is which resource combinations through what influence mechanisms prolong firms', especially high-tech start-ups', survival chances in emerging markets like China.

On the other hand, the understandings of how political connections and institutional transition determine firm innovation remain limited and are far away from consistent. To narrow this gap, it needs a new research lens to explore which political connections under what environmental conditions have innovation stimulating effects. One possible way is to conduct research that aims to open the black box of political connections and institutional transition. Questions that can be asked are for example, to what extent do various China-characteristic political connections contribute to firm innovation? In which institutional environments are Chinese firms more motivated to conduct short-term product improvement and long-term technology development? Under what conditions do political connections and institutional environments work together to determine Chinese firms' innovation propensity? Answers to these important questions may provide conclusive explanations of why, when, and how firms innovate in transitional China. All in all, to further focus on such questions, it is necessary to conduct more examination to identify, determine, and analyze the key Chinese factors related to political connections and institutional transition, which are currently largely neglected in the innovation literature.

To address the above this dissertation intends to identify how firms' internal unique resources and external institutional environments stimulate firms' survival chances and product innovation. Specifically, this dissertation proposes three main research questions that are relevant for explaining firm survival and innovation in China:

1) To what extent does a combined use of internal resources determine Chinese high-tech start-up firms' survival?

2) Under what institutional transition conditions does Chinese firms' innovation benefit from political connections? and

3) How and when do dynamic institutional environments shape Chinese firms' innovation propensity?

## 1.2 Main research topics

It is almost impossible to answer the above questions by using a single theoretical framework. To better explore under what conditions the proposed drivers contribute to firm survival and innovation in transitional China, this dissertation applies multiple theoretical lenses when the related topic is discussed. For example, building on the resource-based view of the firm (RBV) framework, the dissertation argues that the synthetic effects arising from the complementarity of internal resources have a stimulating influence on firm survival; by integrating the resource dependence perspective and the institution-based view, this dissertation explains the mechanisms through which firms equipped with political connections invest in risky but prospective innovations as the institutional environments change (un)expectedly. This section summarizes the research topics in this dissertation.

### 1.2.1 Combined resources and Chinese high-tech start-ups' survival

In the RBV research stream, scholars stress that firms' internal resources that are valuable, rare, inimitable, and non-substitutable (VRIN) enable firms to build and sustain competitive advantage (Barney, 1991). Particularly, scholars realize that these VRIN resources seldom work individually. Each resource may contribute to superior performance, but together they could have a synergetic value due to their interdependent and complementary nature. Thus, scholars in strategic management academia suggest that individual resources as well as interconnected resources could help firms to create and sustain superior competitive advantage (Black and Boal, 1994; Denrell et al., 2003; Newbert, 2007). For example, Dutta et al. (1999) report that the interaction of marketing and R&D activities has a strong

influence on firm performance; and Belso-Martinez et al. (2013) find that the effect of organizational resources on firm performance can be enhanced by founder's accumulated experiences. It is a commonly accepted finding that combinations of internal resources are a strategically relevant resource of the firm (Hult and Ketchen, 2001).

Although extant literature validates the value of interconnected internal resources on improving firm performance, few studies in the innovation management field have examined the influence of combined internal resources on high-tech start-ups' survival. To address this important yet largely unexplored research issue, this dissertation draws on the RBV framework to examine when and how the portfolio of internal resources increases high-tech start-ups' survival chances. To this end, it specifically concentrates on three kinds of important internal assets i.e., R&D resources, scientifically skilled employees, and financial resources, which are widely reported as crucial determinants of high-tech companies' survival, innovation, growth, and competition (Bridges and Guariglia, 2008; Buddelmeyyer et al., 2010; Koch et al., 2013). For example, a high-tech firm must fully use its internal R&D resources to develop new products and accumulate innovation capability that helps the firm to occupy an advantageous competitive position (e.g., Cefis and Marsili, 2005; Harrison et al., 1993; Teece, 1998). The use of scientifically skilled employees enables firms to create knowledge and technological assets that are difficult to imitate by competitors, which would prolong high-tech start-ups' survival (e.g., Boyer and Blazy, 2014; Geroski et al., 2010; Hitt et al., 2001). In addition, firm's internal funds can serve as a buffer to overcome financial constraints; constraints that otherwise could force new-born high-tech firms to close (e.g., Coleman et al., 2013; Bridges and Guariglia, 2008). However, little is known about how the portfolio of these internal resources buffers firms' survival risks. In this dissertation it is argued that a combined use of internal resources may be more highly valued than the deployment of isolated resources due to three considerations. First, the synergy among firms' resources may lead to creating a unique asset, which is expected to strengthen the competitive position of the firm. Second, the interconnectedness of resources makes the process of resource accumulation more unique and inimitable. Third, the positive effect of an existing resource can be enhanced by the implementation of a related one. Accordingly, it is proposed in this dissertation that a combined use of R&D resources, financial funding, and scientifically skilled employees can help to improve Chinese high-tech start-ups' survival chances.

### 1.2.2 Business-government ties and firm innovation during institutional transition in China

In emerging markets like China, business-government ties (hereafter 'B-G ties'), which

refers to senior managers' connections to political agencies or government officials, are regularly viewed as a strategical instrument to obtain crucial resources and to buffer external risks. Existing literature has extensively confirmed the influence of B-G ties on firms' performance, strategy, and innovation. However, empirical findings indicate an ambiguous conclusion of how B-G ties determine firm innovation, especially in contexts that are in institutional transition. For example, Gao et al. (2017) reveal a U-shaped influence of B-G ties on firm innovation, Wu (2014) confirms an inverted U-shaped influence of political connections on firm innovation, while Li et al. (2017) find that firms with political connections may have higher innovation performance than those with no political ties. Such multifarious findings suggest that the influence of political ties on firms' innovation may be contingent on unrecognized factors. Based on this confusion, and inspired by institutional perspectives, an increasing number of innovation management scholars have concentrated on the contingent role of institutional environments that political connections are embedded in.

According to IBV, there is a substitution relationship between political connections and institutional development. That is, firms rely more on B-G ties to obtain resources and to reduce external risks in environments where formal institutions are lacking or relatively underdeveloped. Drawing on this, scholars propose that the value of political connections would decline as formal institutions develop. However, empirical studies reveal opposite support for IBV's predictions. For example, some scholars find that the stimulating effects of B-G ties on firm performance would decline as formal institutions get more developed (Peng, 2003; Sheng et al., 2011), other scholars corroborate that the value of B-G ties remains intact and firms with B-G ties still outperform firms without B-G ties as institutions become more developed (Arnoldi and Villadsen, 2015; Li et al., 2017; Michelson, 2007; Shi et al., 2014). A possible explanation for these inconsistent results is that most studies tend to treat institutions as a single entity and ignore the internal structure of institutions. To study this influence in detail, this dissertation decomposes institutions into two broad components, legal institutions and economic institutions (including business regulations, financial systems, and infrastructural supporting systems), and then it argues that these institutional components may shape the value of B-G ties through specific mechanisms. Specifically, building on IBV perspectives, it is proposed that B-G ties are positively associated with Chinese firms' product innovation, and legal institutions, business regulations, financial systems, and infrastructural supporting systems may (not) negatively moderate this relationship.

### 1.2.3 Government affiliations and firm innovation in China's dynamic institutional environments

In China, government affiliation is a unique political connection. Generally, firms are subject to one of five levels of governmental control, which are central, provincial, municipal, county, and town governmental control. In China, this is called the *lishu* (meaning "subordinate to") institution by which the government can effectively control or administrate the affiliated firms (Li et al., 2018; Tan et al., 2007; Wang et al., 2012). Although this *lishu* relationship has been weakened during the pro-market reforms since 1978, it still works in firms' daily operations (Ding et al., 2018). Theoretically, maintaining government affiliation and thus obtaining government supports help firms dealing with external uncertainties and risks, while the government may motivate and compel the affiliated firms to conduct innovation that helps to fulfill the government's reform objectives. Accordingly, firms with government affiliations may have more advantages to acquire government-controlled resources and governmental support, which may lead to higher innovation performance. However, empirical evidence of how such government affiliations influence Chinese firms' innovation performance is largely absent in existing innovation literature. Building on resource-dependence theory (RDT), this dissertation views government affiliation as a means by which firms deal with uncertainties outside the organizational boundary. It uses Chinese data to answer the question of when and why product innovation varies among Chinese firms with different levels of government affiliations.

In addition to the direct influence of government affiliations, the dissertation further explores when such influence is motivated or constrained. As a way to manage external dependencies, firms' political connections are usually embedded in and are shaped by specific institutional environments. China is devoting itself to pro-market reforms that move the economy towards a more market-driven system (Child and Tse, 2001). Such reforms often lead to dynamic institutional changes that induce uncertainty and turbulence (Shi et al., 2017), and thus reshape the value of firms' connections to the government (Hillman et al., 2000; Pfeffer, 1972). Building on dynamic IBV perspectives that stress the dynamic institutional contexts are crucial determinants of firms' strategic behaviors, this dissertation captures the dynamic institutional environments through two dimensions i.e., the institutional transition speed and the synchronization of transition speed of institutional components. Accordingly, by integrating RDT with IBV, it studies when dynamic external conditions enable the innovation stimulating effects of government affiliations, by examining the contingent role of the two dimensions of dynamic institutional environments i.e. institutional transition speed and synchronization of transition speeds.

### 1.2.4 Unraveling the influence of institutional transition on Chinese firms' innovation propensity

Changes in external environments usually influence firms' innovation activities that are embedded in specific institutions. To unravel this influence, an increasing number of studies focus on studying mechanisms that explain how institutional transition in emerging markets like China determine firms' innovation performance (Yang et al., 2015; Zhou et al., 2017). Among such studies, one research trend treats institutional transition as a background factor and examines its contingent effects, suggesting that the value of firm-level innovation drivers is largely dependent on the development and status quo of institutions firms deal with (Li and Zhang, 2007; Liu et al., 2018). Another research trend views an institutional transition as an antecedent and stresses the direct motivating influence of institutional development on firm innovation (Yang et al., 2015). However, these studies have not clearly established a relationship between the institutional transition dimensions and the specific innovation propensity, such as exploratory and exploitative innovation, and incremental and radical innovation. Accordingly, the research in this dissertation intends to provide a more detailed understanding of when and how when institutional transition incents or constrains firms' exploratory and exploitative innovation using China as a research context.

The IBV perspective provides a helpful lens to consider how and when institutional transition shapes firms' innovation propensity. It indicates that institutions may (de)motivate firms' innovation propensity by determining market efficiency and transaction costs (Peng, 2003; Peng and Luo, 2000; Yang et al., 2015). Institutional transition, which aims to create a more market-based and innovation-driven economic system, can regulate and (re)shape firms' intentions in innovation investments. According to IBV arguments, the institutional transition can be depicted through two contrasting dimensions i.e., the institutional transition scope and the institutional transition speed (Banalieva et al., 2015; Yang et al., 2015). The former refers to the extent to which the market institutions approach is completely market-based, while the latter refers to how fast the market institutions move towards a market economy. Different dimensions of institutional transition imply varying environmental pressures on firms' innovation propensity. For example, more developed institutions (i.e., a higher transition scope) indicate that market power is more dominant, often leading to more intense market competition, which usually compels firms to develop new products. Higher transition speed means rules change faster, often leading to unpredictable external environments, which may demotivate firms' long-term investments in technology development.

To better understand the 'institutional transition—firm innovation' relationship, this dissertation, building on an IBV perspective, specifically intends to establish a relationship between the scope and speed of institutional transition and Chinese firms' exploratory and

exploitative innovation. In addition, firms usually build and use various political connections to deal with institutional risk in emerging markets like China due to the incomplete and undeveloped formal institutions. This implies that firms in practice may possess a bundle of political connections that link to varying political authorities or government bureaus. Thus, the research in this dissertation further explores the role of the diversity of political connections in determining the innovation stimulating effects of the institutional transition.

## 1.3 Thesis research outline

Chapter 2 builds on the resource-based view of the firm (RBV) to explore to what extent a combined use of internal resources influence Chinese high-tech start-ups' chances to survive. Specifically, it considers the value of interconnectedness of R&D resources, internal finance, and scientifically skilled employees to understand the survival variations among newly born high-tech firms. Although existing literature has confirmed the influence of each of these internal resources on firm survival, little is known about their combined effects. To address this gap, it uses firm-level data from Zhongguancun Science Park (Z-Park) in Beijing that includes 11516 firm-year observations over 6 years (2006-2011) to test theoretical hypotheses. Empirical results show that high-tech start-ups' survival chances do benefit from a synergetic effect of combined resources. To be specific, the combined use of R&D resources and scientifically skilled employees, and the combined use of internal financial resources and scientifically skilled employees are helpful to prolong the survival chances of Chinese high-tech start-ups.

Using the IBV conceptual framework, Chapter 3 examines how the innovation stimulating effects of B-G ties vary in specific institutional environments. IBV predicts that the value of B-G ties would be declining as formal institutions become more developed. Based on this, it further hypothesizes that Chinese firms' product innovation benefits less from B-G ties as the specific institutions, i.e., legal institutions, business regulations, financial systems, and infrastructural supporting systems, are getting more developed. It uses data from the China Enterprise Survey 2012 of the World Bank Enterprise Surveys to test these assumed relationships. The results indicate that the importance of B-G ties declines as the legal institutions and infrastructural supporting systems become more developed. These findings are consistent with the IBV assumptions. However, the development of financial systems would amplify the innovation stimulating effects of B-G ties, which is a sharp contrast to the IBV predictions. In addition, the environment of business regulations exerts an insignificant influence on the links between B-G ties and firms' product innovation.

Chapter 4 concentrates on how government affiliations shape Chinese firms' innovation

performance in dynamic institutional environments. To better understand this influence, it combines resource dependence theory (RDT) with the dynamic institutional-based view as a foundation of an analytical framework. Then, it captures the dynamic institutional environments through two dimensions, the institutional transition speed and the synchronization of the transition speed of institutional components. Building on a dataset of Chinese manufacturing firms covering more than 2.5 million firm-year observations, research results suggest that Chinese firms with higher-level government affiliations have a relatively high product innovation performance. Specifically, the speed of institutional transition negatively moderates the positive influence of government affiliations on product innovation, while a more synchronized transition speed of institutional components enhances the innovation stimulating effects of firms' government affiliations.

Chapter 5 explores the influence of institutional transition on Chinese firms' propensity of exploratory innovation and exploitative innovation. An increasing number of empirical studies indicates that institutional environments are crucial determinants of firms' innovation; institutions can motivate and depress firms' investment in prospective but risky innovation projects. However, relatively little is known about when and why institutional transition in emerging markets determines firms' specific innovation activities i.e., their exploratory innovation and exploitative innovation. To narrow down this research gap, it draws on institutional perspectives and examines how the scope and speed of institutional transition incent firms' investments in exploratory and exploitative innovation. Using data from Chinese manufacturing firms during 2008-2015, the findings display that the scope of institutional transition is positively associated with firms' exploratory and exploitative innovation. The speed of institutional transition is likely to incent exploratory innovation, but it exerts an inverted U-shaped influence on exploitative innovation. Furthermore, it finds that these effects are contingent on the diversity of firms' political networks. Specifically, political network diversity suppresses the positive effect of institutional transition scope on firms' exploratory and exploitative innovation. The institutional transition speed has an inverted U-shaped influence on exploratory innovation when firms have low political network diversity. In contrast, the institutional transition speed has a U-shaped effect on firms' exploratory innovation when firms' political network diversity is high.

Chapter 6 concludes the dissertation, including the main findings, theoretical implications, practical implications, limitations, and future research avenues.

As discussed, this dissertation concentrates on examining the unique drivers of firm survival and innovation in transitional China by using varied theoretical lenses. Additionally, the institutional transition in China makes the market environments and firms' responses more complicated comparing to the developed western economies. Under such circumstances,

examining the focal construct from a single dimension may lead to biased knowledge. To better thoroughly capture the proposed effects, this dissertation measures the key constructs through different aspects in related chapters. For example, it quantifies firms' innovation output by using product innovation in Chapter 3 and 4, and using exploratory innovation in Chapter 5; it captures the influence of political connections by focusing on its strength (Chapter 3), level (Chapter 4), and diversity (Chapter 5) dimension. Table 1-1 outlines the measures of key constructs in each chapter. Table 1-2 summarizes the key characteristics of the studies that are central in this dissertation.

**Table 1-1** Key measures in Chapter 2-5

| Construct | Variable | Description | Measure | Reference | Chapter |
|---|---|---|---|---|---|
| Internal resource | R&D | The research and development activities in a company to obtain new knowledge and the improvements of its existing products and processes. | The amount of annual total R&D expenditure, logarithm transformed. | Harrison et al., 1993; Esteve-Perez et al., 2008; Ugur et al., (2016) | Chapter 2 |
| | Internal financial resources | The profitability of a firm. | Takes value 1 if a start-up generates profit from the market, and 0 otherwise. | Bridges and Guariglia, 2008; Guariglia, 2008; | |
| | Scientifically-skilled employees | Well educated scientists and academically trained engineers that work in the company. | The number of employed scientists and engineers. | Marvel and Lumpkin, 2007 | |
| | Resource combinations | The combined use of two or more types of the internal resources. | Generating interaction terms between R&D, internal financial resources, and scientifically-skilled employees to indicate the specific resource combination. | Hult et al., 2001; Newbert, 2007; Tripsas, 1997 | |
| Firm survival | Firm survival | The firm is active during the specific time-window. | Takes value 0 if a firm survives during the observation time period, and 1 otherwise. | Geroski et al., 2010; Ugur et al., 2016 | Chapter 2 |
| Firm innovation | Product innovation | Introduce new or improved products into markets. | New product sales in the year, logarithm transformed. | Gao et al., 2017; Laursen and salter, 2006 | Chapter 3, Chapter 4 |
| | Exploratory innovation | Firms conduct technology innovation that builds on new knowledge outside firms' existing technological knowledge boundaries. | It is quantified by summing up the technology classes of firm's patents (i.e., four-digit International Patent Classification (IPC) codes) that present in the year of observation but not in the previous five years. | Greve, 2007; Guan and Liu, 2016; Jansen et al., 2006; | Chapter 5 |
| | Exploitative | Firms use existing knowledge and | It is quantified by summing up the technology | Guan and Liu, 2016; | Chapter 5 |

| Construct | Variable | Description | Measure | Reference | Chapter |
|---|---|---|---|---|---|
| | innovation | skills to conduct product and technology improvements and refinements. | classes of firm's patents (i.e., four-digit IPC codes) that are present in the year of observation and in the previous five years. | Jansen et al., 2006; Posen and Levinthal, 2012 | |
| Political connection | Business-government ties | The personal linkages and interactions between firms' Top Management Team members and political authorities. | Senior managers' time investment in interacting with government authorities/officials for dealing with business or regulation issues. | Li and Zhang, 2007; Sun et al., 2012; Zhang et al., 2015 | Chapter 3 |
| | Government affiliations | Firm affiliates with (i.e., *lishu* in Chinese) one of five government levels in China (i.e., central, provincial, municipal, county, and town level). | Takes value 1-5 if a firm affiliated with the related government rank i.e., 1 for town-level and 5 for central-level affiliation. | Li et al., 2018; Wang et al., 2012; Wang et al., 2020 | Chapter 4 |
| | Political ties diversity | Firms usually maintain or construct ties to different political authorities. Political ties diversity is defined as to what extent such ties are diverse. | Classifies the political authorities that firms connected with into 11 categories. It then uses Blau (1977), Powell (1996), and Zhu and Chung's (2014) method to construct the index. | Blau, 1977; Powell, 1996; Zhu and Chung, 2014 | Chapter 5 |
| Institutional transition | The development of institution components | To what extent the legal and economic institutions move towards fairness, transparency, and efficiency. | Uses five-point Likert scales to measure the development status of the specific institutional component. | Oluwatobi et al., 2015 | Chapter 3 |
| | The scope of institutional transition | Refers to the degree of marketization in a Chinese province. | Uses the overall National Economic Research Institute (NERI) score to indicate the institutional transition scope in provinces. | Fan et al., 2016; Yang et al., 2015; Zhou et al., 2017 | Chapter 5 |
| | The speed of institutional transition | How fast a Chinese province moves towards free market, i.e., the change rate of institutional transition over years. | The difference between the transition scope at year *t* and that at the base year (i.e., 2008), divided by time span between *t* and 2008. | Banalieva et al., 2015; Fan et al., 2016 | Chapter 4, Chapter 5 |
| | Synchronization of transition | The extent of consistency of the transition speed of institutional | Building on the transition speed of each institutional component, it uses an entropy | Banalieva, 2014; Banalieva et al., | Chapter 4 |

| Construct | Variable | Description | Measure | Reference | Chapter |
|---|---|---|---|---|---|
| | speeds | components. | measure to calculate the synchronization of transition speeds. | 2015; Yang et al., 2015 | |

**Table 1-2** Overview of the Research in Chapters 2-5

| Chapter | Title | Theoretical perspective | Dataset | Statistical modeling | Key predictors | Conference presentation | Publication status |
|---|---|---|---|---|---|---|---|
| 2 | High-tech start-up firm survival originating from a combined use of internal resources | The Resource-based view of the firm (RBV) | Registration information of high-tech firms in Z-park, Beijing, China | Complementary log-log model | R&D resources; internal finance; scientifically skilled employees. | Presented at the 9th Jena Summer Academy on Innovation and Uncertainty, Jena, Germany, 2015. | Published in *Small Business Economics*, 2017, 49: 799-824. |
| 3 | The value of business-government ties for manufacturing firms' product innovation during institutional transition in China | Institutional-based view of business strategy (IBV) | China Enterprise Survey (2012) of the World Bank Enterprise Survey | Multilevel regression model | B-G ties; legal institutions; business regulations; financial systems; infrastructural supporting systems. | Presented at the XXXVI Sunbelt Social Networks Conference of the International Network for Social Network Analysis (INSNA), 2016, Beijing, P.R.China. | Published in *Sustainability* 2019, 11(1), 63. |
| 4 | The influence of government affiliations on firm product innovation in a dynamic institutional environment: empirical | Resource dependence theory; Dynamic institutional-based view | Annual Census of Chinese Industrial Enterprises (1998-2009) | Tobit model | Government affiliations; institutional transition speed; synchronization of transition speed of institutional components. | Presented at the 17th conference of the International Joseph A. Schumpeter Society, 2018, Seoul, South Korea. | Under review at *Technological Forecasting and Social Change* |

| Chapter | Title | Theoretical perspective | Dataset | Statistical modeling | Key predictors | Conference presentation | Publication status |
|---|---|---|---|---|---|---|---|
| | evidence from China | | | | | | |
| 5 | Unraveling the impact of institutional transition on firms' exploratory and exploitative innovation | Institutional-based view of business strategy (IBV) | The China Stock Market Accounting Research (CSMAR) | Zero-inflated negative binomial regression | Institutional transition scope; institutional transition speed; political network diversity. | | Under review at *Journal of Business Research*. |