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How do ownership type and knowledge transfer influence success of change? A study of transition economy firms

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Abstract

Research Summary: This paper investigates the joint effect of ownership type and knowledge transfer on success of change. For knowledge transfer, we include transfer of both tacit and codified knowledge, and for ownership type, we consider state owned, privately founded, and privatized firms. We argue that incentives and monitoring mechanisms will cause a given ownership type to moderate the direct effect of knowledge transfer on success of change. Using data from firms in four transition economy countries, we find that the relationship between knowledge transfer and success of change is stronger for state owned firms compared to privately founded and privatized firms.

Managerial Summary: The fundamental premise of this paper is that effectiveness of knowledge transfer in determining success of change is moderated by ownership type of a firm. We argue that state owned, privately founded, and privatized firms have distinct incentives and monitoring systems that will moderate the direct relationship between transfer of both tacit and codified knowledge on success of change. Our empirical analysis shows that state owned firms experience a stronger relationship between transfer of knowledge and success of change as compared to privately founded and privatized firms.

KEYWORDS

incentives, knowledge transfer, ownership type, success of change, transition economy

1 | INTRODUCTION

We examine the joint effect of ownership type and knowledge transfer on success of change. Ownership types are heterogeneous in incentive and monitoring mechanisms (Villalonga, 2000), learning potential, and organizational capabilities (Goldeng, Grunfeld, & Benito, 2008; Villalonga, 2000). Past research indicates that ownership type influences firm outcomes such as performance (Goldeng et al., 2008), competitive strategy (Vroom & Gimeno, 2007), financial slack and R&D investment (Brush, Bromiley, & Hendrickx, 2000; Kim, Kim, & Lee, 2008). Missing from this past work is a consideration of how ownership type influences knowledge transfer and subsequent success of change. Knowledge transfer is a strategic process that entails sharing and disseminating knowledge that resides either in the minds of individuals and organizational routines (as tacit knowledge) or in documents and manuals of an organization (as codified knowledge) (Grant, 1996; Szulanski, 1996). Knowledge transfer is a source of competitive advantage for firms (Argote & Ingram, 2000; Grant, 1996; Szulanski, 1996). Past research indicates there are different learning and capability gaps in state and privately owned firms (Goldeng et al., 2008; Uhlenbruck, Meyer, & Hitt, 2003), which can possibly be filled through knowledge transfer. Further, previous studies show that organizational characteristics, such as ownership types, not only serve as antecedents to knowledge transfer (van Wijk, Jansen, & Lyles, 2008) but also define boundary conditions for knowledge transfer (Foss, 2007; Foss, Husted, & Michailova, 2010). For these reasons, we examine the distinct effects of state owned enterprises (SOEs), privatized and privately founded firms on the relationship between transfer of codified and tacit knowledge and success of change.

We draw upon firm ownership and knowledge transfer literatures to develop our arguments. We expect that incentives and monitoring mechanisms of respective ownership types will influence managerial behavior towards knowledge transfer in affecting change. The core reasoning is that the incentives and monitoring systems in SOEs are more favorable for transferring codified knowledge to implement change than in the other two firm types. Further, privately founded firms' incentive and monitoring systems are more conducive for transferring tacit knowledge than in SOEs. However, privatized firms will have lost many of the benefits from their previous state-ownership status, but will not have implemented the monitoring and control systems found in privately founded firm (Filatotchev, Wright, Uhlenbruck, Tihanyi, & Hoskisson, 2003; Rodriguez, Espejo, & Cabrera, 2007), thus hindering their ability to transfer tacit knowledge. We hypothesize that SOEs will experience a stronger (i.e., more positive) relationship between transfer of *codified knowledge* and success of change. We also hypothesize that while SOEs will experience a stronger relationship between transfer of *tacit knowledge* and success of change compared to privatized firms, this relationship will be weaker as compared to privately founded firms. All our hypotheses except one are empirically supported. Specifically, in contrast to our prediction, we find the relative effect of the transfer of tacit knowledge on success of change for privately founded firms are weaker than for SOEs.

We test the hypotheses using a unique data set from firms in four countries in Central and Eastern Europe. Although SOEs, privatized and privately founded firms exist in many

countries, the effect of state controls and ownership is rather profound in transition and emerging economies (Peng & Heath, 1996; Shinkle, Kriauciunas, & Hundley, 2013; Wright, Filatotchev, Hoskisson, & Peng, 2005). As such, transition economies better capture the differences across the three ownership types and are an ideal context for this study. We use success of change as the dependent variable in our study. Ginsberg (1988) and Hofer and Schendel (1978) suggest that strategic change includes change in the goals, scope, competitive strategies and processes of a firm. We adopt a similar approach and define success of change as the extent to which a firm is able to successfully implement strategic changes over a given period of time. Change is important for survival and growth of transition economy firms learning to compete in a market driven economy (Hitt, Li, & Worthington, 2005; Uhlenbruck et al., 2003).

We contribute primarily to firm ownership literature by showing that type of firm ownership is an important context that determines the nature of incentives for knowledge transfer that subsequently impact strategic firm outcomes such as success of change. Although knowledge transfer and ownership type both influence success of change, they are individually inadequate to understand firm behavior. Our key contribution lies in showing the joint effect of ownership type and knowledge transfer processes on success of change. Empirical support for the joint effect of ownership type and knowledge transfer shows that SOEs can achieve greater success of change than privatized and privately founded firms through their use of knowledge transfer. In doing so, we also provide a boundary condition to the expected superior firm outcomes, including success of change, associated with private ownership. Last, without compromising generalizability, our results extend current understanding of firm strategies in emerging and transition economies.

2 | LITERATURE REVIEW

2.1 | Firm ownership

There are several classifications of ownership type. For this study, we focus on the distinctions between state, privately founded, and privatized ownership as these three categories cover the vast majority of for-profit firm ownership types. SOEs are firms where the government (national, regional, or local) is the majority owner of the firm (Megginson & Netter, 2001), privately founded firms are owned by an individual(s) or a legal entity from inception and privatized firms are those that were previously majority or wholly owned by the government who later sold a stake such that private owners, as a group, held a majority of shares (Megginson & Netter, 2001; Villalonga, 2000). Although state and private firms have coexisted for a long time, economic liberalization motivated examination of distinct characteristics of state and privately-owned firms and how those characteristics affect their respective outcomes (Cuervo-Cazurra, Inkpen, Musacchio, & Ramaswamy, 2014; Kostova & Hult, 2016). Of the various characteristics such as degree of observability of output, output measurement, goal multiplicity, strength of monitoring systems, budget constraints, non-financial incentives and capabilities, we focus on incentives and monitoring mechanisms associated with respective ownership types in our paper.

2.2 | Incentives and monitoring systems across firm ownership types

Incentives and monitoring systems are important because they minimize the costs arising from misalignment of goals of the principle and the agent (Holmstrom & Milgrom, 1994). Incentives

motivate "managers to serve owners' interests by directly linking the managers' personal gains with a firm's performance" (He & Wang, 2009, p. 923). Monitoring is defined as "observation of an agent's effort or outcomes that is accomplished through supervision, accounting controls, and other devices" (Tosi, Katz, & Gomez-Mejia, 1997, p.588) and entails both internal and external monitoring mechanisms. Monitoring and incentive systems assume greater significance for firms undertaking strategic changes as the propensity towards opportunism is accentuated during change (Hoskisson, Eden, Lau, & Wright, 2000; Pathak, Hoskisson, & Johnson, 2014). Additionally, the nature of incentives and monitoring systems varies across firms and subsequently effects the intrinsic and extrinsic motivation of individuals (Meyer & Peng, 2005; Rodriguez et al., 2007). We follow Osterloh and Frey (2000) to define extrinsic motivation as motivation wherein employees achieve their need satisfaction from sources other than from the work content or activity itself and intrinsic motivation as motivation where employees achieve their need satisfaction from the work content or activity itself.

Extrinsic and intrinsic motivation is relatively weak amongst managers of SOEs due to conflicting political, social and economic goals (Boardman & Vining, 1989), lack of performance-based bonuses, weak residual control rights, separation of knowledge and decision-making rights (Jensen & Meckling, 1995) and standardized tasks delegated without accompanying decision making authority (Willem & Buelens, 2007). Weak extrinsic and intrinsic motivation weakens incentives for SOE managers to achieve economic objectives (Goldeng et al., 2008). In contrast, SOE characteristics such as job security, weaker monitoring and soft budget constraints will provide extrinsic motivation and bureaucratic power will provide intrinsic motivation to SOE managers (Goldeng et al., 2008; Rudy, Miller, & Wang, 2016).

SOE managers are hired by the state (Zhou, Gao, & Zhao, 2017), are rewarded (through job security) for implementing the state directives (Filatotchev et al., 2003; Goldeng et al., 2008) and thus have much lower employee turnover (Uhlenbruck et al., 2003). SOEs are also characterized by weaker monitoring by the owners (Boardman & Vining, 1989; Djankov & Murrell, 2002,), due to lack of transferability of ownership (Boardman & Vining, 1989), nonobservability of managerial effort (Djankov & Murrell, 2002; Holstorm, 1979) and weak market for corporate control (Villalonga, 2000). Next, soft budget constraints reduce the effectiveness of accounting controls within a SOE and together with weak monitoring, reduce risk aversion amongst SOE managers (Djankov & Murrell, 2002; Peng, 2003; Rudy et al., 2016). Last, although bureaucracy is criticized for red tape and inefficiencies, it creates information asymmetry that accords power that intrinsically motivates SOE managers (Husted, Michailova, Minbaeva, & Pedersen, 2012; Willem & Buelens, 2007).

Managers of privately owned firms, on the other hand, experience greater extrinsic and intrinsic motivation and also assume greater risk than their counterparts in SOEs (Rudy et al., 2016). Residual rights, fear of bankruptcy, robust monitoring systems not only mitigate opportunistic behavior (Filatotchev et al., 2003; Villalonga, 2000) but together with competition, extrinsically motivate managers to improve efficiencies, innovate and improve profitability (Goldeng et al., 2008). Accordingly, an important goal of privatization is to introduce the incentive structures and monitoring systems found in privately founded firms (Rodriguez et al., 2007). Privatized firms need to adapt to the goals of efficiency and profitability that are present in privately founded firms from the very beginning. Frydman, Gray, Hessel & Rapaczynski (1999) find that although privatized firms perform better than state owned firms, performance improvement is largely concentrated in sales revenue compared to efficiency goals such as labor productivity and material costs per unit of revenue. Carlin, Fries, Schaffer, and Seabright (2001) show that privatized and privately founded firms experience superior sales relative to SOEs.

The influence of changed ownership, however, does not manifest immediately due to reasons of inertia, imprinting (Kriauciunas & Kale, 2006), asset stripping, and loss of political networks during the privatization process (Filatotchev et al., 2003; Meyer & Peng, 2005). Managers thus need to upgrade technical capabilities and develop new systems and procedures through combination of explicit and tacit knowledge (Uhlenbruck et al., 2003). Osterloh and Frey (2000) indicate that a) extrinsic incentives are more effective than intrinsic incentives when knowledge, whether tacit or explicit, can be clearly attributed to an individual, and b) intrinsic incentives are more effective than extrinsic incentives when knowledge, whether tacit or explicit, is attributed to a team or a group of individuals.

3 | THEORY DEVELOPMENT AND HYPOTHESES

While some researchers such as Brown and Duguid (2000) consider knowledge to be synonymous with information, others such as Tsoukas and Vladimirou (2001) consider them to be distinct. Information and knowledge "can be arranged on a single continuum, depending on the extent to which they reflect human involvement with, and processing of, the reality at hand" (Tsoukas & Vladimirou, 2001, p. 976). This is similar to Leonard and Sensiper (1998) which defines knowledge as "information that is relevant, actionable and based at least partially on experience". Accordingly, our definition of knowledge includes both information and knowledge.

3.1 | Codified knowledge transfer and success of change in SOEs versus privately founded firms

This hypothesis predicts that the positive relationship between transfer of codified knowledge and success of change will be stronger for SOEs compared to privately founded firms. Codified knowledge is transferred through communication and coordination systems in a firm (Cowan & Foray, 1997; Vaast & Levina, 2006; Van den Bosch, Volberda, & Boer, 1999). As indicated in the literature review, managers in privately founded firms should have higher extrinsic motivation due to stronger incentives and monitoring systems. However, we argue that due to budget concerns, decentralized decision making and leakage concerns, managers of privately founded firms will not fully respond to the incentives and monitoring systems in place regarding transfer of codified knowledge. In addition, we argue that bureaucratic power, due to centralization and formalization in SOEs, is conducive for transfer of codified knowledge in SOEs.

Due to budgetary constraints, privately founded firms are shown to have lower flexibility and discretion to utilize financial slack. Relative to SOEs, it is difficult for privately founded firms to acquire financial capital, especially in transition and emerging markets (Lau & Bruton, 2011; Meyer & Peng, 2005). Cost and complexity of codifying, interpreting and transferring knowledge in privately founded firms place greater demands on financial resources. Studies such as Cowan and Foray (1997) and Cohendet and Meyer-Krahmer (2001) show that initial investments are required to establish systems capabilities that enable creation, transfer and recall of codified knowledge. It is also time consuming to develop such systems when undergoing change (Cohendet & Meyer-Krahmer, 2001; Cowan & Foray, 1997). As a result, managers of privately founded firms are more challenged to use discretionary funds to create the systems required for transfer of codified knowledge transfer (Rudy et al., 2016). SOEs enjoy greater

flexibility to utilize budgetary support and financial slack (Stan, Peng, & Bruton, 2014) that is expected to motivate managers in SOEs to establish system capabilities for transferring codified knowledge. Codification capabilities enable development and transfer of common language, codes and an understanding of the new conceptual knowledge with respect to markets, products and customers (Cohendet & Meyer-Krahmer, 2001; Van den Bosch et al., 1999) and consequently, facilitate a stronger relationship between transfer of codified knowledge and success of change for SOEs than for privately founded firms.

SOE managers value and are intrinsically motivated by bureaucratic power that expectedly alleviates the negative effect of low powered economic incentives of SOE managers (Liang, Ren, & Sun, 2015). Also, since bureaucracy manifests through a higher level of formalization, functional specialization and centralized decision-making (Makhija, 2003), bureaucratic processes are enabled by knowledge codification. Knowledge codification not only improves access to knowledge and increases the efficiency of disseminating knowledge but also increases the influence of central administration on various departments in bureaucratic organizations (Husted et al., 2012). Accordingly, we expect that SOE managers will be motivated to transfer codified knowledge to successfully utilize their bureaucratic powers in affecting success of change. On the other hand, managers of privately founded firms intrinsically value job autonomy due to decentralized structures (Ahlstrom & Bruton, 2010) and have consistently used their decision-making authority in achieving economic goals. Decentralization entails a relatively lower level of knowledge codification as knowledge sharing is limited to smaller groups and teams within a unit of a firm. Moreover, the emphasis on controlling costs and maximizing profits induces a cautionary approach toward knowledge codification despite the intrinsic motivation due to job autonomy in privately founded firms.

Finally, knowledge codification increases risk of leakage of competitively sensitive knowledge. Managers of privately founded firms bear this risk at a higher level because they operate in more competitive markets (Rudy et al., 2016). In contrast, SOEs have greater government protection (Cuervo-Cazurra et al., 2014) from competition and thus less concerns about knowledge leakage. Vining and Boardman (1992, p. 226) indicate that SOEs "engage in rent seeking where possible" but SOEs have greater capacity to absorb risk and inefficiencies than privately founded firms (Cuervo-Cazurra et al., 2014; Stan et al., 2014). Consequently, the costs of transferring codified knowledge may outweigh its strategic benefits for privately founded firms. We thus argue that compared to SOEs, managers of privately founded firms will be weakly motivated to transfer codified knowledge in affecting success of change. Therefore, we predict:

Hypothesis 1a The positive relationship between transfer of codified knowledge and success of change will be stronger for SOEs compared to privately founded firms.

3.2 | Codified knowledge transfer and success of change in SOEs versus privatized firms

This hypothesis predicts that the positive relationship between transfer of codified knowledge and success of change will be stronger for SOEs compared to privatized firms. We argue that due to budget constraints, job loss risk, and bankruptcy pressures, managers in privatized firms will not fully respond to the incentives and monitoring systems in place regarding transfer of codified knowledge. We expect that the bureaucratic systems that enable transfer of codified knowledge in SOEs, as discussed in H1a, will have a similar effect relative to privatized firms in

H1b. Also, the budget constraints, as presented in H1a for privately founded firms, will follow a similar argument regarding privatized firms.

Specifically, managers of privatized firms experience relatively higher constraints on access and utilization of financial resources (Uhlenbruck et al., 2003). We do not suggest that privatized firms have inadequate financial capital but that they are subject to more rigorous budgetary controls and constraints than SOEs (Rodriguez et al., 2007). Regarding job security, it is especially relevant when firms implement strategic changes under conditions of high levels of uncertainty in product and factor markets (Filatotchev et al., 2003; Rodriguez et al., 2007). SOEs and privatized firms competing in market driven economies are evolving from being fiefdoms that hoard knowledge to firms that need to share and disseminate knowledge to their employees (Boisot & Child, 1996). Job security, as it is commonly provided to SOE managers (Liu, Gong, Zhou, & Huang, 2017), is expected to extrinsically motivate SOE managers to implement knowledge transfer systems in line with the state's directives. In contrast, managers of privatized firms are less motivated as transfer of codified knowledge may reduce their personal value to the firm and increase the probability of becoming redundant in an organization that likely already has high redundancy (Husted et al., 2012; Rodriguez et al., 2007). Further, whereas managers in privately founded firms do not have assumptions of job security (hence this was not a factor in H1a), prior experience of SOE employment (Makhija, 2003) causes managers of privatized firms to greatly value job security and thus they may prefer entrenchment over restructuring (and possible resulting job loss) despite financial incentives (Dharwadkar, George, & Brandes, 2000; Rodriguez et al., 2007).

While tighter internal monitoring and oversight extrinsically motivate managers, it may also induce risk averse behavior (Rodriguez et al., 2007; Wiseman & Gomez-Mejia, 1998). Risk aversion is accentuated when outcomes are uncertain and when it is difficult to clearly measure outcomes; as in the case of firms undertaking strategic changes. We believe this risk aversion results from fear of bankruptcy and will be stronger for managers of privatized firms (Filatotchev et al., 2003). Acquiring knowledge and learning to establish systems to affect change presents temporal and organizational challenges for all firms, but particularly for privatized firms (Dau, 2012; Filatotchev et al., 2003; Rodriguez et al., 2007). The need for privatized firms to implement these new systems quickly creates additional pressure on managers and increases uncertainty of success. Privatized firms that are unable to develop competencies to quickly adapt and compete in market-based economies are either acquired by other firms or exit the market due to bankruptcy (Dharwadkar et al., 2000; Villalonga, 2000). Since SOEs are not subject to the external monitoring mechanism of the market for corporate control, we expect that managers of SOEs will be relatively less risk averse than those of privatized firms (Cuervo-Cazurra et al., 2014). Dau (2012) indicated that protection from competitive forces and thus from bankruptcy provides more time for SOEs to respond to market reforms. Managers of SOEs have a better opportunity and hence are likely to be relatively more motivated to establish appropriate systems for transferring codified knowledge; as the implementation of such systems requires time to be implemented and institutionalized within the firm. Therefore, it is hypothesized that:

Hypothesis1b : The positive relationship between transfer of codified knowledge and success of change will be stronger for SOEs compared to privatized firm.

3.3 | Tacit knowledge transfer and success of change in SOEs versus privately founded firms

This hypothesis predicts that the positive relationship between transfer of tacit knowledge and success of change will be stronger for privately founded firms as compared to SOEs. Knowledge that cannot be articulated is defined as tacit knowledge. Socialization is the most appropriate mode of transferring tacit knowledge (Grant, 1996; Szulanski, 1996; Van den Bosch et al., 1999). It allows greater flexibility in knowledge integration but is relatively more expensive and time consuming. In contrast to H1a, the issues related to leakage and budget constraints are not a constraint for transferring tacit knowledge for managers in privately founded firms. Tacit knowledge, by its very nature, has lower risk of leakage. Unlike with codified knowledge, managers have greater control in sharing tacit knowledge (Nonaka & Von Krogh, 2009). They are expected to share tacit knowledge only with members who possess the skills and experience to facilitate strategic change (Lau & Bruton, 2011). Similarly, transfer of tacit knowledge generally does not require the investment in formal systems associated with transfer of codified knowledge, indicating that budgetary constraints are less of a factor.

We argue that extrinsic incentives offered by privately founded firms are expected to motivate managers to transfer tacit knowledge (Husted et al., 2012). Transfer of tacit knowledge facilitates success of change by generating shared values and norms, mutual understanding and goal congruence (Argote & Miron-Spektor, 2011; Foss et al., 2010). Felin, Zenger, and Tomsik (2009) and Cabrera and Cabrera (2005) show that high-powered incentives and team participation in profit sharing facilitate knowledge transfer. Similarly, low powered incentives dampen the motivation to transfer tacit knowledge by SOE managers (Husted et al., 2012; Willem & Buelens, 2007). Although managers of privately founded firms may sometimes withhold tacit knowledge to protect their job, pay and bonuses (Husted et al., 2012), high-powered incentives will strengthen the positive effect of tacit knowledge transfer on success of change for privately founded firms.

Further, competition acts as an external factor that influences the rent generating potential of a firm and compels evaluation of firm outcomes relative to those of its competitors (Goldeng et al., 2008; Li & Zhang, 2007). Competition also accentuates private benefits over collective benefits by increasing risk of job loss and bankruptcy in the post transition economy (Rodriguez et al., 2007). Transfer of tacit knowledge is essential to new idea generation and learning to reduce risk and uncertainty from competition but knowledge may be withheld if private benefits of hoarding knowledge outweigh the private benefits of knowledge sharing (Husted et al., 2012). Managers of privately founded firms will thus institute socialization and co-ordination mechanisms such as training programs and discussions to facilitate transfer of tacit knowledge and minimize hoarding behavior. Although SOEs are relatively insulated from threat of competition, they are nonetheless subject to market dynamics (Ralston, Terpstra-Tong, Terpstra, Wang, & Egri, 2006). Bureaucratic power of SOE managers, though favorable to transfer of codified knowledge, is argued to inhibit transfer of tacit knowledge. Sharing tacit knowledge mitigates control and authority. SOE managers are more likely to engage socialization mechanisms to selectively transfer tacit knowledge to a smaller set of individuals in the firm (Husted and Michailova, 2002; Makhija, 2003; Willem & Buelens, 2007). Despite competition, preservation of bureaucratic norms in SOEs limits transfer of tacit knowledge as opposed to the approach used by privately founded firms to promote tacit knowledge sharing.

Last, Foss et al. (2010) indicate that co-location of decision-making and knowledge enables privately founded firms to be more able to respond to market dynamics as compared to SOEs.

While managers of SOEs rely on political connections (Peng, Bruton, Stan, & Huang, 2016) and instructions for decision-making, owner-managers are the primary source of knowledge for a privately founded firm (Li & Zhang, 2007; Peng & Luo, 2000) and rely on tacit knowledge in undertaking strategic changes. Relative to SOEs in transition economies, privately founded firms experience greater uncertainty and survival threat when undertaking strategic change making agility, responsiveness and flexibility particularly important (Ahlstrom & Bruton, 2010; Lau & Bruton, 2011; Peng & Luo, 2000). Greater job autonomy in privately founded firms motivates transfer of tacit knowledge that in turn provides flexibility to quickly evaluate processes and capabilities to manage competition and related uncertainty. Therefore, it is hypothesized that:

Hypothesis 2a The positive relationship between transfer of tacit knowledge and success of change will be weaker for SOEs compared to privately founded firms.

3.4 | Tacit knowledge transfer and success of change in SOEs versus privatized firms

In this hypothesis, we predict that the positive relationship between transfer of tacit knowledge and success of change will be stronger for SOEs compared to privatized firms. We argue that due to lack of political connections (unique to privatized firms) and pressures of market-based competition, managers in privatized firms will not fully respond to the incentives and monitoring systems in place regarding transfer of tacit knowledge. We expect that loss of political connections will mitigate motivation to transfer tacit knowledge for managers of privatized firms. Political connections are strategic in transition economies as the state exercises indirect control through its policies (Boubakri, Mansi, & Saffar, 2013; Peng et al., 2016,). Firms in transition economies can only weakly rely on previous knowledge and competencies and need to establish new path dependencies and linkages through transfer of tacit knowledge (Hoskisson et al., 2000; Uhlenbruck et al., 2003). New management is an important source of knowledge for privatized firms but may struggle to comprehend the complexities of policy and market linkages in the absence of political connections (Rodriguez et al., 2007; Uhlenbruck et al., 2003). The resulting errors, misinterpretation and ambiguity will increase the risk of job loss for managers of privatized firms. Managers of privatized firms are thus expected to be less motivated to transfer tacit knowledge compared to SOE managers, who have continued access to policies and information related to dynamics of factor and product markets (Peng et al., 2016) and relatedly, expectations with respect to strategic changes.

As stated above, competition affects the rent generating potential (Goldeng et al., 2008; Li & Zhang, 2007) and thus we expect that competition will mitigate the effect of weak monetary incentives and motivate transfer of tacit knowledge by SOE managers. Most managers of both SOEs and privatized firms are highly skilled in their respective areas of expertise, but the previously regulated environment limited experience and capabilities related to operating in a competitive market (Ralston et al., 2006; Uhlenbruck et al., 2003). Since competition effects availability of monetary incentives, we expect that managers of privatized firms will emphasize private benefits over collective benefits of knowledge transfer and thereby, will be less motivated to transfer tacit knowledge (Foss, 2007; Foss et al., 2010). In contrast, we believe that job security available to SOE managers and the focus of SOE systems on collective benefits will boost their motivation to transfer tacit knowledge (Rodriguez et al., 2007). This motivation is

augmented by the situation that SOEs competing in a market driven system need to bridge a larger learning gap as compared to privatized firms (Goldeng et al., 2008; Tan & Peng, 2003). Compared to SOEs, privatized firms possess stronger incentives and monitoring mechanisms (Filatotchev et al., 2003; Makhija, 2003), but as with transfer of codified knowledge, risk aversion may diminish managerial motivation to transfer tacit knowledge. Thus, we hypothesize that:

Hypothesis 2b The positive relationship between transfer of tacit knowledge and success of change will be stronger for SOEs compared to privatized firms.

4 | DATA AND METHODS

4.1 | Sample

This study uses data from firms in transition economies of Central and East European (CEE) to test its hypotheses. Firms in the transition economies are appropriate for our study for two reasons. First, a perceptible distinction between state, privatized and privately founded firms can be widely observed in transition economies (Kostova & Hult, 2016; Villalonga, 2000). Second, strategic changes are imperative for transition economy firms as they develop new capabilities and learn to compete in a market driven economy (Uhlenbruck et al., 2003). Our data is also unique as it provides access to knowledge transfer practices within transition economy firms. A target sample of 1,662 nonfinancial firms was selected from AMADEUS database and other sources developed by Bureau van Dijk (Meyer, 2001). Since the Amadeus database did not cover Belarus, a cooperating research partner used its database of 500 Belarus companies (Filatotchev, Dyomina, Wright, & Buck, 2001). The country wise distribution of the target sample firms included 300 (18%) firms from Belarus, 500 (30%) from Bulgaria, 512 (31%) from Lithuania and 350 (21%) from Ukraine.

A survey instrument was developed and administered to the selected firms in these countries. The instrument consisted of two parts. The first part asked for general information about the company such as contact information, industry, ownership type, year of founding, number of employees and other firm-level factors. The second part consisted of four sections, one for each of the four areas of operation critical to firms: quality assurance systems, human resource management, technology, and marketing. The survey included a parallel set of questions for each area of operation. The survey was developed by one of the authors who travelled to each of the countries in 2001 and 2002 and interviewed 8–12 managers per country. Companies visited included privately founded, privatized, and SOEs. For each country, an agreement was formed with a local partner regarding survey dissemination and collection to increase buy-in from the respondents. The survey was administered in late 2002 and early 2003.

The survey was translated from English into the respective foreign languages and then back translated into English (Filatotchev, Buck, & Zhukov, 2000) and any issues identified were resolved. The survey was subject to pretesting before the full-scale launch. This survey relied on one qualified person or a small set of qualified individuals in each firm to provide the required data. This is consistent with prior survey research in similar contexts (Lyles & Baird, 1994; Zander & Kogut, 1995). The survey was sent to the senior director of the firm with a request that he or she identify the person who would be the most appropriate respondent to provide information pertaining to each area (Hoskisson et al., 2000). On average, two respondents participated

in completing each survey, thus reducing single-respondent bias/common method variance (CMV). The overall response rate was 28.7% (620 usable surveys) and the country wise response rate was Belarus (83.3%), Bulgaria (16.8%), Lithuania (19.3%), and Ukraine (79%). The response rate compares favorably with the average response rates typically observed for survey-based studies in transitional economies (Hoskisson et al., 2000). The high response rate observed in case of Belarus and Ukraine was primarily driven by the mode of data collection. Face to face interviews were conducted with respondents of firms in Belarus and Ukraine and mail-based data collection mode was used for firms in Bulgaria and Lithuania (Filatotchev et al., 2001). Common Method Variance (CMV) concern that is typical of survey-based studies is mitigated in our study due to two reasons. First, inclusion of interaction hypotheses representing complex relationships are less likely to be affected by CMV (Chang, van Witteloostuijn, & Eden, 2010). Second, a Harman one-factor analysis indicated that variance in the data was not attributed to a single underlying factor.

4.2 | Measures

4.2.1 | Success of change

The dependent variable in this study is success of change. The respondents were asked to evaluate the "the success of the changes implemented" for the years 1999–2001. Respondents were asked to evaluate the question on a seven-point Likert scale with 1 being low success to 7 indicating high success. Success of change was measured for all four areas of operation. The responses across all four areas of operation were averaged to arrive at a firm level measure. The average score was converted back into ordinal numbers ranging from 1 to 7 to capture the level of success of change achieved by the firm. Average scores equal to and less than 1.5 were assigned the ordinal score 1, those greater than 1.5 but equal to and less than 2.5 were assigned the ordinal score 2, those greater than 2.5 but equal to and less than 3.5 were assigned the ordinal score 3, and so on. Those greater than 6.5 but equal to or less than 7 were assigned the ordinal score 7. If no response was provided for any of the four areas of operation, the firm was dropped from the analysis. Success of change is an appropriate dependent variable for this study for two major reasons. One, achievement of goals such as cost reduction, increase in domestic sales and exports, improvement in competitive position, improvement in product/service quality, satisfying customer requirements and productivity improvement represent many of the strategic changes that are being undertaken by transition economy firms. These goals were included in the survey for each functional area and respondents were asked to determine the level of success of change in their respective areas of operation. Second, we were unable to use revenue data of firms collected for five years from 1997–2001. Respondents provided data in their local currency. Due to volatility in exchange rates and inflation rates for the years included in the study, there is no suitable exchange rate currently available that can provide reliable revenue figures in a single currency.

4.2.2 | Transfer of codified knowledge

For this variable, we use the response to the question: please indicate the frequency of information "*received in writing*" from the firm's top management to implement changes in the firm. As

stated above, the changes are targeted in functional areas of product and service quality assurance system, human resource system, technology base and marketing program of the firms in our dataset. A 7-point Likert scale with 1 being "rarely" and 7 indicating "frequently" was used to evaluate the responses for all four functional areas. Scores across the four functional areas were averaged to arrive at a firm level measure. If no response was provided for any of the four areas of operation, the firm was dropped from the analysis. The average response was to reduce the possible bias arising from multicollinearity (Aiken & West, 1991). Transfer of codified knowledge was with respect to achievement of firm goals with a mean value of 4.259 for SOEs, 4.215 for privatized firms, and 4.023 for privately founded firms.

4.2.3 | Transfer of tacit knowledge

For this variable, we use the response to the question: please indicate the frequency of information "*received through discussions*" from the firm's top management to implement changes in the firm. The changes are targeted in functional areas of product and service quality assurance system, human resource system, technology base and marketing program of the firms in our dataset. A 7-point Likert scale with 1 being "rarely" and 7 indicating "frequently" was used to evaluate the responses for all four functional areas. Scores across the four functional areas were averaged to arrive at a firm level measure. If no response was provided for any of the four areas of operation, the firm was dropped from the analysis. The average response was centered to reduce the possible bias arising from multicollinearity (Aiken & West, 1991). Transfer of tacit knowledge was with respect to achievement of firm goals with a mean value of 4.604 for SOEs, 4.710 for privatized firms, and 4.678 for privately founded firms.

4.2.4 | Ownership type

Respondents were asked to indicate the *"ownership status"* of the firm in the questionnaire. The responses included state owned, privatized, and privately founded as the three ownership types. We also asked for percentage of state ownership as a way to confirm that SOEs had 50% or more of state ownership. We operationalized this variable by coding the three types of ownership types as 1 for SOEs, 2 for privatized firms and 3 for privately founded firms. SOE is the omitted category. At the time of the survey, very few of the privatized firms became part of larger conglomerates. Firms in our data were primarily domestically owned (96% of the sample), single-business (96%) and single location firms. Industry consolidation or western-style cross-border M&A was not yet taking place, thus reducing concerns that strategies are driven by corporate or geographic diversification.

4.2.5 | Control variables

Firm size is measured by a natural log of the average number of employees from 1999 to 2001. For *firm industry*, dummy variables were created for four industry categories (1) Services Industry, (2) Capital Intense Industry, (3) Processing Industry (omitted category), and (4) Other Industry. *Firm age* is measured as a natural log of difference in years between firm establishment year and year 2001. *Country* is operationalized by creating a dummy variable for each of

the four countries of the survey with Ukraine as the omitted country. *Foreign Ownership* is measured as the average percent of foreign ownership for the years 1999, 2000 and 2001. Previous literature shows that ideas contributed by stakeholders is an important driver of strategic change (Westphal & Fredrickson, 2001). Accordingly, respondents were asked "indicate on a scale of 1 to 7 (1 = low importance, 7 = high importance) the importance of each of the following as a source of ideas for *what to change*"—top managers, owners, employees, and foreign business partners. Since this question was asked of respondents from each of the four functional areas, we averaged the responses to arrive at a firm level measure. Last, we control for knowledge from external sources by using the response to the question—how frequently is knowledge "*obtained by implementers from sources outside the firm"* provided on a 7-point Likert scale. We average the responses received from the four functional areas to arrive at a firm level measure.

4.3 | Estimation method

Since the dependent variable is an ordinal variable, the Ordered Probit method is used to estimate the results of this study. Success of change captured on the Likert scale of 1 to 7 is ordered as low level of success at 1 and a high level of success at 7.

4.4 | Results

Descriptive statistics including means, standard deviations and pairwise correlations between all the variables are presented in Table 1.

Table 2 presents the empirical results of the Ordered Probit estimation.

Model 1 shows the effect of control variables on success of change. Coefficients for top management knowledge, employee knowledge, foreign partner knowledge, foreign ownership, knowledge sourced from outside, Bulgaria and Belarus country dummies are positive and significant. The coefficient for Bulgaria loses significance in Model 5. Coefficients for service industry dummy and other industry dummy are negative and significant, indicating that the process industry (omitted category) experiences greater success of change than service and other industry categories. Export intensity and industry coefficients are removed from Table 2 for brevity. Model 2 shows the direct relationship between ownership type and extent of success of change (not formally hypothesized). The coefficients are positive and significant for privatized firms as compared to SOEs. The coefficient for privately founded firms is positive but insignificant in Models 2 and 3. Model 3 shows the direct effect of transfer of codified knowledge and transfer of tacit knowledge on success of change (not formally hypothesized). The coefficients are positive and significant for both transfer of codified knowledge and transfer of tacit knowledge.

Model 4 tests the interaction effect of ownership type and transfer of codified knowledge on success of change (H1a and H1b). H1a predicts that the positive relationship between use of codification by top managers and extent of success of change will be stronger for a SOE compared to a privately founded firm. The negative and significant coefficient (−0.202 with p-value <.10) for the interaction term confirms H1a. H1b predicts that the positive relationship between transfer of codified knowledge and success of change will be stronger for a SOE compared to a privatized firm. The negative and significant coefficient (−0.233 with p-value <.05) for the interaction term confirms H1b. Model 5 includes the interaction effect of ownership type and

TABLE 1 Descriptive statistics and pairwise correlation

	Mean	*SD*	Min	Max	1.	2.	3.	4.	5	6	7	8	9	10	11	12	13	14	15
1. Success of change	4.35	1.10	1	7	1														
2. Codified knowledge transfer	17.49	8.55	1.50	35.50	0.302[a]	1													
3. Tacit knowledge transfer	10.47	5.14	1.50	22.00	0.326[a]	0.584[a]	1												
4. SOE	0.13	0.34	0	1	−0.119[a]	0.064	0.055	1											
5. Privatized firm	0.52	0.50	0	1	0.032	0.112[a]	0.065	−0.406[a]	1										
6. Privately founded firm	0.35	0.48	0	1	0.051	−0.163[a]	−0.108[a]	−0.285[a]	−0.761[a]	1									
7. Top management knowledge	6.00	1.18	1	7	0.287[a]	0.208[a]	0.138[a]	−0.078	−0.067	0.126[a]	1								
8. Owner knowledge	4.72	1.91	1	7	0.113[a]	0.172[a]	0.207[a]	−0.291[a]	0.124[a]	0.076	0.246[a]	1							
9. Employee knowledge	5.04	1.23	1	7	0.280[a]	0.217[a]	0.381[a]	−0.085	0.005	0.056	0.232[a]	0.240[a]	1						
10. Foreign Partner knowledge	2.73	1.89	1	7	0.226[a]	0.192[a]	0.359[a]	0.019	−0.003	−0.010	0.132[a]	0.284[a]	0.201[a]	1					
11. Outsider knowledge	2.66	1.47	1	7	0.203[a]	0.338[a]	0.560[a]	0.03	0.01	−0.031	−0.039	0.193[a]	0.249[a]	0.452[a]	1				
12. Foreign own (%)	4.29	16.67	0	100	0.151[a]	0.042	0.088	−0.10	−0.016	0.09	0.022	0.034	0.01	0.281[a]	0.127[a]	1			
13. Export intensity	1.86	8.62	−32.50	78.00	0.033	−0.019	0.053	−0.020	0.062	−0.052	−0.047	−0.075	0.038	0.203[a]	0.054	0.03	1		
14. Log of size	4.91	1.71	0.69	10.36	0.025	0.233[a]	0.256[a]	0.30[a]	0.397[a]	−0.627[a]	−0.077	−0.059	−0.019	0.214[a]	0.165[a]	0.075	0.123[a]	1	
15. Log of age	2.95	1.12	0.69	6.06	−0.033	0.139[a]	0.166[a]	0.237[a]	0.607[a]	−0.805[a]	−0.135[a]	0.014	−0.062	0.120[a]	0.133[a]	−0.039	0.084	0.619[a]	1

[a]Industry and country dummies included in pairwise correlation calculation.

TABLE 2 Ordered probit regression results with robust standard errors

DV: Success of change	Model 1	Model 2	Model 3	Model 4	Model 5
Privatized firm		0.293*	0.296*	1.268***	2.029***
		(0.16)	(0.16)	(0.45)	(0.48)
Privately founded firm		0.270	0.313	1.148**	1.237**
		(0.24)	(0.24)	(0.49)	(0.49)
Transfer of codified knowledge			0.068**	0.270***	0.068*
			(0.04)	(0.10)	(0.04)
Transfer of codified knowledge × privately founded				−0.202*(0.11)	
Transfer of codified knowledge × privatized				−0.233**(0.10)	
Transfer of tacit knowledge			0.147***	0.146***	0.431***
			(0.05)	(0.05)	(0.10)
Transfer of tacit knowledge × privately founded					−0.202*
					(0.10)
Transfer of tacit knowledge × privatized					−0.382***
					(0.10)
Top management knowledge	0.198***	0.201***	0.106*	0.100*	0.113*
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Owner knowledge	−0.023	−0.038	−0.032	−0.029	−0.029
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Employee knowledge	0.163***	0.161***	0.131***	0.130***	0.129***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Foreign partner knowledge	0.091***	0.095***	0.100***	0.100***	0.107***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Outsider knowledge	0.131***	0.133***	0.084*	0.087*	0.084*
	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)
Foreign ownership	0.007**	0.006**	0.006**	0.006**	0.007**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Log of size	−0.050	−0.037	−0.051	−0.048	−0.042
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Log of age	0.034	0.035	0.026	0.018	0.025
	(0.06)	(0.08)	(0.08)	(0.08)	(0.08)
Lithuania	0.247	0.241	0.210	0.193	0.148
	(0.16)	(0.17)	(0.18)	(0.18)	(0.18)
Bulgaria	0.542**	0.534**	0.436**	0.417*	0.359
	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)
Belarus	0.511***	0.501***	0.516***	0.500***	0.537***
	(0.13)	(0.13)	(0.14)	(0.15)	(0.14)

(Continues)

TABLE 2 (Continued)

DV: Success of change	Model 1	Model 2	Model 3	Model 4	Model 5
Wald chi-square	97.84***	104.60***	133.73***	139.89***	168.98***
Psuedo-R square	9.35%	9.58%	11.63%	12.03%	12.73%
Log likelihood	−684.65	−682.92	−667.44	−664.37	−659.10
Observations	509	509	509	509	509

Note: Robust standard errors in parentheses.
***$p < .01$; **$p < .05$; *$p < .1$.

transfer of tacit knowledge on success of change (H2a and H2b). H2a predicts that the positive relationship between transfer of tacit knowledge and success of change will be stronger for privately founded firms compared to SOEs. The negative and significant coefficient (−0.202 with p-value <.10) found for the interaction term is interestingly opposite to the prediction in H2a. H2b predicts that the positive relationship between transfer of tacit knowledge and success of change will be stronger for a privatized firm compared to a SOE. The negative and significant coefficient (−0.382 with p-value <.01) for the interaction term confirms H2b.

5 | DISCUSSION AND CONCLUSION

The main goal of this paper is to study the interaction effect of ownership type and knowledge transfer on success of change. First, we will consider some of the unhypothesized results and how they relate to the general literature. Model 2 presents the direct effect of ownership type on success of change. The coefficient is positive and significant for privatized firms and positive but insignificant for privately founded firms (relative to SOEs). There is general consensus in agency literature that private ownership is positively related to firm outcomes relative to SOEs (Boardman & Vining, 1989; Shleifer, 1998). SOEs are subject to social and political constraints (Makhija, 2003; Megginson & Netter, 2001), bureaucratic limitations (Willem & Buelens, 2007) and hiring based on political connections rather than merit (Zhou et al., 2017), all of which hinder their ability to be dynamic and change rapidly. This positive effect is only partially supported in our study, which indicates a potential boundary condition to the positive effect of being privately founded. Specifically, and as indicated in the hypothesis development, broader conditions may need to exist for the benefits of being privately founded to be realized. Positive and significant coefficients for direct effect of transfer of codified and tacit knowledge in Model 3 are in line with previous studies that show that transfer of both codified and tacit knowledge has a positive effect on firm outcomes (Grant, 1996; Nonaka & von Krogh, 2009). This result also increases our confidence in the interaction effects, which we discuss next.

Model 4 presents results of H1a and H1b. Support for the results indicate that SOEs experience greater benefits of transfer of codified knowledge when implementing change. Our results indicate that despite what we argue to be generally weaker managerial incentives, SOEs experience a greater positive effect of transfer of codified knowledge on success of change. Weak monitoring and access to resources provide time and cost flexibility to SOEs to establish systems that enable transfer of codified knowledge. Also, SOEs support knowledge codification as it increases the scope of control and empowers bureaucrats. Further, budget constraints and risk of knowledge leakage in privately founded firms and budget constraints and risk aversion in

privatized firms weaken the extrinsic motivation to transfer codified knowledge in effecting success of change. These results suggest that classic agency factors of monitoring and control are insufficient to understand the managerial behavior of firms across different ownership types. Rather, other internal and external factors dampen the expected benefits of agency factors and result in SOEs being more effective at transferring codified knowledge to undertake change. A possible explanation may be drawn from studies such as Boisot and Child (1996) whereby, if knowledge in SOEs is concentrated within a few people who are reluctant to share it, the transfer of such knowledge has more impact on SOEs than in private firms, where knowledge is already more decentralized. Our results also parallel Dharwadkar et al. (2000) who found that in addition to traditional agency factors, transition economy firms are impacted by managerial skills and principal—principal conflict.

Model 5 presents results of H2a and H2b. The interaction coefficients are significant for H2a but the sign for the interaction is opposite to that predicted. Namely, the result shows that SOEs experience a stronger relationship between transfer of tacit knowledge and success of change compared to both privatized and privately founded firms. Lack of support for H2a is an interesting finding of our study because first, SOEs offer none to very weak managerial incentives which we predicted would adversely affect the transfer of tacit knowledge on success of change. Also, the results suggest that the proposed superior incentives and monitoring mechanisms of privately founded firms for transfer of tacit knowledge have a milder effect relative to SOEs to undertake change. The surprising results for H2a may relate to how some theoretical assumptions in our framework implicitly suggest a well-established free market economy. Some authors believe that the assumption of opportunistic behavior may be relaxed or may not hold true to the same degree in contexts outside of the traditional economic context (Cuevas-Rodríguez, Gomez-Mejia, & Wiseman, 2012; Wiseman, Cuevas-Rodríguez, & Gomez-Mejia, 2012,). Factors such as trust, leadership, power relations and need to conform to team and social values moderate the opportunistic behavior of managers. These factors largely affect the non-financially motivated behavior of managers as compared to compensation, bonuses and stock ownership that extrinsically motivate their behaviors.

The results for H2b indicate that SOEs used tacit knowledge transfer more effectively to successfully implement change than privatized firms, just as predicted. We believe this result confirms our argument that the monitoring and incentive systems in the privatized firms had not yet provided the expected benefits. Since the mean level of tacit knowledge transfer is similar for SOEs as compared to privatized or privately founded firms, the results for H2a and H2b suggest that SOEs are more effectively using tacit knowledge that is transferred (to undertake change) or that the knowledge they are transferring is more valuable or more relevant. While our analysis does not allow us to consider the actual content of tacit knowledge transferred, this result supports the earlier argument that SOEs continue to have access to government decision makers and more direct control over product and factor markets.

The support for our hypotheses provides another interesting insight into the importance of the context of knowledge transfer. The coefficients for interaction effects in Models 4 and 5 in Table 2 and their marginal effects discussed below indicate that despite the average frequency of transfer of both codified and tacit knowledge being similar across firms, variation in incentive and monitoring systems of state owned, privatized and privately founded firms influence how knowledge transfer affects success of change in each of the three types of firms. We also use the predicted values from linear model to graph interaction effects. Figure 1 below presents the interaction effects of ownership type and transfer of codified knowledge on success of change.

Figure 2 below presents the interaction effects of ownership type and transfer of tacit knowledge on success of change.

The steeper slope for SOEs resonate with the data showing SOEs have lower success of change (on average) and sometimes transfer knowledge less. However, they appear to more effectively utilize the knowledge transferred to undertake change. One additional insight can be gained by reviewing Models 2 and 3. We see that privately founded and privatized firms have a higher success of change relative to SOEs (though only statistically significantly for privatized

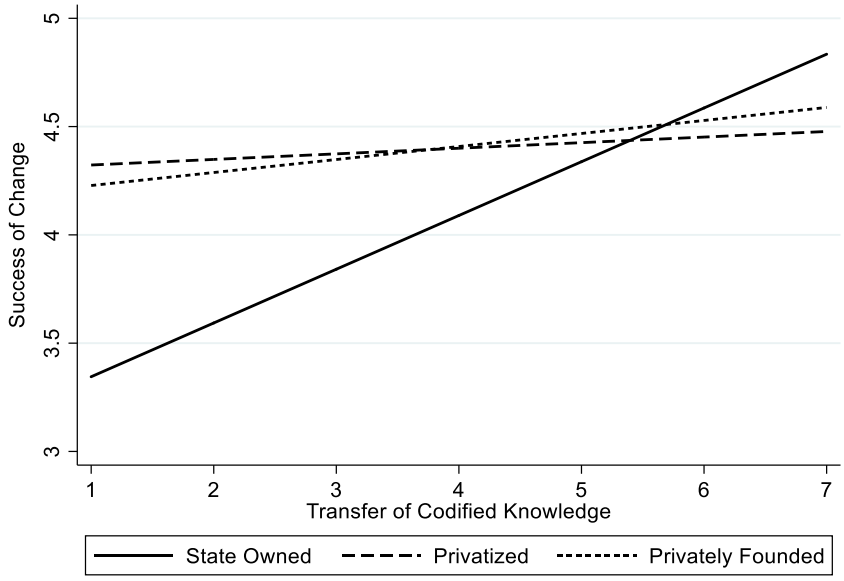

FIGURE 1 Interaction Effect of Ownership and Codified Knowledge on Success of Change

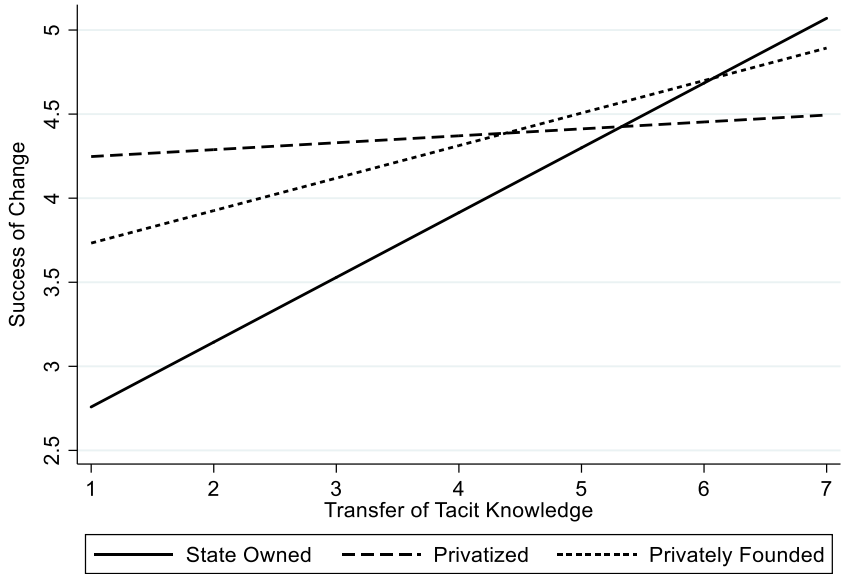

FIGURE 2 Interaction Effect of Ownership and Tacit Knowledge on Success of Change

firms). The results for H1 and H2, then, suggest that privatized and privately founded firms are implementing change through an approach that is less dependent on codified and tacit knowledge as captured in our study. It might be related to more movement of people within the organization or hiring of individuals with the required skills.

In considering the results for H2, we need to understand alternate factors that may cause the effect of incentive and monitoring systems to favor transfer of tacit knowledge in SOEs. It is likely that market competition mitigates the effect of weak incentives and monitoring mechanisms and motivates SOEs to extend their scope of tacit knowledge transfer from a small group of known associates to a broader spectrum of managers and employees. This is especially effective when managers have privileged and timely access to knowledge and are responsible for implementing changes in a firm. Another possible explanation for this result is the inherent affinity for interpersonal interactions amongst the preferred few and relatively greater experience in managing political networks amongst bureaucrats (Willem & Scarborough, 2006). As such, socialization helps to mitigate the information gap between top managers and other members of a SOE, thereby narrowing the gap between real and formal authority (Aghion & Tirole, 1997), which may result in greater success of change in a SOE. Further, it is important to explore possible reasons for higher frequency of transfer of tacit knowledge in privately founded and privatized firms but higher coefficients of the interaction terms (H2a and H2b) for SOEs in Model 5. It may be that privately founded and privatized firms are transferring more tacit knowledge, but not with the intent to implement change. This knowledge could be related to undertaking day-to-day activities as opposed to changing day-to-day activities.

In reviewing the model statistics, we see that the pseudo R-squared statistic improved from 9.35% (loglikelihood −684.65) in Model 1 (control variables) to 12.03% (loglikelihood −664.37) in Model 4 (considers firm ownership and transfer of codified knowledge) and 12.73% (loglikelihood −659.10) in Model 5 (considers firm ownership and transfer of tacit knowledge). The increase in the pseudo R-squared statistic from Model 1 to Models 4 and 5 supports our view that ownership (Mode1 2) and knowledge transfer (Model 3) individually are less adequate compared to the joint effect of ownership and knowledge transfer (Models 4 and 5) in influencing success of change.

Further, Wiersema and Bowen (2009) suggest that marginal effects can better explain interaction effects in non-linear models. Thus, we calculated marginal effects for each level of success of change (Williams, 2012). The probability of success of change at level 5 increases by 7.6% with one unit increase in transfer of codified knowledge for SOEs. However, at levels 6 and 7 of success of change the probability of success of change increases by 2.4% and by 0.2%, respectively, for SOEs. The probability of success of change reduces with one unit increase in transfer of codified knowledge at lower levels (1–4) of success of change of SOEs. Further, the marginal effect of transfer of codified knowledge on probability of success of change in SOEs is greater than that of privatized and privately founded firms at higher levels of success of change and is lesser than that of privatized and privately founded firms at lower levels of success of change. The marginal effects findings are in line with our regression results that the effect of transfer of codified knowledge on success of change will be stronger for SOEs relative to privately founded and privatized firms, respectively.

Similarly, the probability of success of change at level 5 increases by 12.3% with one unit increase in transfer of tacit knowledge for SOEs. At levels 6 and 7 the probability of success of change increases by 3.7% and by 0.3%, respectively, for SOEs. The probability of success of change reduces with one unit increase in transfer of tacit knowledge at lower levels (1–4) of success of change of SOEs. Further, the marginal effect of transfer of tacit knowledge on

probability of success of change in SOEs is greater than that of privatized and privately founded firms at higher levels of success of change and is lesser than that of privatized and privately founded firms at lower levels of success of change. The marginal effects findings are in line with our regression results that the effect of transfer of codified knowledge on success of change will be stronger for SOEs relative to privately founded and privatized firms, respectively.

We also conducted some robustness checks. For H1a and H1b, we test for transfer of codified knowledge together by top managers and by departments in the firm. The results do not change substantially with the significance of the coefficient of interaction between transfer of codified knowledge and privately founded firm improving from $p < .10$ to $p < .05$ and the significance of the direct effect of transfer of codified knowledge improving in Models 3 and 5. Similarly, as a robustness test for H2a and H2b, we test for transfer of tacit knowledge together by top managers and by department in the firm. The results do not change substantially except that the coefficient of interaction between transfer of tacit knowledge and privately founded firms became insignificant and the significance of direct effect of transfer of tacit knowledge decreased in Models 3, 4, and 5 (but remained significant). Even with this broader operationalization of knowledge transfer, the results hold up well, making us confident in our original results.

Our dependent variable is an ordinal variable drawn from responses on a 7-point Likert scale with success of change increasing from 1 to 7. Since the dependent variable may behave similar to a continuous variable, we estimated a linear model with the same set of variables. Results of OLS regression support our hypotheses and are similar to those derived from the Ordered Probit model. Further, since private ownership may have similar implications for privatized and privately founded firms (in contrast to our theorizing), we combined privatized and privately founded firms to create a new category of privately owned firms. This is to acknowledge that over time, privatized firms may either behave like privately founded firms or may get acquired or go bankrupt (Filatotchev et al., 2003). Consistent with our original results, the relationship between transfer of codified knowledge and success of change and that between transfer of tacit knowledge and success of change were stronger for SOEs relative to the combined category of privately owned firms. Last, absorptive capacity is important for the transfer of both collective and individual knowledge in a firm (Zhao & Anand, 2009). The coefficients are significant for top managers, employees and foreign partners but not for owners as sources of knowledge in our model to control for absorptive capacity.

In sum, our study contributes by theoretically and empirically studying the joint effect of ownership type and knowledge transfer on success of change. We show that while ownership type and knowledge transfer are critical antecedents to firm outcomes such as change, considering these two variables individually is not sufficient to explain the extent of success achieved in implementing change. The results show that while privatized and privately founded firms experience greater success of change than SOEs, it is the SOEs that experience greater success in achieving goals of change through transfer of both codified and tacit knowledge.

While extant studies provide valuable insights into the strategic implications of the context of knowledge transfer, they mostly examine firms based in developed countries. By extension, these studies have focused on publicly traded or privately held firms. Our data is also unique in that it enables access to knowledge transfer practices within transition economy firms. The results are generalizable to similar contexts such as China and Vietnam that are adopting capital market systems resulting in a prevalence of the three ownership types examined in our study as well as developed countries where SOEs are present and compete with privately owned firms (Rodriguez et al., 2007).

This study, however, is not without limitations. Our data includes three ownership types, state owned, privately founded, and privatized. Firms are privatized using various methods: the state may

privatize by selling ownership to its managers and employees, to foreign private firms or to domestic private firms. Our data does not allow us to distinguish between various methods of privatization. Second, it is possible that our model may have an endogeneity bias. However, our data limits our ability to include instrumental variables to address this limitation. Third, knowledge transfer is a multidimensional concept and frequency of knowledge transfer may not capture this multidimensionality, i.e., the content, quality and depth of knowledge transfer. Although studies such as Szulanski (1996) and van Wijk et al. (2008) consider receipt of knowledge as knowledge transfer, the frequency of knowledge transfer does not reflect proportional content of knowledge transfer. This challenge is particularly accentuated for tacit knowledge as the knowledge is owned by individuals and does not lend itself to articulation. Future multi firm, multi country studies that capture content in addition to the frequency and directionality of knowledge transfer may possibly provide insights into the effect of quality of knowledge transferred on firm outcomes. Fourth, it would be enlightening to understand the joint effect of ownership type and knowledge transfer on firm outcomes in other regions and countries of the world particularly in developed nations. With increasing government involvement in firms across different economies, such broader geographic coverage could be insightful. Fifth, while we theorize the existence of agency and organizational motivations that affect knowledge transfer, we are limited by data to formally test the effect of different types of incentives and monitoring systems that motivate knowledge transfer in firms with various ownership types. The contributions in this study are expected to inspire ideas for future research in understanding managerial behavior with respect to knowledge transfer in affecting strategic change.

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