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# Entrepreneurial Teams, Gender, and New Venture Survival: Contexts and Institutions

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## Abstract

The link between new venture survival and the presence of founding teams is investigated, in particular the effect of the gender composition of teams. Furthermore, we study venture survival, gender, and institutional change. A unique longitudinal database is employed, covering a large number of Swedish ventures established during 6 specific years, 1930–2005. These data capture the initial gender diversity of start-ups. The contextualization of entrepreneurship involves situational and temporal boundaries, and we elaborate on contextual factors at different levels of analysis. Our results show that ventures founded by teams have a higher probability of surviving, but show no overall team gender homogeneity/heterogeneity effect. However, we find some support for the fact that ventures founded by all-female teams have lower survival chances. Nevertheless, the clearest negative effect is found for female solo start-ups. Furthermore, our results support the fact that institutional transformation may gradually have increased the likelihood of ventures founded by females to survive.

## Keywords

entrepreneurial team, new venture survival, institutions, institutional transformation, longitudinal study, team composition, context, gender diversity, venture team, founding team

## Introduction

This study aims at analyzing the relationship between new venture survival, and the social context(s) of entrepreneurial teams and founding team gender diversity. In this task, we employ a unique, prospective longitudinal database comprising a large number of Swedish ventures established in 7 different years in the first half of the 20th century and in the early 21st century. The study sets out from the established conception that venture performance is a context-specific outcome at several analytical levels, as well as dependent on time (Aldrich, 2009; Welter, 2011). We ask if there is a difference in the likelihood of survival for ventures founded by an entrepreneurial team, as compared with ventures founded by solo entrepreneurs. Moreover, we ask if the probability of venture survival is affected by the ventures' founding constellation with regard to gender. As gender is an integral phenomenon in our study, we also ask whether this relationship has changed over time.

Team entrepreneurship, gender structures, and the context of entrepreneurship have received increasing attention (Holmquist & Carter, 2009; Welter, 2011). Scholars have since long claimed that multiple analytical levels have the potential to provide important insights (Davidsson, 2008; Low & MacMillan, 1988). In particular, the entrepreneurial

team is considered to be a promising framework of analysis. In spite of this, teams have gained relatively little attention in the past research (Cooney, 2005; Cooper & Daily, 1997; Davidsson & Wiklund, 2001; Martinez, Yang, & Aldrich, 2011), and there are few large-sample studies on the performance differences between solo start-ups and team start-ups (Gueguen, 2013). The need for a more explicit highlighting of the entrepreneurial team, as well as an exploration and evaluation of earlier theoretical contributions and their applicability, is considered to be urgent (Aldrich & Kim, 2007; Larsson Segerlind, 2009; Zhou & Rosini, 2015). In particular, this concerns the question of gender differences in the initial formation process (Prytherch, Sinnott, Howells, Fuller-Love, & O'Gorman, 2012). Despite this, much research on entrepreneurial teams and gender often uses gender as just one of several demographic variables of diversity (e.g., age, education, ethnicity, and functional background). Chowdhury (2005) argues that studies have seldom

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developed consistent findings. Harrison and Klein (2007) furthermore argue that the framework of diversity is a way of “describing the distribution of differences among the members of a unit with respect to a common attribute” (p. 1200), and that previous mixed results from research on team diversity can be explained by the inability to recognize that the construct of diversity is not only one type of diversity. Instead, it can include three types of diversity: *variety*, *separation*, and/or *disparity*.

In studies of entrepreneurial teams, diversity has often been constructed in terms of *variety* together with a resource-seeking theoretical perspective (Kamm & Nurick, 1993; Sandberg, 1992). *Variety*, as a diversity type, implies differences in qualitative categorical attributes that are associated with positive consequences in terms of creative problem solving, innovation, or flexibility and adaptability (Harrison & Klein, 2007). However, this theoretical perspective has often failed to explain some of the empirical findings related to diversity in entrepreneurial teams (Lechler, 2001). Several scholars have argued for other complementary theoretical frameworks, arguing for a theoretical perspective of interpersonal attraction (Aldrich & Kim, 2007; Forbes, Borchert, Zellmer-Bruhn, & Sapienza, 2006). This indicates the use of diversity as *separation* (Harrison & Klein, 2007). *Separation* as a type of diversity implies differences in the (lateral) position or opinion among unit members. It is associated with negative consequences, such as distrust, low cohesion, conflicts, and poor performance. The theoretical perspective of *disparity* is more common in research on diversity in top management teams (TMTs; Eisenhardt & Bourgeois, 1988) but less so in team entrepreneurship research (even though there are recent contributions; see Yang & Aldrich, 2014; Yang & del Carmen Triana, 2017). Diversity as *disparity* focuses on the vertical differences in the possession of socially valued resources. These are held among unit members in terms of social power, inequality, status hierarchies and privileges associated with competition, differentiation, and resentful deviance among unit members, as well as conformity, silence suppression of creativity and withdrawal. Harrison and Klein (2007) argue that *disparity* as a perspective can highlight power differences between men and women, and contribute with important insights. *Disparity*, in terms of power relations, is also promising as a construct as it can be related to both social and societal contextual arrangements. Yang and Aldrich (2014) found that institutionalized gender logic and principles often lurk beneath the surface in entrepreneurial teams. In the present study, the nature of our empirical data makes it difficult to entirely fulfill the requests from Harrison and Klein (2007) of exploring new measurements of team diversity based on the three types of diversity. Rather, the framework of Harrison and Klein (2007) is utilized for alternative theoretical interpretations of the empirical results.

In overview articles of women’s entrepreneurship (Achtenhagen & Tillmar, 2013; Ahl, 2006; Hughes, Jennings,

Brush, Carter, & Welter, 2012), it is claimed that earlier research has used an individualistic perspective, and neglected contextual and historical factors—for example, the social arrangements in which women are embedded. Ahl (2006) argues that research tends to reinforce the idea that differences between male and female entrepreneurs can be explained at the individual level, rather than at the social or institutional level; thus, we need future studies where women are embedded in collective settings. As noted, our ambition in this article is to contextualize these issues (cf. Welter, 2011).

Scholars have asked for longer longitudinal research designs of entrepreneurial phenomena (Aldrich, 2009; Davidsson, 2008; Martinez et al., 2011; Poole, Van de Ven, Dooley, & Holmes, 2000). The present study uses a longitudinal, long-term approach to capture entrepreneurial processes with several levels of explanations. Thereby, our study also aims at contributing methodological insights. We employ a prospective longitudinal database, covering more than 23,000 Swedish joint-stock company start-ups—specifically, the data consist of complete entry cohorts of ventures founded in 1930, 1942, 1950, 2001, 2003, and 2005. We trace the survival of the ventures in each cohort over a 3-year period, a phase recognized to be the most precarious for survival (Stam & Schutjens, 2006).

## Background and Research Framework

In this study, we use the definition of an entrepreneurial team from Schjoedt and Kraus (2009):

An entrepreneurial team consists of two or more persons who have an interest, both financial and otherwise, in and a commitment to a venture’s future and success; whose work is interdependent in the pursuit of a common goals and venture success; who are accountable to the entrepreneurial team and for the venture; who are considered to be at the executive level with executive responsibility in the early phases of the venture, including founding and pre-start up; and who are seen as a social entity by themselves and by others. (p. 515)

This definition emphasizes the fact that the entrepreneurial team is a social entity that is recognized both by themselves and by others; that there is a shared commitment and an interdependency in the team; that the members hold a possession of an executive position in the foundation of the venture; and that there is a link between the founders and venture performance.

The literature on organizational performance can essentially be divided into two main views: One view is based on the idea that factors at the individual level—human demographic variables such as human capital, social background, and cognitive ability—can explain performance differences and variations at the organizational level. One clear example is the “traits school” in entrepreneurship (Landström, 2005).

This view can be described as “voluntaristic,” as the environment of entrepreneurs has less explanatory power for organizational performance. The other main explanation takes on a “deterministic” standpoint in which conditions that are external to the firm are of greater importance (Mellahi & Wilkinson, 2004; Smith & Cao, 2007). Two subsets of perceptions can be identified within this “deterministic” explanation: One is the *adaptation perspective*: Entrepreneurs and firms adapt to and align with their environments, which can explain variations in performance across firms. The other theoretical subset is the *selection perspective*, maintaining that firms are nearly entirely dependent on their environments. Organizations are mostly inert and cannot change successfully—they are imprinted by both institutional and macroconditions when founded, and by endogenous and exogenous selection forces over time (Carroll & Hannan, 2000; Smith & Cao, 2007). More importantly, the selection perspective also maintains that founders establish the “organizational blueprint” in the organization’s infancy; internal founding conditions are essential for organizational outcomes, which implies a nearly permanent influence on these conditions. Routines, norms, and cultures, including gender principles and logic, established by founders imprint the organizations, and also influence the founders’ relations to each other (Yang & Aldrich, 2014), nearly inevitably leading to organizational inertia. These internally set blueprints can seldom be altered—and, if so, only at a great cost, often leading to the dissolution of the organization (Carroll & Khessina, 2005; Hannan, Baron, Hsu, & Koçac, 2006).<sup>1</sup> While setting out from very different theoretical assumptions, the “voluntaristic” perspective and the “deterministic” selection perspective both share the conception that founders are fundamental in explaining organizational performance and differences in performance—which may be outcomes of differences in team compositions.

Several explanations for organizational performance maintain that the selection mechanism is effective at several levels; consequently, these are contexts that relate to the individual, to the team, the business, the market, as well as to institutional and macro-levels. Contextualization implies a consideration of situational and temporal boundaries for entrepreneurship. In the present study, phenomena at the *individual* and/or *team* level constitute the main focus and context. This context may, or may not, lead to a particular outcome of interest—in the case of the present study, to new venture survival. Thus, in line with Welter (2011), this dimension of context is *social*. But it is not the only context: At the core of Welter’s argument, context at a “higher” level of analysis inevitably interacts with “lower” analytical levels, such as social contexts, resulting in a *context-specific outcome*. Contexts thereby operate as cross-level effects. Welter (2011) exemplifies this higher level with an institutional dimension—in general terms, a *societal* context consisting of culture, society, and the prevailing political and

economic system. One particular *social* context will interact with the “higher” *societal* context. Thus, the societal context for female entrepreneurship—attitudes and norms, regulations and policy measures—therefore interacts with the social context of the venture (in our example, female founders). This cross-level interaction produces one particular context-specific outcome that may differ from the social-societal context—or interaction—of another venture, such as that of male founders.<sup>2</sup>

Furthermore, as a team involves social relations, we can analytically conceive the mere presence of an entrepreneurial team in a venture as one particular type of context which differs from the social context of a venture founded, owned, and managed by a solo entrepreneur. The latter must rely on relations to a social network without any venture partner(s). The performance outcomes may therefore vary between the two types of contexts (e.g., Lechler, 2001).

Welter (2011) explicitly distinguishes between omnibus contexts—or contextual “lenses”—and *discrete* contexts. The latter should be considered as “variables,” or operational indicators, nested within the omnibus context; the discrete contextual variables mediate the omnibus context. In line with this, we believe that a research framework that specifically takes into account the prevailing and changing context(s) for entrepreneurship will contribute to research progress: “[c]ontext simultaneously provides individuals with entrepreneurial opportunities and sets boundaries for their actions” (p. 165). Welter (2011), in particular Aldrich (2009) and Martinez et al. (2011), specifically elaborates on *time* as context, and on the need for studying organizations comparatively. The latter rests on the empirical argument that organizations are a very heterogeneous set. By understanding the contextual effects of time (and space), we have some leverage in explaining this heterogeneity. Aldrich (2009) means that the context of the cases should be used to theorize the processes, structures, and patterns that vary across time. The critical feature of entrepreneurial outcomes is unexplored if the “black swans”—for example, those relatively few start-ups that actually survive and grow, or the even fewer that eventually have an initial public offering—are not compared with the mundane, initial total population of start-ups. From a selection perspective, Aldrich argues that the initial set of start-ups is subjected to forces beyond their control, leaving a small population of “blessed survivors.” This means that the fate and features of the initial population of start-ups—preferably the entire population of ventures that are started by either a solo founder or a team—must be ascertained. Furthermore, it implies a recognition of the fact that factors affecting entrepreneurial failure and success vary over time. Changes in the economy, in government policy and regulation, and so on, in one era allow some ventures to adapt and survive, while the same changes drive others toward failure. However, these changes may be irrelevant in another era. Aldrich’s proposal is straightforward: Until organizations from differing contexts are compared,

there is no basis for drawing conclusions about contextual differences.

In accordance with this discussion, our research framework aims at studying the effect of different contexts at different levels. This includes the explicit purpose to measure—or at least the ability to control for—different prevailing contexts when ventures are founded. *One* type of context thus pertains to social context (team or solo start-ups; team heterogeneity/homogeneity; team gender compositions), while *another*, “higher level” context, concerns the business dimension—in the present case, the industrial sector in which the ventures enter (Welter, 2011, p. 168), and the prevailing institutional and macroeconomic conditions at the start of each venture (societal context). Therefore, *time*—in the sense of the “historical conditions” prevailing when the venture was founded—and changes in those conditions over time are to be regarded as context.

### Methodological Approach

Following Aldrich (2009), in particular Martinez et al. (2011), our aim was to sample entire initial population of venture start-ups—that is, the mundane, initial population of start-ups. It also includes the objective to measure the survival of those venture start-ups. In several respects, we are able to accomplish this. While we are not able to solve all methodological and theoretical problems—we cannot capture the entire contextual “lens,” nor are we able to investigate the full dynamic relationship between all context dimensions—our research strategy with a prospective cohort approach (Aldrich, 2009; Lippman & Aldrich, 2016) significantly increases the possibility to include and control for several types of contexts at various levels, including chronological time. A cohort is an aggregate of individual units, and differences between cohorts may prevail over both short and long periods (Glenn, 1977). Our empirical data consist of several complete entry cohorts of venture start-ups followed over a predefined period of 3 years—our approach is thus longitudinal and prospective. Ideally, entry cohorts embody *all* foundings in a specific year or period; this methodology has apparent advantages when analyzing founding teams and venture performance: A cross-sectional (and even a retrospective) evaluation of solo start-ups and team start-ups will be less able to uncover the dynamics that are particularly relevant for firms in the first critical years of their existence (Stam & Schutjens, 2006). In line with this, all joint-stock companies that were founded in a particular year are sampled: There is no exclusion of ventures of a particular size or sector, gender, or of ventures founded by teams and solo entrepreneurs. Thus, we are able to take account of the initial social gender diversity of start-ups (Aldrich, 2009; Lippman & Aldrich, 2016; Martinez et al., 2011).

## Theory and Hypotheses

### *Entrepreneurial Founding Teams and New Venture Survival*

Already Cole (1959) identified the entrepreneurial team as a central phenomenon in entrepreneurship research, arguing that the social context in which the entrepreneurial functions or activities that initiate and maintain a new venture “proceeds in relationship to the situation internal to the unit itself, the social group that really constitutes the unit, and to the economic, political, and social circumstances—institutions, practices, and ideas which surround the unit” (p. 8). Later, Gartner (1989) emphasized the collective perspective, underlining the need to move away from the single-entrepreneur perspective. Since then, the interest in venture teams as analytical units has increased. Attempts to capture the venture team as a social phenomenon in the 1980s and 1990s resulted in several interesting results. Survey articles indicate that ventures founded by teams perform better than those started by single founders: In their overview, Cooper and Gimeno-Gascon (1992) reported that in four of five studies, ventures started by teams performed better than those started by single founders. Furthermore, Storey (1998) found seven studies that tested the hypothesis that ventures started by more than one founder are more likely to grow than those started by a single person. Five studies indicated support for this hypothesis. Organizational survival is generally a less employed independent variable in studies of entrepreneurial teams: In their review, Zhou and Rosini (2015) found that in the operationalization of venture performance, growth was the most common variable. In a review of a dozen empirical studies, Lechler (2001) found that 10 studies indicated a significant positive relation between the existence of an entrepreneurial team and venture growth, while no clear results were found in the two studies that used survival as the dependent variable; for instance, Cooper, Gimeno-Gascon, and Woo (1994) found that ventures with more than one founder were more likely to grow but not to survive.

More recently, Stam and Schutjens (2006), investigating a large sample of ventures in a one-cohort longitudinal study, show that a higher proportion of solo start-ups were terminated within a 6-year period as compared with ventures started by a team. Similarly, in a large-sample, multisector study by Gueguen (2013), the survival rate for ventures started by entrepreneurial teams is significantly higher over a shorter period (3 years), but this difference does not hold over longer periods. Recently, highlighting the complex relationship between solo-start-ups, start-up teams, gender, and business failure, Yang and del Carmen Triana (2017) study a representative sample of a little more than 10,000 U.S. start-ups, followed longitudinally over a 6-year period. There was no significant difference in failure between businesses started by solo-entrepreneurs and those started by teams in general. Furthermore, nonspousal same-sex teams—that is, teams

consisting of either all-male or all-female teams—did not reveal any difference in performance as compared with mixed-gender teams or (as noted above) solo-start-ups.

Past results are therefore not entirely decisive regarding the effect of teams or founding teams (or the [gender] composition of teams). Several researchers have emphasized that team ventures should not be seen as an unproblematic concept, one reason being the problem of holding an entrepreneurial team together (Eisenhardt & Schoonhoven, 1990; Lechler, 2001). Diversity in groups is often regarded as a “double-edged sword”—Milliken and Martins (1996, p. 403) and Birley and Stockley (2000, p. 296) used the same metaphor when discussing entrepreneurial teams and venture performance. The start-up process in a venture contains risks, uncertainties, and ambiguities (Sarasvathy, 2001), and it is proposed that entrepreneurial teams are a social favorable context to parallel manage risks, uncertainties, and sense making by seizing, exploring, and exploiting venture opportunities (Larsson Segerlind, 2009). Therefore, on one hand, the team can enable innovative development and fast growth; on the other hand, it can be a source of conflict and instability which may lead to the dissolution of the venture (Hambrick, Cho, & Chen, 1996; Kanter, 1983; Khan, Breitenacker, & Schwarz, 2014). Thus, even if past research on the relationship between venture survival and entrepreneurial teams is inconclusive, we formulate the following first hypothesis:

**Hypothesis 1:** The presence of an entrepreneurial founding team increases the likelihood of new venture survival.

### *Entrepreneurial Founding Team Composition, Gender, and New Venture Survival*

The first attempts to explain both the formation and (assumed) performance superiority of teams were based on the assumption that a higher degree of variety of resources and capabilities in the team could explain their success (Kamm & Nurick, 1993; Sandberg, 1992). However, in empirical findings, heterogeneity showed no direct significant impact on venture performance (Lechler, 2001). Since the early 2000s, scholars have tried to develop more valid concepts and models. Forbes, Borchert, Zellmer-Bruhn, and Sapienza (2006) found two ways of classifying the literature. Team formation is either a resource-seeking behavior or a manifestation of interpersonal attraction, where trust and relationships are already established. The latter perspective is more related to diversity in terms of *separation* (Harrison & Klein, 2007), with the assumption that homogeneity in entrepreneurial teams is not only positively related to team formation (Aldrich & Kim, 2007; Ruef, Aldrich, & Carter, 2003) but also to performance. It is argued that homogeneity in team composition is related to a high degree of trust, social cohesion, a lower degree of conflicts and better communication (Lechler, 2001; Ruef, 2010; Zhou & Rosini, 2015); the

mediating qualities of the social interaction in the team have a positive impact on venture performance. Prytherch et al. (2012) study the formation of network groups and the effect of gender differences on group formation in all-male, all-female, and mixed-gender teams, finding that early relations to group members, team bonding, and group dynamics are formed earlier in homogeneous gender groups. Therefore, it has been argued that the resource-based view may be too narrow; models and theoretical frameworks that also include factors of interpersonal social relationships and social similarity—including gender—are necessary in empirical research (Hellerstedt, 2009; Ruef, 2010; Yang & Aldrich, 2014). However, and as discussed above, Yang and del Carmen Triana’s (2017) more recent results question earlier models on teams versus solo entrepreneurs and team gender homogeneity.

The focus on the contextual aspects of entrepreneurial teams makes the theoretical assumptions visible in earlier research about diversity in entrepreneurial teams: Especially Harrison and Klein’s (2007) framework on different constructs of diversity may clarify past shortcomings and mixed results in earlier studies. They do not only argue that diversity is often constructed in terms of variety, separation, or/and disparity, but each of these constructs also brings different theoretical assumptions. Diversity in types of variety can be said to represent the resource-based theoretical perspective; the diversity-type separation is more related to social similarity attraction theory. The “missing link” in entrepreneurial team research is the use of diversity in terms of disparity. Diversity in type of disparity is rather connected to more traditional sociological theories in terms of social power, inequality, status, privileges, and so on (Ragins & Sundstrom, 1989). Power is here defined as “influence by one person over others, stemming from a position in an organization, from interpersonal relationships, or from individual characteristics” (p. 51), and can be categorized as objective or perceived. Disparity as a diversity construct is rare in empirical research on entrepreneurial teams as well as in theoretical interpretations of outcomes. However, there are exceptions (Hellerstedt, 2009; Yang & Aldrich, 2014; Yang & del Carmen Triana, 2017); for instance, Hellerstedt (2009) found that disparity (vertical diversity) in terms of differences in status was a promising theoretical perspective as it could explain much of her findings related to new venture team dynamics. Yang and Aldrich (2014) also found vertical diversity in terms of differences in gender stereotypes as a strong mechanism for explaining gender inequalities and the constraining of women’s access to power positions in the entrepreneurial team.

Zhou and Rosini (2015) argue that due to a limited number of studies and inconsistent results—and the use of different performance measurements—no conclusions can be drawn regarding the effect of entrepreneurial team diversity. Additional reasons for inconsistent findings in the past research may be improper measurements of team diversity

(Harrison & Klein, 2007). However, scant empirical research supports the notion of a positive link between gender homophily, especially male homophily, and venture survival 1 year after the start (Ruef, 2010). Therefore, and before we develop hypotheses specifically related to gender and the gender composition of founding teams, we first hypothesize on how team gender diversity and homogeneity affect new venture survival. Defining team homogeneity as ventures founded by either all-male entrepreneurial teams or all-female teams, we formulate the following hypothesis:

**Hypothesis 2:** Gender homogeneity in the entrepreneurial founding team increases the likelihood of new venture survival.

Women's entrepreneurship has been a well-established research agenda since the 1990s. The biological sex of entrepreneurs, and the analytical distinction between biological sex and gender (i.e., the social construction of sex), have therefore become a commonly included variable; stronger linkages between female entrepreneurship and gender theory are evident in recent research (Holmquist & Carter, 2009). A central discussion of female entrepreneurship concerns whether women are systematically discriminated, suggesting that ventures owned and/or managed by women exhibit a poorer performance relative to those owned by males. A "gender gap"—explained by systematic or structural factors in society—has been acknowledged to deprive women of vital resources such as education, networks, and capital (Anna, Chandler, Jansen, & Mero, 2000; Watson, 2002). Past research has shown that women entrepreneurs in the start-up stage or in the growth phase have less access to financing and venture capital (Gatewood, Brush, Carter, Greene, & Hart, 2009; Marlow & Patton, 2005). For that reason, businesses owned by women underperform by displaying smaller growth and smaller profits as well as smaller survival chances. However, Klapper and Parker's (2011) review of the extant literature finds that while there are significant differences in performance between male- and female-owned firms, past empirical research does not systematically indicate the existence of a gender gap. In essence, two major schools of thought exist in this research: *Liberal feminist theory* holds that men and women are equally comparable. The underperformance of ventures owned by women can be explained by systematic discriminating factors in society—if discrimination were not to exist, women's and men's enterprises should perform equally well. *Social feminist theory* suggests profound differences between men and women in behavior and in choice of strategy. For example, women are found to be more risk averse, and they enter into industries that have less growth opportunities. Thus, differences in choices should not imply any observed differences in performance between women- and men-operated firms (Robb & Watson, 2012). Robb and Watson find that when controlling for context at several analytical levels, female-owned new ventures do not

underperform relative to male-owned ones: Females do not seem to be disadvantaged. This result is analogous to the findings of Kalleberg and Leicht (1991), Cooper et al. (1994), and Fairlie and Robb (2009) for the U.S., and to Gottschalk and Niefert's (2013) study on German ventures. Similarly, Du Rietz and Henrekson's (2000) large-scale study of Swedish ventures maintains that when controlling for structural differences among entrepreneurs and firms, performance differences between men and women disappear.

The above discussion can generate disagreeing assumptions on the particular effects of gender and gender homogeneity on venture performance when using empirical data that are both historical and modern. It can be recalled that Hypothesis 2 states that gender homophily will increase the likelihood of venture survival. Consequently, mixed-gender team ventures will have lower survival probabilities. Past empirical results have nonetheless found that male homophily in particular has a stronger impact on future venture performance (Ruef, 2010). Even if Yang and del Carmen Triana (2017) were not able to separate all-male and all-female teams, they found that female entrepreneurs' businesses are more likely to fail as compared with male entrepreneurs. Therefore, we formulate the following two related hypotheses on gender similarity:

**Hypothesis 3a:** Male gender homogeneity in the entrepreneurial founding team increases the likelihood of new venture survival.

**Hypothesis 3b:** Solo start-ups founded by males increase the likelihood of new venture survival.

### *Institutional Transformation, Gender, and New Venture Survival*

The final aim of our study was to investigate whether the likelihood of survival for female-founded ventures—solo entrepreneurs and teams—has changed over time. Until now, we have in our framework focused on the social contexts, but as Welter (2011) claims, the "contextual lens" turns the attention toward multiple context dimensions and how they are connected. As all institutions, gender relationships are structured according to both formal and informal rules, or institutions (North, 1990; Rosenberg & Birdzell, 1986; Welter, 2011). Therefore, institutions structure human exchange, and both formal and informal institutions are subject to change over time, especially in the long term. Formal institutions, such as constitutions and laws, are complementary to informal institutions, and sometimes they even supplant informal institutions to increase efficiency, defining the behavioral constraints of economic agents such as entrepreneurs. During uncertainty, the function of formal institutions is to facilitate exchange. Informal institutions are derived from culture, regulating societal behaviors; cultural traits have a tendency to survive over time, often longer than formal institutions;

and North (1990) maintains that the combination of formal and informal rules defines the institution. This combination provides the basis for persistent incremental institutional change in the game between agents and interests competing for economic, social, and political power.

Changes in formal and informal institutions are seldom synchronized; a formal institutional change may not always alter the informal institution and social norms, at least not in the short term. That is also why informal structures and social relationships, such as discrimination, may endure over long periods of time. The implications of institutions on entrepreneurship in general (Baumol, 1996), on entrepreneurial entry and entrepreneurial intentions (e.g., Stenholm, Acs, & Wuebker, 2013), as well as on female entrepreneurship (e.g., Estrin & Mickiewicz, 2011) are today significant research and policy agendas. It is often concluded that institutional arrangements affect entrepreneurial outcomes and intentions, such as entry into self-employment.

Much research is regularly cross sectional, and institutional change over longer periods is therefore often difficult to include in the analysis (Aldrich, 2009; Martinez et al., 2011; Welter, 2011). However, we may think of institutions as either favorable or unfavorable contexts, or conditions that will affect particular economic actors or groups, and these contexts are subjected to change over time (Rosenberg & Birdzell, 1986). As in several other developed economies, the institutional context for women entrepreneurs in Sweden and for women as a social group has changed profoundly during the last 100 years (Bladh, 1997). Significant economic reforms in the 1860s gave men and women formal equal rights to run a business, but this did only pertain to unmarried women. An unmarried woman had no majority but she had the right to apply for majority at court (her right was the right to apply), otherwise her father would be her legal guardian. If a woman with majority married, she once again received a legal guardian: the husband. If widowed, a woman received majority. Women formally received equal rights in 1921, but they were still subjected to several informal and structural constraints in numerous ways (Axelsson, 2006). Both informal and formal institutional conditions, such as restricted rights to control personal assets, remained for women well into the early 1950s: Bersbo's (2012) study of Swedish women's economic independence and women's struggle for gender equality shows that informal institutions, and a discourse which deprived women of equal economic rights, remained during a large part of the 20th century. Above all, Bersbo shows that the progression toward women's economic rights was an extended and gradual process: political and economic reforms in the early 1920s, the late 1930s, and in the early 1970s gradually improved the formal conditions for women economically (see also Sundin, 1995; Svanström, 2003). It is not until the 1980s, in particular the 1990s, that we can observe a more distinct change in both informal and formal institutions for female entrepreneurship. New types of women's social movements, focusing on female entrepreneurship,

saw the light of the day, and economic policy has distinctly acknowledged and actively supported women entrepreneurs in Sweden in a few recent decades (Wottle & Blomberg, 2011).

Following these insights and the suggestions from Yang and Aldrich (2014), we make the assumption that the institutional context affects the social context for women entrepreneurs in the sense that an institutionalized gendered logic, based on unequal gender stereotypes, may still be a hidden structure and a power mechanism that constrains women entrepreneurs. Time is a contextual factor; the formal and informal societal conditions for women entrepreneurs have most likely improved over the course of time. Thus, and conditional on the previous hypothesis (H3), we formulate the following hypothesis:

**Hypothesis 4:** Changes in the institutional and societal context for women entrepreneurs affect gender differences in the likelihood of new venture survival.

## Method and Data

As noted in passing, the methodological approach in this study is to use complete entry cohorts of ventures, founded during different periods. Our data consist of six individual birth cohorts of Swedish joint-stock companies, founded in 1930, 1942, 1950, 2001, 2003, and 2005.<sup>3</sup> The dataset covers a total of 22,974 joint-stock company start-ups, and records new venture survival in each cohort over a 3-year period. With the aim of producing a long dataset that is as homogeneous as possible, we have combined very different source materials, and we utilize two subsets of data. One subset—consisting of the cohorts from 1930, 1942, and 1950—is constructed from unprinted, archival public sources (Swedish Patents and Registrations Office, preserved at the Swedish National Archives).<sup>4</sup> During the assembly of this particular subset, information on the company founders pertaining to team size and to gender was recorded. The second subset—the cohorts from 2001, 2003, and 2005—consists of data commonly not readily available in public databases. It has been made available exclusively to us by the Swedish Agency for Growth Policy Analysis.<sup>5</sup>

As noted, our aim was to create a homogeneous database in the sense that independent variables in the study should not differ or be biased, neither within nor between different birth cohorts. Specifically, indicators for firm survival, gender, line of business, and corporate form should be consistently defined. This is not an uncomplicated task, considering that very different sources have been utilized. Our dataset is not flawless: To begin with, and as we only have two observation points in time for each cohort, we are not able to study whether a venture experiences succession during the 3 years of observation. Thus, we measure how certain characteristics of the ventures upon founding—team, team composition, and gender—would affect venture survival (Carroll &

Khessina, 2005; Ruef, 2010). Furthermore, our dataset excludes other corporate forms such as trading firms or sole proprietorships. To be able to make valid comparisons, we have chosen this type of corporate form, and the reason is that the three cohorts from 1930, 1942, and 1950 concern joint-stock companies only. Historical cohorts on other corporate forms are virtually impossible to collect as no archives have been systematically preserved. Furthermore, the older subset consists of companies founded in the capital of Stockholm as it takes considerable time to create a birth cohort of companies from preserved public records archives. The subset of firms founded in 2001, 2003, and 2005 covers the entire country, and therefore it covers substantially more companies. However, the 1930-1950 dataset includes a rather large share of the total number of joint-stock companies entering in these years—for example, Cohort 1930 covers approximately 22% of all newly founded joint-stock companies in Sweden that year (Statistics Sweden, 1940, 1951). At present, we are not able to evaluate whether companies founded in Stockholm differ from those founded in the rest of the country.

Another factor for which we are presently unable to control is the start-up size of the ventures, as we lack suitable indicators; we acknowledge that there is ample support for the notion that business performance and survival are positively correlated with both firm age and firm size (e.g., Hart, 2000). In addition, while the older subset (1930-1950) measures entry and survival at the level of the firm, the other subset measures survival at an aggregated level—specifically, it records *frequencies* of particular categories of ventures, pertaining to founder teams, gender, sector, and so on. For that reason, we have aggregated the data in the 1930-1950 subset, thus “harmonizing” it with the 2001-2003 data.

Our data are analyzed with binary logistic regression using frequency weights: The data have been arranged such that we have one observation per response category at the start,  $t_0$ , and one observation after 3 years, at  $t_3$ , for that particular response category. Survival over 3 years is the dependent variable, and it is a binary outcome (0/1)—consequently, for each response category, we measure the survival frequency between  $t_0$  and  $t_3$ . Overall, the different variants of categories give 120 rows of observations for the total of 22,974 ventures. It is acknowledged that the relative imbalance in sample sizes between the cohorts founded 1930-1950 and 2001-2005, respectively, may influence our results.

## Variables

As noted in passing, the *dependent variable* in the analysis is *venture survival*, and the dataset consists of observations (frequencies) of the number of ventures entering a particular year (cohort) and of the number of ventures in that cohort that survived after 3 years. We also use a set of independent variables and controls. The operational definition of entrepreneurial *founding teams* and ventures founded by *single*

*entrepreneurs* is based on the organization of public records in Sweden; this organization is, in turn, based on formal laws and regulations. Between 1912 and 1948, companies were subjected to the Joint Stock Companies Act of 1910, effective from 1912 (*1910 års aktiebolagslag*). The act stated that the owners (the shareholders) had the function as the company's *deciding* body. The act of 1910 was replaced by a more detailed act in 1944 (*1944 års aktiebolagslag*), effective from 1948. A more precise division between the management, the board, and the owners was introduced. The act from 1948 was replaced by a new act (effective to 2006) in 1975, further strengthening the position of the board (af Sandeberg, 2005). Yet, even if the legislation has changed, the nominal/legal definition of company founders has practically remained intact. Throughout the entire period of study in the present article (1930-2005), company founders are defined as those that own shares in the company (i.e., owners). Board members are appointed in the memorandum; in more than nine of 10 cases, individuals who constitute the company founders are also those who form the board. Therefore, the definitions of ownership and control strongly overlap. In the present study, and in official Swedish statistics, founders and founding teams are defined as the individuals who own shares in the company upon founding, and the empirical definition of company founders in the present study thus includes the individuals with an economic, executive, and strategic interest. This nominal definition therefore relates to recent definitions of entrepreneurial teams (Schjoedt & Kraus, 2009).

Both entrepreneurial founding teams and solo founders, as well as the *gender of founders*, are uniformly measured across cohorts. The gender variable relates to biological sex. The independent variables “single founder” and “founder team” are defined as “one founder” or “two or more founders,” respectively; this procedure is in line with the past research (e.g., Stam & Schutjens, 2006). We are presently unable to include more fine-grained measurements of the size of teams or the nature of the particular (gender) mix of individual founding teams. Ventures founded by a solo (i.e., one) entrepreneur are coded either as “male founder” or as “female founder”; ventures founded by teams are categorized into three categories: “all male,” “all female,” and “mixed gender.”

To test the hypothesis on *institutional conditions* for female entrepreneurs (H4) and following past historical research, we have divided our sample according to institutional conditions. Ventures founded in 1930, 1942, and 1950 are considered to be dependent on one particular type of institutional condition for female entrepreneurs; ventures founded in 2001, 2003, and 2005 are considered to be dependent on a qualitatively different set of conditions. It is assumed that these distinctions indicate and can measure increasingly benign conditions for female entrepreneurs. Admittedly, this is a very crude coding of the institutional conditions. Moreover, the interval(s) between individual

**Table 1.** Descriptive Statistics. Frequencies and 3-Year Survival Rates.

Cohort	1912	1930	1942	1950	2001	2003	2005	N	%	Survival rate (%)
Solo venture start-ups	5.2	8.0	11.5	8.3	58.0	57.6	56.7	12,536	54.2	77.9
<i>Single female founder</i>	<i>0.0</i>	<i>1.1</i>	<i>0.5</i>	<i>0.2</i>	<i>8.1</i>	<i>8.3</i>	<i>10.6</i>	<i>1,981</i>	<i>8.6</i>	<i>73.7</i>
<i>Single male founder</i>	<i>5.2</i>	<i>6.9</i>	<i>11.1</i>	<i>8.1</i>	<i>49.9</i>	<i>49.3</i>	<i>46.2</i>	<i>10,555</i>	<i>45.7</i>	<i>78.8</i>
Team venture start ups	94.0	92.0	88.5	91.7	42.0	42.4	43.3	10,581	45.7	81.1
All female	0.0	1.3	0.5	1.0	2.1	2.3	2.9	559	2.4	78.5
All male	88.1	62.8	59.2	65.5	25.1	24.5	25.0	6,350	27.5	81.9
Mixed gender	6.0	27.9	28.7	25.2	14.8	15.6	15.3	3,672	15.9	79.9
Survival rate (%)	64.2	67.3	90.7	93.1	73.2	77.0	85.9			
N ventures	134	452	407	504	6,620	6,578	8,413	23,108	100.0	79.5
GDP growth (%), $t_{-1}-t_2$	12.38	-3.31	7.31	7.32	4.66	8.29	8.30			

Note. Cohort 1912 is included in the descriptive statistics but is excluded from the analyses (Tables 2-4).

The significance of italic text denotes sub-groups.

cohorts and periods differ substantially—for instance, the period 1930-1950 covers 20 years (a long period during which there were substantial changes in exogenous conditions), while the 2001-2005-period is considerably shorter. Furthermore, this approach includes other changes of the environment—political, societal, economic, environmental, technological, and so on—which cannot be directly measured. However, from our readings of past research (Axelsson, 2006; Bersbo, 2012; Bladh, 1997; Svanström, 2003; Wottle & Blomberg, 2011), we theorize that both attitudes and formal conditions—including policy measures—toward female entrepreneurship in Sweden have improved over the period of investigation.

We also use *control variables* in the analysis. *Cohort* is a control variable; furthermore, to control for the potential influence of *macroenvironmental conditions* at the time of founding on venture survival, we include a control represented by the GDP per capita growth rate (between  $t_{-1}$  and  $t_2$  fixed prices) at the time of founding of each cohort (Schön & Krantz, 2015). Furthermore, we include a control for *industry sector*. The 2001-2005 dataset is also categorized into two main industry sectors: “manufacturing” and “services and trade” (Swedish Agency for Growth Policy Analysis). Admittedly, this is a very simple and “broad” definition of industry—particularly when considering that, within these broad sectors, there are industries with higher (lower) risk and higher (lower) growth potential, and so on. However, past research shows that industry affiliation may affect venture performance in general (e.g., Audretsch & Mahmood, 1995) and performance in female-owned ventures in particular (e.g., Du Rietz & Henrekson, 2000). We have coded the ventures in the older subset (1930-1950) in a similar manner.<sup>6</sup>

It is acknowledged that possible disadvantages with our empirical data lie in an inability to precisely measure and/or control for several factors. Furthermore, there is an imbalance in the size of the two main datasets (1930-1950; 2001-2005) which may influence the analysis. However, the explorative approach of our study and the prospective longitudinal design

of our empirical database have the potential to generate new knowledge and new research questions.

## Results

We present descriptive statistics for survival rates, teams, and gender composition in seven cohorts in Table 1, not only the six cohorts that are included in the statistical analysis. First, it can be noted that the survival rate over 3 years differed substantially between cohorts: Around 67% of the ventures survived for 3 years or more in the cohort from 1930, while the highest 3-year survival rate is found among firms in the cohorts from 1942 to 1950 (above 90%). In the cohorts from the 2000s, Cohort 2005 has the highest survival rate, which is nearly 86%. Overall, a little less than 80% of the ventures in the entire dataset survived for 3 years. The variation in survival between cohorts has no simple, straightforward explanation. However, the first years for the ventures in Cohorts 1912 and 1930 coincide with worsening macroeconomic conditions—in the case of Cohort 1912, the outbreak of World War I in 1914; in the case of Cohort 1930, the economic depression in the early 1930s. Furthermore, ventures in Cohorts 1942 and 1950 were founded during a period of economic growth and economic protection; in particular, during World War II, the Swedish economy was strongly regulated, and it expanded significantly. Similarly, in the early 2000s, Swedish economic growth fell significantly; between 2000 and 2001, it was less than 1% and merely 1.8% in 2002 (Schön & Krantz, 2015). The economy gradually recovered, and it is likely that the increasing 3-year survival rates in Cohorts 2001, 2003, and 2005 partially reflect this process. Overall, these very different survival rates between the entry cohorts clearly reveal the advantages of a multicohort study. If we are not able to control for the (historical) period of entry, and the fact that one set of ventures may have systematic and structural differences in survival as compared with other sets of ventures, we may run the risk of confusing the factors that affect venture performance.

**Table 2.** Teams and Gender Homogeneity. Binary Logistic Regression.

	1	2	3a (restricted)	3b (full)
Constant	0.681*** (0.0725)	0.618*** (0.0652)	0.681*** (0.0737)	0.630*** (0.0729)
Cohort	1.035*** (0.0090)	1.039*** (0.0094)	1.039*** (0.0113)	1.039*** (0.0094)
Manufacturing sector	1.030 (0.0260)	1.024 (0.0261)	1.032 (0.0368)	1.025 (0.0262)
Macroeconomic growth	0.991*** (0.0028)	0.992*** (0.0029)	0.989*** (0.0037)	0.992*** (0.0029)
Founding team		1.049** (0.0203)		1.060** (0.0230)
Founding team gender homogeneity			1.026 (0.0309)	1.027 (0.0230)
Log likelihood	-60.111	-96.162	-92.957	-134.244
Chi-square	32.437***	38.192***	21.888***	38.962***
AIC/BIC	128.223/162.733	202.325/245.462	195.913/235.161	280.488/332.253
Degrees of freedom	3	4	4	5
N ventures	22,974	22,974	10,445	22,974

Note. Standard errors in parentheses. AIC = Akaike information criterion; BIC = Bayesian information criterion.

\*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Overall, the social structure of our data (Table 1) resembles other datasets on solo and team ventures (cf. Yang & del Carmen Triana, 2017), particularly concerning our own cohorts from the 2000s. For instance, nearly half of the new businesses were started by teams, and there is an overall dominance of males (which diminishes over time). Furthermore, the descriptive statistics preliminary suggests that ventures founded by females (single founders as well as teams) have a lower survival rate as compared with those founded by males. Around 54% of the ventures were started by a single founder, whereas some 46% were started by a team. We also observe variation across time. No venture in Cohort 1912 was started solely by women—neither as solo-start-ups nor in teams—and a smaller share of women than men was involved in mixed-gender teams. The figure is also relatively low for the Cohorts 1930, 1942, and 1950, in both absolute and relative terms. In this particular dataset, it became less common to found a venture with a team (falling from around 90% in the early 1900s to around 40% in the early 2000s). Similarly, mixed-gender founding teams were somewhat more common during the first half of the 20th century as compared with the early 21st century. Without doubt, the share of females engaged in new venture creation (either as single founders or in teams) seems to have increased over time; this is also supported by other data (Statistics Sweden, various years). However, as can be observed, the majority of ventures are founded by males. There is also a variation across different categories of ventures. Specifically, the overall 3-year survival rate of ventures started by entrepreneurial teams is higher (81.1%) than those founded as solo start-ups (77.9%). For solo venture start-ups, male founders have higher survival rates than female founders; the

difference is nearly 5 percentage points. Similarly, ventures founded by all male teams reveal a higher survival rate than ventures founded by all females in our data—nearly 82% against 78.5%. Mixed-gender founding teams position themselves in between (79.9%).

We ask in our study if differences in venture survival can be explained by team gender composition, gender, and institutional change, analyzing the data with binary logistic regression. The first results are presented in Table 2. Coefficients are reported as odds ratios: If a coefficient exceeds 1.0, the effect of an independent variable increases the probability of survival; if less than 1.0, the probability decreases. Model 1 is the baseline model, controlling for cohort, sector (service/trade and manufacturing), and macroenvironmental conditions at the time of founding and during the first 2 years of each cohort (GDP growth). Model 2 introduces a variable for ventures started by founding teams. As can be observed, and when controlling for cohort, sector, and macroconditions, the presence of teams in a venture significantly increases the probability of survival. This result supports Hypothesis 1: Founding teams will increase the likelihood to survive.

Hypothesis 2 proposed that gender homogeneity increases the likelihood of survival. Model 3 aims at testing this hypothesis, and the model comes in two variants that both introduce the variable for ventures founded by homogeneous teams (either all male or all female). Model 3a is a “restricted” model and only analyzes ventures founded by teams—solo start-ups are here excluded from the analysis. The model shows that it cannot be established that team gender homogeneity per se increased the survival prospects in comparison with teams consisting of both males and females. Similarly, Model 3b,

**Table 3.** Gender Composition of Teams and Solo Start-Ups. Binary Logistic Regression.

	4a (restricted)	4b (full)	5a (restricted)	5b (full)
Constant	0.699*** (0.0710)	0.687*** (0.0626)	0.559*** (0.1336)	0.655*** (0.0654)
Cohort	1.039*** (0.0114)	1.040*** (0.0094)	1.066** (0.0182)	1.039*** (0.0094)
Manufacturing sector	1.031 (0.0369)	1.020 (0.0263)	1.022 (0.0274)	1.023 (0.0262)
Macroeconomic growth	0.989*** (0.0037)	0.992** (0.0029)	0.994 (0.0047)	0.992** (0.0029)
Solo start-up		0.947** (0.0231)		
Team start-up				1.039* (0.0210)
Founding team gender composition				
Mixed-gender team	0.973 (0.0314)	0.968 (0.0309)		
All-female team	0.985 (0.0669)	0.944* (0.0328)		
Single female founder			0.946* (0.0325)	0.933* (0.0376)
Log likelihood	-115.439	-186.810	-122.833	-187.002
Chi-square	21.936***	42.030***	48.948***	41.646***
AIC/BIC	242.879/289.977	387.621/448.013	255.667/298.490	386.004/437.769
Degrees of freedom	5	6	4	5
N ventures	10,445	22,974	12,529	22,974

Note. Standard errors in parentheses. AIC = Akaike information criterion; BIC = Bayesian information criterion.

\*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% level, respectively.

using the entire sample (also including solo start-ups), gives no support for the assumption that founding team homogeneity increases the survival performance. Even if the odds ratio is greater than 1.0, it is not significant in either variant of Model 3. Therefore, the second hypothesis (H2) receives no support.

Table 3 presents results with the aim of testing the third hypothesis (H3), which stated that male gender homogeneity in a founding team will lead to a higher probability of survival as compared with other team compositions (H3a), and that solo start-ups by males will have a higher probability of survival (H3b). The results in Table 3 give partial support for the notion that all-male founding teams perform better than other team compositions. Specifically, they perform better than all-female-founded ventures (however, no significant difference is found between all-male and mixed-gender founder teams). Like Model 3, Model 4 comes in two variants: one restricted version that excludes all solo start-ups, and the other full version that includes all solo start-ups. Model 4a, which only focuses on ventures founded by teams, shows no significant difference in survival between mixed-gender founding teams and all-male founding teams, even if the odds ratio is less than 1.0. Similarly, ventures founded by all-female teams exhibit no significant difference in survival as compared with all-male founding teams. Hypothesis 3a

thus receives no support. However, when using solo start-ups as a control variable (having a significantly lower survival rate than ventures founded by teams; cf. Models 2 and 3a), the full-sample analysis (Model 4b) shows that all-female founding teams had a significantly lower probability of survival as compared with ventures founded by all-male teams (significant at the 10% level; level of significance = .08). Thus, given that we include *all* ventures in the dataset, controlling for the presence and the significantly negative survival probability of solo start-ups, our results indicate that all-female teams had a lower probability of survival with their ventures.

However, these results are not entirely conclusive, as there may well be no substantial difference(s) between different team constellations. Specifically, it is highly probable that solo start-ups are, in fact, responsible for the obtained (and rather low) significant effect for female-team-founded ventures in Model 4b: When including only solo-founded ventures is an alternative model (not reported here) and using solo-ventures founded by males as the reference category, it turns out that male-founded ventures have a statistically higher probability (close to the 5% level: significance = .06; odds ratio = 1.074) of surviving with their business as compared with solo ventures founded by females. In fact, this result mirrors the obtained result on solo-founded ventures

**Table 4.** Gender and Institutional Conditions. Binary Logistic Regression.

	6a (2001-2005)	6b (1930-2005)	7
Constant	0.559*** (0.1336)	0.638*** (0.0700)	0.431*** (0.1080)
Cohort	1.066*** (0.0182)	1.036*** (0.0090)	1.094*** (0.0250)
Manufacturing sector	1.022 (0.0274)	1.024 (0.0260)	1.018 (0.0240)
Macroeconomic growth	0.994** (0.0047)	0.991** (0.0030)	1.001** (0.0028)
Male-founded ventures	1.057* (0.0330)	1.066** (0.0330)	1.491*** (0.0790)
Mixed-team ventures	1.057 (0.0400)	1.068* (0.0390)	1.426*** (0.1010)
Male-founded ventures × p2001/2005			0.710*** (0.0740)
Mixed-team ventures × p2001/2005			0.742** (0.1000)
Log likelihood	-98.610	-146.719	-138.461
Chi-square	37.594***	63.732***	47.387***
AIC/BIC	207.221/249.215	303.438/345.704	288.922/339.641
Degrees of freedom	5	5	7
N ventures	21,611	22,974	22,974

Note. AIC = Akaike information criterion; BIC = Bayesian information criterion.

\*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% level, respectively.

by females in Model 5a (reported below). Hence, we can here only conclude that the assumption of female founding teams being less (or more) prone to survive as compared with other constellations—males or mixed-gender teams—receives scant support. Nonetheless, these results also indicate that analyses of samples only consisting of team-founded ventures (such as in Model 4a), and that do not control for other types of firms that enter or exist during the same interval (here: solo start-ups), may produce different and potentially skewed results.

Model 5 aims at testing Hypothesis H3b: Model 5a is restricted and only includes solo start-ups; here, the variable for ventures of single female founders shows a significantly lower survival probability (also supported by the alternative model discussed above). When including the full sample (5b), thus also including ventures started by teams, this negative effect remains—ventures started by single female founders showed a lower probability of survival. Overall, from Models 4 and 5, we can only conclude that ventures founded by single female entrepreneurs had a higher risk of exit within 3 years from the start; any gender-specific homogeneity effect—for both male and female teams—is difficult to discern.

Table 4, finally, reports the results that test the fourth hypothesis (H4), which stated that improvements in the institutional and societal context for female entrepreneurs decrease the gender differences in the probability of new venture survival. It can be recalled that we hypothesized that

there was a positive increase in the overall institutional conditions for women entrepreneurs during the century. In preliminary tests, we constructed separate models for ventures founded by all-female entrepreneurial teams and for solo start-ups founded by female entrepreneurs, respectively. No significant results were obtained; furthermore, the number of observations on female solo-entrepreneurs in the older cohorts is very few. We therefore test the final hypothesis (H4) by including indicators of all types of female-founded ventures, irrespective of whether they are founded by teams or are founded as solo start-ups.

Table 4 presents two models. As can be observed, Model 6 comes in two variants: 6a and 6b. As in our previous tests, Model 6 is quite “invariant” to time—rather, we treat all our observations as a single “cross-section.” To assess whether it can be established that female-founded ventures are generally less prone to survive, we contrast the survival of male-founded ventures (both solo ventures and team ventures) and mixed-gender ventures against ventures founded by females (solo start-ups and team start-ups) in the cohorts from 2001, 2003, and 2005 in Model 6a (thus excluding the cohorts from 1930, 1942, and 1950). The results show a significantly lower survival rate for Swedish ventures started by females in the early 2000s (however only at the 10% level). As we assume *ex ante* that the conditions for female entrepreneurs have improved over time in Hypothesis H4, it is not surprising that this pattern remains in the full model, Model 6b. Here, female-founded ventures generally exhibit lower

survival rates across time as compared with ventures founded by males (solo or in teams) and mixed-gender teams. In particular, the full-sample analysis in Model 6b (Cohorts 1930-2005) gives statistical support for this conclusion: Both male-founded ventures and mixed-gender team-founded ventures have a statistically higher probability of surviving. Thus, once more, we find support for the assumption that female-founded ventures had a lower propensity to survive (see Hypothesis H3).

However, Model 7 attempts to analyze differences between different periods. This model introduces interaction terms for institutional conditions for both male founding entrepreneurs (solo as well as teams) and mixed-team founding entrepreneurs in which we contrast the period 2001-2005 (1) against the previous period, 1930-1950 (0). The odds ratios for both interaction terms are smaller than 1.0 and significant. Our hypothesis receives support: in this model, the relatively better performance by ventures founded by men and mixed teams weakens over time, relative to ventures founded by females (solo as well as teams). This suggests that ventures founded by women in the 2000s may have better survival chances in comparison with ventures founded by women under more disadvantageous institutional conditions.<sup>7</sup> In conclusion, we find that some, but not all, of our hypotheses receive support in our analysis and in our dataset.

## Discussion and Conclusion

In this study, we initially asked if there is a difference in the likelihood of survival for ventures founded by an entrepreneurial team, as compared with ventures founded as solo start-ups. When controlling for initial conditions—cohort, sector, and macroenvironmental conditions—our empirical results showed that ventures with an entrepreneurial founding team had a significantly increased survival probability. Earlier convincing studies have found that entrepreneurial teams perform better than single entrepreneurs, measuring performance in terms of venture growth. When it comes to performance in terms of *survival*, earlier research has produced more mixed results. In that sense, and even if the team effect was modest, the present study could be viewed as an essential empirical contribution to research on entrepreneurial teams and venture performance. Earlier studies (Gueguen, 2013) have shown that even if the survival rate of the entrepreneurial team is significantly higher over 3 years, the higher survival rate is not this significant over longer time periods—even if this may be the case, we have been unable to study longer effects in the present article. Regardless of this, other large-sample analyses have questioned the advantages of start-up teams in relation to solo-founded ventures (Yang & del Carmen Triana, 2017); thus, past results are not entirely conclusive. Our results do, however, support the notion that founding teams increase ventures' survival prospects, and—as we use historical data—it appears to be a

general and rather “timeless” phenomenon. Even if we have studied longer historical intervals, the analysis of the ventures' survival times has admittedly been moderately short. Our ambition is to develop databases on more contemporary conditions that can be used for analyses of longer survival times.

In explaining the higher survival rate for entrepreneurial founding teams, we argue that the start-up process in a venture contains risks, uncertainties, and ambiguities (Sarasvathy, 2001); under these conditions, it can be assumed that the social context of stakeholders, in terms of an entrepreneurial team, is a favorable contextual setting (cf. Larsson Segerlind, 2009).

The second research question asked whether the probability of venture survival is affected by the gender composition of founding teams. Earlier studies are scarce and they have produced mixed results (Zhou & Rosini, 2015), but they indicate that gender-homogeneous teams have better survival rates than heterogeneous teams (Ruef, 2010). However, we did not find such an effect. It has been argued that diversity, in terms of separation (homogeneity), is a positive factor for explaining not only the formation but also the performance of ventures. However, our results indicate that homogeneity is not a strong explanatory factor for performance in terms of survival. Our findings are in line with recent results (Yang & del Carmen Triana, 2017), questioning earlier models that claim an advantage from team homogeneity. Another explanation for our results can be that our samples of heterogeneous teams most likely include both spouse- and non-spouse teams. It is often argued that mediating factors such as trust and mutual commitment (e.g., in spouse teams) make the entrepreneurial team capable of handling a high degree of risk, uncertainty, and sense making in early phases of the venture. Previous results have shown that spouse teams have better survival rates than both nonspouse teams and homogeneous teams (Hellerstedt, 2009; Ruef, 2010). Presently, we are unable to distinguish these categories of teams.

When we went further, examining the effect of different gender compositions, the results were mixed. The assumption of a lower survival probability for all-female teams only received weak support. Furthermore, we found no support for a difference in survival for mixed-gender teams, as compared with all-male teams. These results indicate a gender effect on venture survival; however, the variable for single female founders exhibited a significantly lower survival rate. A bold conjunction of this observed lower survival rate for single female founders is that unfavorable institutional conditions affect the chances of survival of this type of ventures. In line with earlier studies (Lechler, 2001; Yang & del Carmen Triana, 2017), we interpret these partial and mixed results as an overall gender effect (more than a demographic initial condition as in much past research). These results may suggest that research needs to comprehensively include social power as a theoretical perspective. The role of and the distribution and possession of power, status, prestige, and the

attitudes to gender stereotypes—both in the internal social setting of the ventures and in relation to the external society—need to be further elaborated on. Furthermore, the empirical results related to the third hypothesis in the present article, that ventures founded by males will have a higher likelihood to survive, support these statements.

As gender is an integral phenomenon in our study, we asked in our third and last research question if venture survival in general is conditional on founders' gender, and whether this relationship has changed over time. In line with past results, we found that female-founded ventures had a higher likelihood to exit relative to other constellations (cf. Yang & del Carmen Triana, 2017). We further assumed that gender differences in the likelihood of new venture survival will decrease if the institutional context for female entrepreneurship becomes more favorable over time. We found distinct, significant support for this hypothesis. Our interpretation of the results is that the mix of unfavorable formal and informal institutions of that time and age could partially explain the lower survival rate for female founding entrepreneurs in the first half of the 20th century. At the beginning of the 21st century, most of the unequal formal institutions have disappeared, and there has also been a progress of more favorable *informal* rules and norms. Therefore, we believe that the use of a *temporal* contextual lens (Welter, 2011) has helped capture some aspects of changes in the societal and institutional context for women entrepreneurship and economic activity in Sweden from the early 20th century to the early 21st century (e.g., Bersbo, 2012; Wottle & Blomberg, 2011), and how it would affect venture performance. Institutional transformation is a long process, particularly changes in *informal* institutions. We do not mean that gender institutional transformation is necessarily a linear or straightforward process (cf. Bladh, 1997), but we argue that the underlying trend in Sweden has been that both formal and informal institutions have transformed to more favorable conditions between the early years of the 20th century and the 21st century. However, our results indicate that there is still an institutionalized gendered logic, based on unequal gender stereotypes, that is “lurking beneath the surface” (Yang & Aldrich, 2014, p. 20). These power mechanisms may affect the social context and set boundaries for women entrepreneurs; our analysis of female-founded ventures in the 2000s distinctly showed that they had a significantly lower probability of surviving as compared with other constellations.

If we conclude the empirical results and our empirical contribution, we find that initial contextual social conditions, in terms of a venture founded by an entrepreneurial founding team, have an effect on new venture survival (over 3 years). As noted, these results are partly at odds with recent research (Yang & del Carmen Triana, 2017). However, Yang and Triana also question earlier models on the advantage of team homogeneity, which we have also found in our study. Furthermore, their results show that female ventures

underperform relative to male-founded ventures, and we have discovered a similar pattern for Sweden—historically, but also presently. We also find that gender effects on new venture performance may interact with changes in the institutional environment. In that sense, time is an important and essential contextual factor in explaining entrepreneurial phenomena, also when it comes to entrepreneurial teams. As for the theoretical conclusions and contributions of the article, we argue that Harrison and Klein's (2007) conceptual and theoretical clarification of the three constructs of diversity—*variety, separation, and disparity*—has potential for future research about contextual aspects of entrepreneurial teams. We were not able to fulfill the request from Harrison and Klein (2007) to develop more reliable and valid measurements of diversity. In particular, we argue that gender diversity in entrepreneurial teams in relation to performance can benefit from including a social power perspective in analyzing the results, as it is coherent with a contextual and institutional perspective. In particular, we would like to emphasize the perspective of institutional transformation. The latter statement is not new in the debate (Welter, 2011), but there have been few empirical studies that have actually included temporal and societal contextual perspectives. With our article, we have attempted to contribute to this discussion.

## Implications and Future Directions

A rising awareness of time and context (Welter, 2011)—and of time *as* context (Aldrich, 2009)—increases the ability to separate the unique from the general, as well as the ability to control for factors that are influential on the outcome of interest. In line with recent claims (e.g., Aldrich, 2009; Lippman & Aldrich, 2016), we maintain that the initial diversity of start-ups must be considered—otherwise, any observed or assumed team effect will be difficult to discern. Our findings indicate that this may be the case. It also means that it should be possible to measure the *composition* of founding teams—in our case, the gender composition. Longer observations increase the opportunity for dynamic analyses of organizational performance over time (Martinez et al., 2011). Thus, our study contributes to research on entrepreneurial teams, gender, and institutional transformation. Factors that are often identified as important for organizational performance—founding teams and gender—should not be analyzed in isolation but simultaneously. Data that are both historical and contemporary have a built-in historical/institutional dimension. Such data can test and evaluate previous assumptions in research that relate to gender and gender theory, as well as research on contextual implications on entrepreneurial teams. Naturally, the data and measurements employed in this study can be both refined and extended when elaborating on issues on venture survival time and performance. We propose that Harrison and Klein's (2007) framework about different constructs of diversity is fruitful for building

proper measurements of diversity in entrepreneurial teams. Furthermore, from our general results, it is possible to make more in-depth studies of particular cases or groups of firms and groups of teams. Both these avenues for research will be carried out in future studies.

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### Notes

1. Organizations that experience founder successions do often have higher mortality rates (Carroll, 1984; Haveman, 1993; Haveman & Khaire, 2004).
2. Welter (2011) acknowledges the two-way interaction between various context dimensions; more specifically, top-down effects of context on entrepreneurship and bottom-up processes influencing context. In our study, we are not able to study the bottom-up perspective.
3. The full database also includes a cohort from 1912. As there are no ventures founded by single women or female teams, we do not include this cohort in the statistical analysis. However, this cohort is interesting from a longitudinal and institutional perspective, and we include it in the descriptive statistics (Table 1).
4. The chronologically held main register of joint-stock companies (*Aktiebolagsregistret*) at the Swedish Patent and Registrations Office (*Patent- och registreringsverket*, PRV)—preserved at the Swedish National Archives (*Riksarkivet*)—constitutes the very foundation for establishing a birth cohort of companies. The register consists of individual, physical records over each joint-stock company in Sweden that was ever formed between 1897 and 1972 (Box, 2005).
5. We are grateful to Lars Sundell, Swedish Agency for Growth Policy Analysis, for providing these data.
6. The line of business (sector) is based on the founders' statement upon the registration of the company, and for each individual company, we have qualitatively assessed the line of business into either "manufacturing" or "services or trade" (Patents and Registrations Office).
7. Complementary bivariate analyses (chi-square) that solely focus on the female-founded ventures and that distinguish female ventures founded in the two institutional settings (1930-1950 = 0; 2001-2003 = 1) show the following. Female-founded ventures in the first institutional period (i.e., 1930-1950s) exhibit a 3-year survival rate of less than 50%, whereas

ventures founded in the 2000s have a survival rate of more than 75%. The difference is statistically significant (chi-square = 8.894; significance = .003). All other things being equal, this indicates that the overall institutional conditions for women entrepreneurs have improved. This also seems to be the case for all-female founding *teams* (excluding ventures founded by a single woman); although significant "only" at the 10% level, all-female founding teams in the 2000s cohorts reveal a significantly higher probability of surviving (survival rate = 82%) with their ventures compared with all-female founding teams in the first half of the 1900s, which exhibit a survival rate of 61.5% (chi-square = 3.664; significance = .056).

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