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In the Right Place at the Right Time: Submarkets and Entry Timing Advantages in the US Comic Books Industry

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Abstract

In this work, we investigate the role that submarkets play in the emergence of early movers and later entrants survival advantages in the US Comic Book industry from its inception in 1935 through 2005. Consistent with the past literature, we find evidence of survival advantages for early movers that is driven by density delay effects. Moreover, within each cohort of entrants, a fundamental determinant of survival is the focus on submarkets that dominate the industry in the same period. The same effect does not hold for incumbents competing in the same period and also for all the submarkets irrespectively of the industry era.

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Abstract

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1. INTRODUCTION

Although a wide academic literature has flourished on the issue of first mover advantage in the last twenty years, there is still no conclusive empirical evidence either in favor or against it (Suarez and Lanzolla, 2007). A natural, obvious candidate to put on trial for this unpleasant situation is the empirical literature: Lieberman and Montgomery (1988) recognized its lack of precision as a problem, and VanderWerf and Mahon (1997) showed that many issues that plagued the field (including the endogeneity of first-mover opportunities, the sample selection bias, and measurement problems) had a strong impact on the findings. Still, the existence of advantages accruing to firms entering very early in the history of an industry is an implication of many theories of industrial evolution: early entrants might benefit from R&D increasing returns to size (Klepper, 1996) or from a low competitive pressure in their formative years (Carroll and Hannan, 1989).

Recent works have focused attention on the role of moderating factors in the relationship between entry timing and competitive advantages. Several firms characteristics – including size, capabilities, experience and product strategies – have been investigated, while lower attention has been devoted to industry elements. Moreover, most of these variables are not within the choice set of the firms in the short run – and therefore they might not be useful in guiding managerial decisions.

The recent literature on industry evolution, instead, has focused on the dynamics of submarkets, that is groups of users that may differ in preferences, knowledge or needs (Sutton, 1998; Klepper and Thompson, 2006; de Figueiredo and Silverman, 2007).

As we believe that submarkets play an important role in all aspects of industry evolution, we explore and test hypotheses regarding their interactions with entry timing in a setting – the US Comic Books Industry – where we observe both a substantial number of well defined submarkets and a relative importance of entry timing. Our results show that choosing to focus on specific submarkets can affect in a fundamental way the survival chances of early entrants; moreover, this effect extends also to later entrants in presence of important changes in the structure of the submarkets.

In the next section we develop our working hypotheses; then we describe the empirical setting in which we are going to test them; the following sections include methods and results. Conclusions and limitations are provided at the end of the study.

2. BACKGROUND AND THEORY DEVELOPMENT

Survival advantage of early movers

Empirical studies on entry timing advantages can be divided in two main groups. The first group of studies has applied historical analysis to specific industries. Many of these studies showed the existence of first mover advantages in terms of market shares: Hurwitz and Caves (1988) found this result in the US pharmaceutical industry, even after patent expiration – when competition from generics should have washed out any advantage of patent holders; Bijwaard, Janssen, and Maasland (2008) found similar results in the European telecommunications industry by employing both static and dynamics models of market share; Gòmez and Maìcas (2011) confirmed these results in the same industry by using both market shares and profitability. Some works have also considered international comparisons within the same industry: Mascarenhas (1992) explored the offshore drilling industry – an highly internationalized industry – in the era of semi-submersible rigs and showed the existence of market share advantages for early movers; Eggers, Grajek, and Kretschmer (2011) looked at the telecommunications industry in 30 countries and found evidence of first-mover advantages related to the technological or marketing capabilities of the firms. A well-known critique to this type of studies refers to the possibility that analyzed industries have been selected not randomly, but exactly because advantages for early movers could be expected (Kerin, Varadarajan, and Peterson, 1992; VanderWerf and Mahon, 1997). Still, there are works that suggest that this is not the case: Makadok (1992) tested entry-timing advantages in the money market mutual fund industry, a young, fragmented sector with low entry and imitation barriers – and it still found market-share advantages for first and early movers; Tufano (1989) showed that also in other segments of the financial industry early movers enjoy such an advantage, although coupled with an aggressive entry strategy. On the other hand, Lieberman (2007) found little evidence of entry-timing advantages in the Internet sector, where expectation were very high before the explosion of the dotcom bubble. Within the first group there are also studies that focus on survival effects rather than market shares: VanderWerf and Mahon (1997) found that using a dependent variable other than market share decreases the probability of finding entry-timing advantages – as it happens in the study by Mitchell (1991) about the diagnostic imaging industry: he found early movers advantages in terms of market share and disadvantages in terms of survival. Still, there are also many studies that find positive effects of early entry on survival, although coupled with experience or capabilities: these include the works by King and Tucci (2002) and Franco et al. (2009) on

the disk drive industry, and by Bayus and Agarwal (2007) on the US personal computer industry.

The second group of empirical studies has focused on cross-sectional comparisons of different sectors. Early works in this group has found evidence of market share advantages for first-movers in both consumers goods (Robinson and Fornell, 1985; Urban, Carter, Gaskin and Mucha, 1986) and industrial goods (Robinson, 1988) industries, by exploiting PIMS and ASSESSOR survey data. Golder and Tellis (1993, 1996) attributed these findings to an important methodological flaw: the survivor bias. By using historical analysis, they were able to identify the actual pioneers in over 50 product categories and they found that early market leaders, rather than pioneers, enjoyed an advantage. Recent studies using the PIMS data again have also found that by taking into account the costs disadvantages of a first-mover strategy the long-term effect of pioneering on profits is negative (Boulding and Christen, 2003, 2008). In general, we find less evidence of entry timing advantages in these comparative studies (VanderWerf and Mahon, 1997), but this might also depend on the definition of advantages related to the time of entry. While it is not clear whether being exactly the first to enter a market provides an advantage, there is wider consensus about the benefits of being early movers (Echambadi et al., 2008).

As a whole, the existing literature provides more support for the existence of entry timing advantages, especially when we refer to specific industries and to the whole group of early movers. Therefore, we put forth the following baseline hypothesis:

Hypothesis 1: Early movers have a survival advantage over later entrants.

The mechanisms of entry timing advantages

The theoretical literature on entry timing advantages has identified some "isolating" mechanisms that generate and protect early movers from the threats of later entrants (Lieberman and Montgomery, 1988; Suarez and Lanzolla, 2007). First, pioneers can gain an advantage by achieving technological leadership: they can either exploit proprietary learning (Spence, 1981) or win patent races (Gilbert and Newbery, 1982). Second, they can preempt later entrants in the acquisition of scarce resources, including input factors (McMillan, 1983), geographical space (Hotelling, 1929), product space (Schmalensee, 1978) or capacity (Dixit, 1980). Third, early movers may also exploit some characteristics of the consumers, such as searching and switching costs (Wernerfelt, 1985; Klemperer, 1995) or path-dependent

preference formation (Carpenter and Nakamoto, 1989). More recently, network effects have also received some attention (Lieberman and Montgomery, 1998; Lieberman, 2007).

Organizational ecology literature provides an alternative framework in which early movers advantages can be conceptualized (Lambkin, 1988). The original theory developed by Hannan and Freeman (1977) considers population density – that is the number of alive firms – as a key driver of the evolution of industries. At low levels of density, an increase in the number of firms enhances the legitimization of the organizational form – and therefore it has a positive impact on survival; at high levels of density, legitimacy is already high and any further increase in density determines a tougher competition for scarce resources – which has a negative impact on survival. As a whole, the theory predicts a curvilinear effect of density on survival. Further refinements have broadened this theory to include also effects of density at founding: the density delay theory (Carroll and Hannan, 1989) claims that the conditions of an industry (and especially the density) when a firm is founded have a persistent effect on its survival chances. A young firm facing intense competition might devote too much time, attention and resources to immediate survival, neglecting the creation of organizational structures, routines and capabilities that are relevant for long-term success. Moreover, it could also develop a strong dependence on marginal or very specialized resources, and therefore experience higher risks of failure in case of unexpected shocks. Both mechanisms would lead to a negative effect of density at founding on survival. In a recent extension of the density delay theory, Dobrev and Gotsopoulos (2010) propose and test the hypothesis that low density at founding has a negative effective on survival, because of a legitimacy vacuum: new firms develop routines that are aimed at gaining legitimacy, but that could prove harmful once the market is developed; moreover, they bear also higher risks of misaligned investments. Such a theory has a clear implication in terms of entry timing advantages: firms entering in the early, formative years of an industry will be more prone to experience legitimacy vacuum effects and therefore will have a survival disadvantage.

Still, there could also be industries in which legitimacy is already high in the very early stage, because benefiting from strong perceptual similarity with already existing and may be related industries. In such a case, we would expect the existence of early mover advantages, as early entrants would not suffer from the legitimacy vacuum and could also avoid the "liability of scarce resources" and the "tight niche packing" generated by high density at founding. Moreover, it would also be possible to reconcile the findings by Carroll and Hannan (1989) – a negative effect of density at founding on survival – and those by Dobrev and Gotsopoulos (2010) – a positive effect of density at founding.

In our empirical setting – the US Comic Book Industry – none of the traditional mechanisms seems to be really at work. Learning curves or patents are not really relevant, as this is not an high-tech industry. Preemption of the product space is also very difficult: the characteristics of the product and its low average price allow consumers to buy several titles at the same time. Moreover, although character loyalty is high, novelty is also very appreciated by comic book readers – and this reduces the impact that switching costs or network effects can have in this industry. Still, for some historical reasons we will present later, the industry enjoyed since its formation an high level of legitimacy, which favored early entrants. As this appears to be the only mechanism driving entry timing advantages in this setting, we present the following:

Hypothesis 2. Once accounted for density at founding, early movers do not enjoy any survival advantage over later entrants.

Entry and the role of submarkets

Up to this point, we have focused on the different survival patterns that we could expect when firms are grouped according to their entry timing. Still, what are the firms that enjoy an advantage within the category of early movers is an open question. In the recent years there has been a growing attention towards the role that moderating factors play in determining the entry timing advantages. Klepper and Simons (2000a) showed that among entrants in the TV receiver industry, firms with prior experience in the production of radios would enter earlier, and would also have lower hazard rates when compared with other early entrants. Bayus and Agarwal (2007) considered the importance of coupling entry timing and pre-entry experience with product technology strategies in the US personal computer industry: they found that choosing in the early stage a technology that will not become the standard in the industry will be much more harmful to inexperienced start-ups rather than to diversifying entrants – as they will have lower ability to migrate to the selected standard. Echambadi, Bayus and Agarwal (2008) found interesting moderating effects pertaining to both the firm level (size and experience) and the industry level (innovativeness): early entry provides an advantage to big experienced firms and a disadvantage to small start-ups, but these effects decrease in more innovative industries. Franco, Sarkar, Agarwal and Echambadi (2009) focused on the moderating effect of technological capabilities in the Rigid Disk Drive industry: they found that early entry is beneficial for firms that have high technological capabilities, but it can be harmful for less advanced companies.

All these factors have been considered as moderators for the relationship between entry timing and survival because they also play a more general role in the evolution of industries: size, experience and dominant design are key mechanisms behind the industry life cycle (Abernathy and Utterback, 1978; Klepper, 1996), and innovativeness and technology can be important determinants of the structure of industries (Klepper and Simons, 2000b). An element that has gained increasing attention in the studies about industry evolution is the dynamics of submarkets. Klepper and Thompson (2006) showed that the creation and the destruction of submarkets has been a fundamental driver in the evolution of the Laser industry, that for many years has followed a pattern not conforming to the traditional industry life cycle model. Bhaskarabhatla and Klepper (2009) developed a model that explains the recent shakeout in the Laser industry, showing that the most important determinant has been the dynamics of an old submarket increasing its importance and size with respect to the other submarkets of the industry. Buenstorf and Klepper (2010) found a similar pattern in the Tire industry, although in this setting the main role has been played by a new submarket rather than an old one. Fontana and Nesta (2006) showed that submarkets are an important element that firms take into account in their entry decision in the LAN switch industry.

The growing literature on the role of submarkets in industry evolution may rise the question of whether they could be also important in determining entry timing effects. Existing studies showed that submarkets within an industry are not homogeneous: they can differ in size, growth potential, visibility, technological change, consumers tastes. Some of these characteristics may have positive effects on the survival chances of firms, others may have negative effects. Selecting the submarket with the right characteristics might be particularly important for young firms – as they are more prone to failure. The size of the submarket in terms of potential consumers should have a positive impact on the survival of new firms, as it would reduce the probability that a submarket could disappear and cause the exit of a firm. On the other hand, more consumers could attract more firms and generate tougher competition, reducing the probability of survival. In our empirical setting it is possible to consider the comic genres as submarkets and it also possible to identify the genres that were more successful among the readers over the decades – the "dominant" genres. Therefore, we put forth the following competing hypotheses:

Hypothesis 3a: Among early movers, the firms focusing on the dominant submarkets have survival advantages.

Hypothesis 3b: Among early movers, the firms focusing on the dominant submarkets have survival disadvantages.

The motivations behind Hypothesis 3 are actually not limited to early entry. If dominant genres change over time, then also entrants in the following periods could enjoy a similar advantage or suffer an analogous disadvantage. Moreover, they could also benefit from the emergence of completely new submarkets – because of the lack of competition by incumbent firms. Therefore, we will also test the following competing hypotheses:

Hypothesis 4a: Among each cohort of entrants, the firms focusing on the dominant submarkets have survival advantages.
Hypothesis 4b: Among each cohort of entrants, the firms focusing on the dominant submarkets have survival disadvantages.

3. THE US COMIC BOOK INDUSTRY

The US comic book industry provides an ideal setting for testing our hypotheses about entry timing advantages and submarkets. First of all, it is possible to define submarkets in a precise way by exploiting the existence of genres. A genre is a well defined space within the industry: the creators and the readers of a comic book share the categories defining its genre, such as the style, the language, the key elements of the plot. Genres may also be combined – but this could be a very risky undertaking, as readers have precise expectations and could easily reject a product that does not meet them. Second, it is possible to obtain detailed data about the entry and the exit of firms and products by exploiting the cover dates of comic issues. Third, the peculiar history of the industry allows us to identify different cohorts of entrants without turning to arbitrary selection of thresholds.
The main issue about our data concerns the beginning of the industry. Taylor and Greve (2006) report the 1897 as the starting point of the industry, referring to the publication *The Yellow Kid* as the first American book. Actually, Coville (2003) reports the existence of a much older comic book, dating back to 1842: *The Adventures of Obadiah Oldbuck*, the reprint of an English translation of the strips created by a Swiss author. On the other hand, all the comic book published until the early 1930s – including *The Yellow Kid* – were just reprints of non-original materials from newspapers strips. The first all-original comic publication was *The Funnies,* a "short-lived newspaper tabloid insert" published by Dell Publishing Company

in 1929 (U.S. Library of Congress, 2010). It took still some more years to get the publication of a comic book containing no reprints and completely independent from newspapers: it was *New Fun*, published by National Allied Publications in 1935.

Choosing a moment for setting the birth of the industry between 1842 and 1935 is not an easy task, as what is currently considered as a comic book evolved over this long time. In our opinion, the separation from newspapers and the publication of all-original content are two basic requirements to define the birth of the comic books industry: the first requirement is necessary to distinguish the demand for comics from the demand for newspapers – as it was probably the latter to drive the choice to buy the bundled product; the second element is important to keep a coherent selection rule over time – as we dropped from the sample all special editions, anthologies and reprints. On the other hand, we admit that this definition leaves out the formative stage of the industry: this is why we think this could be a good setting to test our second hypothesis. In 1935, readers were already aware of the existence of comic books; moreover, distribution channels were developed, and even formats were quite well standardized – essentially, many of the problems related to the lack of legitimacy were not an issue anymore for the young firms that started publishing the comic books.

The four ages of the comics industry

The period that goes from the mid 1930s to 1954 goes under the name of Golden Age of the Comic Books. It was characterized by the wide popularity of funny animal comics (such as Walt Disney's characters) classified within the Anthropomorphic genre, teen and more generally Comedy humor, and Science Fiction comics. The end of the Golden Age was marked by the formation of the Comics Magazine Association of America in September 1954, and the establishment of the Comics Code Authority some months later. The Authority, a self-regulatory body, banned several topics and scenes - including violence, blood, drugs, horror and sex – from comic books, fulfilling social and political requests and giving rise to the Silver Age. The enforcement of the code, although not complete, was quite strict, as many distributors refused to sell comics that were not approved by the Authority. This institutional change had a strong impact on the structure of the industry: some of the genres (Horror, Crime, Adult) were almost completely driven out of the market, while others emerged as dominant ones, especially the Super-Heroes and the Fantasy. On the other hand, the limitations imposed by the censorship contributed to the creation of a new genre, Underground comics, that flourished through unconventional channels and where all the themes thrown out of the official market could find fertile ground.

The end of the Silver Age and the advent of the Bronze Age were triggered by another institutional change – the breaking of the Code by one of the biggest firms in the industry (Marvel) supported by the Department of Health and Education in a story about drug abuse. The story was well received in the market – and determined both a change of the Code and a reduction of the power of the Authority. The Bronze Age saw the emergence of different genres, in particular the entry of Japanese Manga comics and a growing importance of the Non-Fiction genre.

Finally, the last age in the Comics industry is known as the Modern Age or also the Dark Age. The shift between the Bronze and the Dark age is less clear-cut than the previous ones, but it can be placed in the late 1980s, as the last firm adopting the Code entered in 1989. As the name suggests, this era is dominated by darker tones and scenarios (as in the Mystery genre); moreover, a tendency to mix different genres gained acceptance among the consumers. A notable feature of this age has also been the boom in collectible comics that ended in a massive market glut and a strong shakeout in the late 1990s. The entry process, still, started again in the first decade of the 21st century (see Figure 1).

4. METHODS

Our data include the population of US Comic Books publishers from 1935 to 2005. We extracted the data from Comicbase, a comic book collection software including a detailed database with information about specific issues, titles, publishers and authors of comic books. Although not all the issues ever published in the US are included in the database, we have information on virtually all the titles – that correspond to products. For each title, we coded as entry date the cover date corresponding to the first issue and as exit date the cover date corresponding to the last issue. We excluded from the analysis all types of special editions, reprints, and all the books within the Anthology genre, because potentially misleading for the survival analysis. We then aggregated data at the firm-month level. We tried to account as possible for changes in the name of titles and in the name of firms. The resulting data include 2010 firms and 59826 firm-month observations. Descriptive statistics and the correlation matrix are reported in Table 1.

Dependent Variable

Our dependent variable is the timing of firm exit from the industry. We consider firm exit to occur in period t if the firm has no titles in the following 5 years. We consider such a long

period because of a specificity of the US comics industry, that is the existence of many independent publishing companies owned by or strictly related to an artist/author: these companies may stay silent for a long time because of lack of resources, while the artist works for bigger companies, and then come out again as soon as it is possible to bear the costs of the new endeavor (Koesoema, 2012). Acquired companies are not dropped from the data if they keep publishing using their brand name.

Independent Variables

Entry Time is defined by referring to the cover date of the first issue of the first title published by the firm. We use this variable to define four dummy variables, mutually exclusive, for each of the Ages of the industry: a dummy variable takes value "1" when the Entry Time is within the range of the corresponding age, and "0" otherwise. A firm is defined as an incumbent in a certain era if it was an entrant in one of the previous eras.

Density at Founding (N_0) is measured as the number of firms in the industry in the period in which entry occurs. We consider both a linear and a squared term.

Dominant Genres are coded for each of the four ages: in the Golden Age the key genres are Anthropomorphic, Comedy and Science Fiction; in the Silver Age: Super-Heroes, Fantasy and Underground; in the Bronze Age: Manga and Non-Fiction; in the Modern Age: Mystery and Mixed Genres. A firm that has the majority of its titles in one of the dominant genres of the age takes a value "1" in the corresponding dummy variable (GenresGA, GenresSA, GenresBA, GenresMA) and "0" otherwise.

Control Variables

Control variables include dummies for the *current age* (they take value "1" if the observation is in a period within the age span), *contemporaneous organizational density* (measured as the number of firms currently in the industry) both as a linear term and as a squared term, *number of titles* (which is a proxy for size), *number of genres* in which the firm has at least one title (a proxy for scope), *genres specialization* (measured through an Herfindahl index over genres shares in the firm's portfolio of titles) both as a linear term and as a quadratic term, and two more variables that control for the extent of licensed titles in the firm's portfolio (*licensed*) and for the average number of genres covered by each title (*multiple genres*).

Genres are already coded in the Comicbase database: they include Action, Adult, Anthropomorphic, Comedy, Crime, Drama, Fantasy, Horror, Manga, Mystery, Non-Fiction, Art Book, Religious, Romance, Science Fiction, Sports, Super-Heroes, Underground, War,

Western. We dropped the Anthology and the Licensed genres. These variables get value "1" if the firm has at least one title in that genre in the current period, and "0" otherwise.

Estimation

In order to test our hypotheses we use discrete-time survival models (Jenkins, 2005). Although the size and the monthly frequency of our database would allow us to use also continuous time techniques, we chose the discrete time specification because of the underlying structure of our entry and exit data: since we coded entry and exit by referring to comic books issues – that are in the countable domain – there is an high probability of observing grouping of failures, especially in the first month. This is also the reason why we chose a very flexible specification for modeling the baseline duration dependence: during the first year we have a non-parametric specification (a dummy for each month), then we include a dummy for each year from 2 to 5, a dummy for next five years period and finally a dummy for all the following periods. Unfortunately the data do not allow a fully non-parametric specification. Some other specifications of duration dependence have been tried, but results are not affected – but in the case of a quadratic function, where convergence was not reached (as it clearly does not fit the data).

We assume that the hazard rate satisfies the proportional odds specification, which yields the logistic hazard model:

$$\log\left[\frac{h(j,X)}{1-h(j.X)}\right] = \alpha_j + \beta' X \qquad (1)$$

where α_j has the following specification:

$$\alpha_j = \sum_{m=1}^{12} \gamma_m + \sum_{y=2}^{5} \delta_y + \theta_1 + \theta_2 \qquad (2)$$

where γ_m is a dummy that takes value "1" when j = m. δ_y is a dummy that takes value "1" when j is between 13 and 60, θ_1 is a dummy that takes value "1" when j is between 61 and 120, and θ_2 is a dummy that takes value "1" whenever j is higher than 120.

The vector X includes all independent and control variables according to the model that has to be estimated.

5. RESULTS

We start by presenting non parametric estimates of the survivor function obtained using the Kaplan-Maier estimator. Figure 2 presents the estimates for the whole population: the strong steepness of the function in the earliest periods signals an high mortality rate for very young firms – that somehow justifies the choice of a flexible specification for the duration dependence in the first year. Figure 3 presents different survivor functions for each cohort of entrants: while entrants in the Bronze and Modern age have lower survival rates at any time period, entrants in the Silver age in some periods perform even better than firms entering during the Golden age – implying no advantage for early movers. The historical account of the industry, still, suggests a different interpretation of this pattern, as entrants in the Golden Age may have experienced problems from the introduction of the Comics Code Authority in 1954 and entrants in the Silver Age could have benefited from the loosening of the code in the early 1970s. A regression analysis, where such conditions can be taken into account, is therefore needed.

Table 2 shows the baseline models. In Model 1 we present just the pattern of duration dependence: as expected, the first month has by far the worst impact on survival justifying our non-parametric specification. In Model 2 we include also the control variables: the positive and significant coefficient for the Silver Age signals that the reduction of resources and freedom generated by the censorship had a strong negative impact on survival. It is also worth to notice the strong and positive impact of size (*Number of Titles*) on survival and the contemporaneous density effects: as the legitimization of the industry is already high along the whole period under analysis, the density is dominated by the competition effect, which has a negative impact on survival, although at a slightly decreasing rate.

In Table 3 we test the first two hypotheses: in Model 3 we observe that the coefficients for all the cohorts are negative and significant, signaling a survival advantage of the first three cohorts over entrants in the Modern Age (the reference category); moreover, all the coefficients are in the right order, which means a stronger advantage for Golden Age entrants (-1.69), then for entrants in the Silver Age (-1.41) and finally for Bronze Age entrants (-0.54). All together, these results support Hypothesis 1. In Model 4 we test Hypothesis 2 by including also density at founding variables (both a linear and a quadratic term): as predicted, the coefficients of all the entry cohorts variables become non-significant. The new variables have the expected signs: positive for the linear term and negative for the quadratic term. The early

mover advantage is strictly linked to the low density and low competition in the early periods of the industry, and firms do not suffer from any legitimacy vacuum.

In order to test Hypotheses 3 and 4, we introduce interactions between the cohorts dummies and the dominant genres in each age. All the interacting variables have negative and significant coefficients: entrants in each cohort have lower hazard rates if they focus on the dominant genres of their age, providing support for Hypothesis 3a and 4a rather than 3b and 4b (Table 4).

Robustness checks

The first objection that could be raised to our findings is that dominant genres in each era could be important not only for entrants in that era, but for all firms in the industry. In order to verify whether this is the case, we include also interactions for incumbent firms with the dominant genres: if dominant genres matter for all firms, we should observe significant coefficients for all the variables. Model 7 in Table 5 shows that this is not the case: the interaction terms including entrants are all still significant, and the only significant term including incumbents refers to the Silver age. This outcome signals again the importance of the censorship during that period: in fact, as some genres were actually prohibited also incumbents could benefit from a shift towards safer areas.

On the other hand, this result is not robust to the next check. In fact, a second objection that could be raised concerns the importance of specific submarkets over the whole evolution of the industry: if that is the case, we should observe different results by including in the analysis a dummy that signals the dominant submarket of the firm in each period. Model 8 shows that a sustained focus on some genre (Sports, Minor genres, and even Underground) is actually deleterious for survival; on the other hand, the interaction coefficients between entry cohort and dominant genres are all still negative and significant.

More technical robustness checks have also been performed. We run all the analysis by using a complementary log-logistic hazard model, and results do not change (Table 6 compares the relevant variables in Model 8 with this specification).

6. DISCUSSION AND CONCLUSIONS

In this paper we tried to combine different theoretical perspectives to explain the dynamics of entry and exit in the US Comic Books industry, but also to contribute to the more general debate on the evolution of industries.

First of all, our work contributes to the first mover advantage literature. We show that even when the isolating mechanisms identified in the past are not at work, firms can obtain an advantage from early entry because of density delay effects: entry when competition is not very intense and the market is not too crowded is important not only because of the preemption of resources, but also because it allows firms to build a more sustainable growth path. An important choice in this industry is about the submarkets (the genres) that a firm will focus on: choosing a genre that is going to be very diffused across readers can give firms an important survival advantage – that more than offsets the potential threat of tougher competition. This leads us to our second contribution to this literature, that concerns the role of moderating factors. Recent works have emphasized that entry timing advantages may accrue only to firms that are able to grasp the opportunity, maybe because of pre-entry experience (Klepper and Simons, 2000), technological capabilities (Franco et al., 2009), or size (Echambadi et al., 2008). All these elements are somehow outside the set of choices available to the firms in the short run. On the other hand, entry timing advantages may also depend on factors that the firm can choose together with the time of entry, such as product technology strategy (Bayus and Agarwal, 2007). We believe that the focus on specific submarkets might be another important variable that early entrants should take into account: being in the right place at the right time could prove of the utmost importance for their survival. Moreover, our results show that this should be also a concern for later entrants, especially when industry conditions change, either for exogenous or for endogenous reasons.

Our third contribution is to the population ecology literature and to the recent developments of the density delay theory. Our findings reconcile the original predictions of the theory (Carroll and Hannan,1989) of a negative effect of density at founding on survival and the results obtained by Dobrev and Gotsopoulos (2010) in their analysis of the US Automobile industry, that shows a positive effect of density at founding on survival, when density is low, because of a legitimacy vacuum effect that persists over time. The US Comic Books industry provides an empirical setting in which legitimacy is already high at the dawn of the industry: as a consequence, we expected and found only a negative effect of density at founding on survival. It is an interesting feature, though, that the tests originally provided by Carroll and

Hannan (1989) include several newspapers industries, that share some characteristics with our setting.

Clearly, this work has some limitations. Data merging has been as accurate as possible, given their characteristics; still, further refinement is needed. In particular mergers and acquisitions should be taken explicitly into account in our analysis, possibly by complementing our data with different sources of information about the industry.

Second, a more precise definition of dominant submarkets is necessary. Although historical records support our ideas, it should be possible to exploit our database to investigate the dynamics at the submarket level, in order to understand whether density effects are driving the results also here.

The recent development of the industry evolution literature shows a growing attention towards the role of submarkets and their internal dynamics in shaping the competitive and innovative patterns of wider sectors. Future work should extend these insights to different empirical settings.

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FIGURES

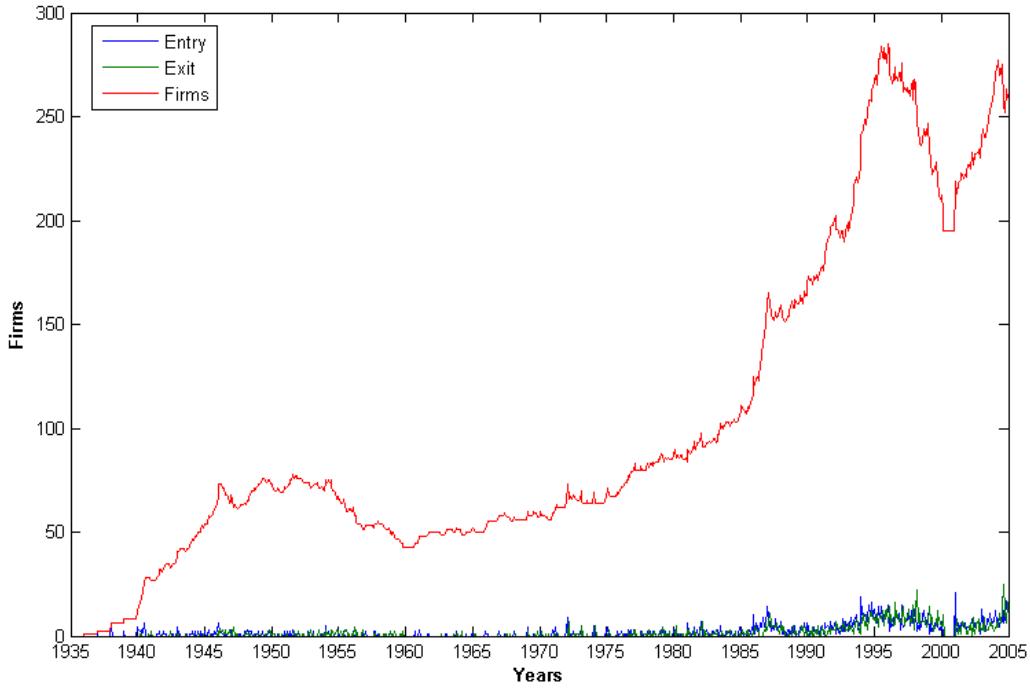

Figure 1
Entry, Exit and Density in the US Comics Industry

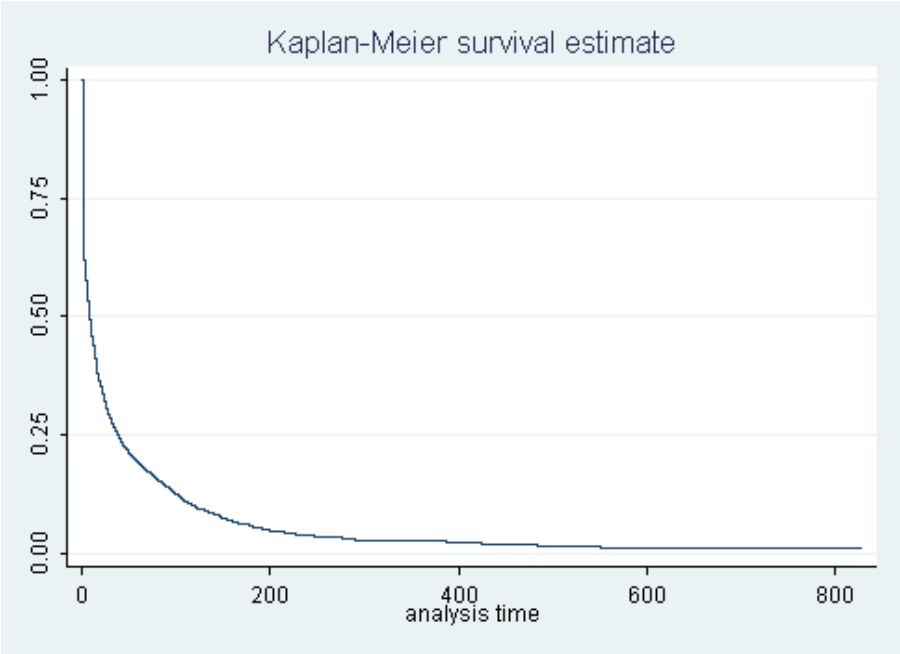

Figure 2
Survivor function in the US Comics Industry

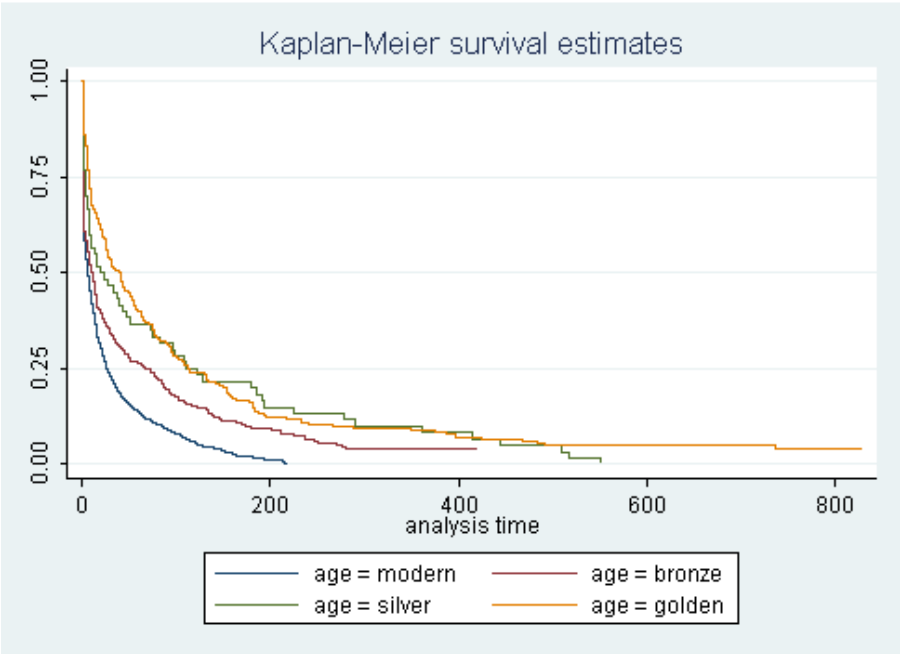

Figure 3
Survivor function by entry cohort

TABLES

Table 1. Descriptive Statistics and Correlation Matrix.

	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Failure	0.03	0.17	1																					
Golden Age (GA)	0.15	0.36	-0.04	1																				
Silver Age (SA)	0.12	0.32	-0.04	-0.15	1																			
Bronze Age (BA)	0.18	0.39	-0.02	-0.20	-0.17	1																		
Modern Age (MA)	0.55	0.50	0.07	-0.47	-0.40	-0.52	1																	
Specialization (S)	0.68	0.32	0.09	-0.01	0.02	0.03	-0.03	1																
Number of Titles	4.08	9.28	-0.06	-0.01	0.07	0.01	-0.04	-0.33	1															
Number of Genres	2.52	2.42	-0.09	0.01	0.03	0.00	-0.02	-0.74	0.73	1														
Licensed	0.08	0.25	-0.03	-0.02	0.04	0.01	-0.02	-0.09	0.04	0.08	1													
Multiple Genres	1.45	0.69	-0.03	-0.09	-0.03	0.02	0.07	-0.63	-0.05	0.32	0.18	1												
Density (N)	159.74	84.25	0.09	-0.49	-0.45	-0.35	0.92	-0.02	-0.04	-0.03	-0.03	0.07	1											
Incumbent SA	0.08	0.27	-0.04	-0.12	0.81	-0.14	-0.32	-0.04	0.12	0.09	0.03	0.01	-0.37	1										
Incumbent BA	0.09	0.28	-0.05	-0.13	-0.11	0.64	-0.34	-0.03	0.10	0.10	0.08	0.05	-0.27	-0.09	1									
Incumbent MA	0.18	0.38	-0.06	-0.20	-0.17	-0.22	0.42	-0.08	0.14	0.15	0.02	0.01	0.29	-0.13	-0.14	1								
Founded GA	0.31	0.46	-0.08	0.64	0.29	-0.06	-0.60	-0.11	0.27	0.21	0.06	-0.01	-0.63	0.44	0.15	-0.13	1							
Founded SA	0.09	0.29	-0.04	-0.14	0.28	0.20	-0.24	0.11	-0.08	-0.07	0.06	-0.06	-0.24	-0.09	0.39	0.00	-0.21	1						
Founded BA	0.23	0.42	-0.02	-0.23	-0.20	0.35	0.02	0.01	-0.07	-0.02	-0.07	-0.01	0.04	-0.16	-0.17	0.55	-0.36	-0.17	1					
Founder MA	0.37	0.48	0.12	-0.33	-0.28	-0.37	0.70	0.03	-0.15	-0.14	-0.03	0.06	0.71	-0.22	-0.23	-0.36	-0.51	-0.25	-0.42	1				
N at Founding (N0)	125.55	89.26	0.14	-0.42	-0.32	-0.30	0.74	0.07	-0.23	-0.20	-0.04	0.05	0.78	-0.27	-0.28	-0.17	-0.66	-0.26	-0.13	0.89	1			
Genres GA	0.46	0.50	-0.05	-0.10	0.01	0.02	0.05	-0.30	-0.05	0.08	0.21	0.36	0.05	0.04	0.07	0.07	0.03	-0.03	0.00	-0.01	-0.01	1		
Genres SA	0.33	0.47	-0.01	-0.09	-0.04	0.02	0.08	-0.11	0.07	0.07	-0.13	0.07	0.08	-0.10	0.00	-0.02	-0.15	0.11	-0.02	0.09	0.07	-0.23	1	
Genres BA	0.11	0.31	-0.02	-0.13	-0.09	0.03	0.13	-0.09	-0.03	0.06	-0.08	0.17	0.13	-0.06	0.02	0.15	-0.14	-0.04	0.16	0.02	0.10	0.17	-0.15	1
Genres MA	0.48	0.50	-0.07	-0.05	-0.06	-0.03	0.10	-0.84	0.29	0.57	0.07	0.67	0.09	0.02	0.02	0.09	0.07	-0.14	-0.02	0.03	-0.01	0.35	0.09	0.07

Table 2. Duration dependence and baseline models: Logistic Hazard Model.

VARIABLES	Model 1		Model 2	
Month 1	-0.587**	(0.0465)	-0.0457	(2.338)
Month 2	-3.005**	(0.145)	-2.429	(2.343)
Month 3	-3.139**	(0.158)	-2.538	(2.344)
Month 4	-3.046**	(0.154)	-2.415	(2.343)
Month 5	-2.925**	(0.150)	-2.286	(2.342)
Month 6	-3.125**	(0.168)	-2.467	(2.343)
Month 7	-2.780**	(0.147)	-2.112	(2.342)
Month 8	-3.156**	(0.181)	-2.480	(2.345)
Month 9	-3.184**	(0.186)	-2.491	(2.345)
Month 10	-3.016**	(0.176)	-2.317	(2.344)
Month 11	-3.375**	(0.212)	-2.656	(2.348)
Month 12	-3.386**	(0.217)	-2.657	(2.348)
Year 2	-3.322**	(0.0677)	-2.512	(2.338)
Year 3	-3.623**	(0.0921)	-2.696	(2.339)
Year 4	-3.926**	(0.117)	-2.940	(2.339)
Year 5	-4.170**	(0.140)	-3.164	(2.341)
Years 6-10	-4.291**	(0.0798)	-3.231	(2.340)
Year 11-more	-5.046**	(0.0927)	-3.783	(2.339)
Golden Age (GA)			0.396	(0.227)
Silver Age (SA)			0.734**	(0.253)
Bronze Age (BA)			0.316*	(0.138)
Specialization (S)			-5.114	(4.858)
S^2			3.570	(2.920)
Number of Titles			-0.679**	(0.0956)
Number of Genres			-0.425	(0.350)
Licensed			-0.255*	(0.116)
Multiple Genres			0.179	(0.254)
Density (N)			0.0200**	(0.0035)
N^2			-4.02e-05**	(8.3e-06)
Observations	59,826		59,826	
Log-Likelihood	-6717.53		-6362.58	

Standard errors in parentheses
** p<0.01, * p<0.05

Table 3. Impact of Entry Cohort and Density at Founding: Logistic Hazard Model.

VARIABLES	Model 3		Model 4	
Month 1	1.144	(2.438)	0.935	(2.449)
Month 2	-1.235	(2.442)	-1.445	(2.454)
Month 3	-1.344	(2.443)	-1.554	(2.455)
Month 4	-1.220	(2.442)	-1.429	(2.454)
Month 5	-1.090	(2.442)	-1.300	(2.453)
Month 6	-1.272	(2.443)	-1.480	(2.454)
Month 7	-0.915	(2.441)	-1.122	(2.453)
Month 8	-1.281	(2.444)	-1.487	(2.456)
Month 9	-1.291	(2.444)	-1.497	(2.456)
Month 10	-1.115	(2.444)	-1.320	(2.455)
Month 11	-1.452	(2.447)	-1.655	(2.458)
Month 12	-1.452	(2.447)	-1.655	(2.459)
Year 2	-1.300	(2.438)	-1.497	(2.449)
Year 3	-1.468	(2.438)	-1.648	(2.450)
Year 4	-1.703	(2.439)	-1.869	(2.450)
Year 5	-1.913	(2.440)	-2.051	(2.452)
Years 6-10	-1.940	(2.440)	-2.039	(2.451)
Year 11-more	-2.200	(2.446)	-2.090	(2.457)
Golden Age (GA)	1.779**	(0.514)	1.238*	(0.535)
Silver Age (SA)	1.535**	(0.511)	0.901	(0.537)
Bronze Age (BA)	0.665**	(0.169)	0.595**	(0.170)
Specialization (S)	-6.805	(5.049)	-7.032	(5.074)
S^2	4.561	(3.026)	4.671	(3.040)
Number of Titles	-0.669**	(0.0952)	-0.653**	(0.0950)
Number of Genres	-0.543	(0.364)	-0.567	(0.366)
Licensed	-0.221	(0.117)	-0.248*	(0.117)
Multiple Genres	0.181	(0.254)	0.179	(0.255)
Density (N)	0.0180**	(0.00360)	0.00700	(0.00494)
N^2	-3.84e-05**	(8.52e-06)	-1.78e-05	(1.1e-05)
Incumbent SA	0.735	(0.472)	0.567	(0.472)
Incumbent BA	0.405	(0.466)	-0.139	(0.488)
Founded GA	-1.693**	(0.467)	-0.849	(0.514)
Founded SA	-1.405**	(0.434)	-0.537	(0.486)
Founded BA	-0.539**	(0.132)	-0.253	(0.149)
N at Founding (N0)			0.0126**	(0.00405)
N0^2			-2.17e-05*	(9.4e-06)
Observations	59,826		59,826	
Log-Likelihood	-6341.55		-6332.88	

Standard errors in parentheses
** p<0.01, * p<0.05

Table 4. Impact of Dominant Genres: Logistic Hazard Model.

VARIABLES	Model 5		Model 6	
Month 1	0.870	(2.441)	0.831	(2.445)
Month 2	-1.510	(2.445)	-1.548	(2.450)
Month 3	-1.619	(2.446)	-1.657	(2.451)
Month 4	-1.495	(2.446)	-1.531	(2.450)
Month 5	-1.365	(2.445)	-1.401	(2.449)
Month 6	-1.546	(2.446)	-1.580	(2.450)
Month 7	-1.188	(2.445)	-1.221	(2.449)
Month 8	-1.552	(2.448)	-1.584	(2.452)
Month 9	-1.562	(2.448)	-1.597	(2.452)
Month 10	-1.386	(2.447)	-1.420	(2.451)
Month 11	-1.721	(2.450)	-1.756	(2.454)
Month 12	-1.721	(2.451)	-1.757	(2.455)
Year 2	-1.565	(2.441)	-1.594	(2.445)
Year 3	-1.716	(2.442)	-1.740	(2.446)
Year 4	-1.939	(2.442)	-1.954	(2.446)
Year 5	-2.121	(2.443)	-2.128	(2.448)
Years 6-10	-2.112	(2.443)	-2.114	(2.447)
Year 11-more	-2.160	(2.449)	-2.107	(2.453)
Golden Age (GA)	0.956	(0.552)	0.857	(0.547)
Silver Age (SA)	0.880	(0.534)	0.709	(0.544)
Bronze Age (BA)	0.590**	(0.171)	0.438*	(0.171)
Specialization (S)	-6.785	(5.059)	-6.194	(5.071)
S^2	4.532	(3.033)	4.063	(3.041)
Number of Titles	-0.663**	(0.0958)	-0.684**	(0.0968)
Number of Genres	-0.536	(0.365)	-0.525	(0.368)
Licensed	-0.226	(0.117)	-0.257*	(0.118)
Multiple Genres	0.192	(0.255)	0.466	(0.268)
Density (N)	0.00754	(0.00496)	0.00621	(0.00500)
N^2	-1.90e-05	(1.14e-05)	-1.62e-05	(1.15e-05)
Incumbent SA	0.376	(0.476)	0.380	(0.479)
Incumbent BA	-0.177	(0.487)	-0.232	(0.494)
Founded GA	-0.500	(0.536)	-0.462	(0.533)
Founded SA	-0.552	(0.482)	-0.242	(0.512)
Founded BA	-0.265	(0.150)	-0.172	(0.160)
N at Founding (N0)	0.0113**	(0.00410)	0.0121**	(0.00416)
N0^2	-1.87e-05*	(9.51e-06)	-2.00e-05*	(9.65e-06)
Founded GA * Genres GA	-0.525**	(0.205)	-0.726**	(0.213)
Founded SA * Genres SA			-0.747*	(0.303)
Founded BA* Genres BA			-1.500**	(0.301)
Founded MA * Genres MA			-0.448**	(0.123)
Observations	59,826		59,826	
Log-Likelihood	-6329.34		-6300.93	

Standard errors in parentheses
** p<0.01, * p<0.05

Table 5. Robustness cheks – Incumbency and Genres: Logistic Hazard Model

VARIABLES	Model 7		Model 8	
Month 1	0.872	(2.466)	-0.717	(2.848)
Month 2	-1.505	(2.471)	-3.083	(2.852)
Month 3	-1.615	(2.472)	-3.191	(2.852)
Month 4	-1.488	(2.471)	-3.065	(2.852)
Month 5	-1.359	(2.470)	-2.931	(2.851)
Month 6	-1.538	(2.471)	-3.107	(2.852)
Month 7	-1.178	(2.470)	-2.751	(2.851)
Month 8	-1.542	(2.473)	-3.110	(2.854)
Month 9	-1.553	(2.473)	-3.115	(2.854)
Month 10	-1.376	(2.472)	-2.932	(2.853)
Month 11	-1.712	(2.475)	-3.269	(2.856)
Month 12	-1.712	(2.476)	-3.271	(2.856)
Year 2	-1.551	(2.466)	-3.091	(2.848)
Year 3	-1.696	(2.467)	-3.210	(2.848)
Year 4	-1.911	(2.467)	-3.412	(2.850)
Year 5	-2.088	(2.469)	-3.570	(2.851)
Years 6-10	-2.074	(2.468)	-3.564	(2.851)
Year 11-more	-2.077	(2.475)	-3.561	(2.858)
Golden Age (GA)	0.911	(0.555)	1.079	(0.561)
Silver Age (SA)	0.733	(0.553)	0.926	(0.563)
Bronze Age (BA)	0.504**	(0.191)	0.577**	(0.191)
Specialization (S)	-6.246	(5.114)	-4.211	(5.712)
S^2	4.090	(3.065)	2.986	(3.361)
Number of Titles	-0.693**	(0.0972)	-0.688**	(0.109)
Number of Genres	-0.525	(0.371)	-0.503	(0.373)
Licensed	-0.265*	(0.118)	-0.178	(0.121)
Multiple Genres	0.410	(0.274)	0.526	(0.282)
Density (N)	0.00606	(0.00505)	0.00811	(0.00511)
N^2	-1.60e-05	(1.16e-05)	-2.11e-05	(1.18e-05)
Incumbent SA	0.615	(0.483)	0.586	(0.489)
Incumbent BA	-0.133	(0.500)	-0.0550	(0.508)
Founded GA	-0.508	(0.539)	-0.514	(0.548)
Founded SA	-0.254	(0.520)	-0.198	(0.530)
Founded BA	-0.225	(0.173)	-0.209	(0.173)
N at Founding (N0)	0.0122**	(0.00425)	0.0139**	(0.00433)
N0^2	-2.01e-05*	(9.84e-06)	-2.31e-05*	(1.00e-05)
Founded GA * Genres GA	-0.762**	(0.218)	-0.535*	(0.236)
Founded SA * Genres SA	-0.782**	(0.305)	-0.896**	(0.312)
Founded BA * Genres BA	-1.486**	(0.301)	-1.342**	(0.323)
Founded MA * Genres MA	-0.398**	(0.134)	-0.325*	(0.142)
Incumbent SA * Genres SA	-1.111*	(0.535)	-0.872	(0.543)
Incumbent BA * Genres BA	-0.645	(0.633)	-0.458	(0.646)
Incumbent MA * Genres MA	0.214	(0.251)	0.303	(0.256)
Action / Adventure			0.126	(0.173)
Adult			0.156	(0.199)
Anthropomorphic			0.250	(0.193)
Comedy			-0.169	(0.176)
Crime			0.268	(0.211)

Drama		0.0128	(0.209)
Fantasy		-0.234	(0.176)
Horror		0.282	(0.181)
Manga / Anime		0.324	(0.241)
Mystery		-0.0318	(0.245)
Non-Fiction		-0.180	(0.211)
Pin-Ups / Art Book		0.306	(0.250)
Religious		0.465	(0.326)
Romance		0.214	(0.247)
Science Fiction		0.00968	(0.173)
Sports		1.066*	(0.438)
Super-Heroes		0.239	(0.169)
Underground		0.738**	(0.196)
War		0.0558	(0.258)
Western		0.181	(0.257)
Others		0.411*	(0.169)
Observations	59,826	59,826	
Log-Likelihood	-6297.14	-6246.13	

Standard errors in parentheses
** p<0.01, * p<0.05

Table 6. Robustness checks: Proportional Hazard Model (Cloglog)

VARIABLES	Model 9 Cloglog	Model 8 Logistic
N at Founding (N0)	0.0139**	0.0139**
N0^2	-2.36e-05*	-2.31e-05*
Entrant Genres GA	-0.547*	-0.535*
Entrant Genres SA	-0.861**	-0.896**
Entrant Genres BA	-1.351**	-1.342**
Entrant Genres MA	-0.279*	-0.325*
Incumbent Genres SA	-0.878	-0.872
Incumbent Genres BA	-0.507	-0.458
Incumbent Genres MA	0.306	0.303
Action	0.126	0.126
Adult	0.168	0.156
Anthro	0.238	0.250
Comedy	-0.150	-0.169
Crime	0.260	0.268
Drama	0.00527	0.0128
Fantasy	-0.214	-0.234
Horror	0.263	0.282
Manga	0.300	0.324
Mystery	-0.0438	-0.0318
Non-Fiction	-0.115	-0.180
Art-Book	0.283	0.306
Religious	0.475	0.465
Romance	0.191	0.214
Science Fiction	0.0191	0.00968
Sports	0.937*	1.066*
SuperHeroes	0.216	0.239
Underground	0.672**	0.738**
War	0.0741	0.0558
Western	0.152	0.181
Others	0.380*	0.411*
Observations	59,826	59,826
Log-Likelihood	-6250.13	-6246.13

Control variables are not reported
but were included in the regression
Standard errors in parentheses
** p<0.01, * p<0.05