The Persistence of Lenient Market Labels

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ABSTRACT

Research across disciplines presumes that markets will have strong boundaries. Markets without well-defined boundaries typically are not useful and do not become institutionalized, so are expected to fade away. In contrast, we suggest that in many contexts lenient markets, or market labels with porous boundaries, persist and become important. This can be explained by looking at both market entry and market exit. Consistent with prior research, we suggest that lenient market labels offer less credibility than labels with strong boundaries, and so organizations will be more likely to exit these markets. At the same time, lenient market labels are more accepting of many different types of organizations. As a result, we expect lenient labels to also have high rates of entry. When entry rates are higher than exit rates, lenient markets will endure over time. We also predict that organizations exiting lenient labels will enter other lenient labels, which further fuels their persistence. Finally, this trend is exaggerated when influential external agents favor leniency. We find support for these ideas in a longitudinal analysis of organizational entry into and exit from market labels in the software industry.
The concept of the market is central to how we understand many types of organizations. Markets are used by researchers, practitioners, professionals, and the general public when grouping organizations for purposes of comprehension, evaluation, budgetary decisions, anti-trust considerations, and the like. Classically, a market is conceived of as a bounded area that defines a set of substitutes, separated from other markets by a “marked gap” (Robinson 1965). At the same time, researchers have long recognized product differentiation within markets and that market boundaries are sometimes arbitrary, which has led to much debate over the proper way to define a market.

Although using technical attributes of products or production processes is a tractable way to define markets, it may not reflect the perspective of the consumer or other industry actors (Day, Shocker and Srivastava 1979). Thus, scholars across disciplines have defined markets in various ways: using product substitutes (Sutton 2007), applying insights about categorization from cognitive science (Ratneshwar and Shocker 1991), considering pressures to conform to existing structures (Zuckerman 1999; White 1981) and focusing on organizational identities (Hsu and Hannan 2005). Although these literatures take different approaches, common among them is the presumption that if markets are relevant, they will develop distinctive boundaries that separate clusters of similar goods.

Yet, in many instances market labels used within industries have blurry boundaries, indefinite meaning, and lack social consensus about exactly what they represent. Further, often these labels are not marginal but are widely used. For example, “mobile telecommunications,” an important market label in 2012, includes wireless companies that control transmission technologies, software firms that manage platforms or create the applications that operate on these platforms, hardware manufacturers that produce infrastructure and handsets, networking
firms that manufacture routers, computer manufacturers, and the list goes on. These labels are used by actors to identify markets for organizations and products. But they are different from the traditional definition of a market in that they need not represent a set of substitutes, nor are there marked gaps between products in the label and those of another type. Because such market labels lack the constraints imposed by classic markets, we call them *lenient market labels*.

Previous sociological research on markets, categories, and organizational forms assumes that if a label does not evolve to convey a specific shared meaning, it will not become important or relevant. Studies focus on how expectations that arise from clearly defined markets promote conformity among organizations (DiMaggio and Powell 1983; Meyer and Rowan 1977), how producers replicate role structures to create market boundaries (White 1981), and how organizations that violate categorical expectations are punished (Zuckerman 1999; Hsu 2006). Research that considers indefinite boundaries investigates early stages of category formation, when activists contest the definition of an emerging market or organizational form in order to create clear boundaries (Santos and Eisenhardt 2009; DiMaggio 1991; Rao 1998). Other studies show that when boundaries remain blurry, organizations receive less value from affiliating with a market (Negro, Hannan and Rao 2010; McKendrick, Jaffee, Carroll and Khessina 2003). In sum, there is a presumption that an emerging market will either develop strong boundaries or fade away; researchers assume that when a market label remains lenient it will not catch on or become credible.

At the same time, examples of lenient market labels abound. The “nanotechnology” label has not developed strong boundaries or specific codes. According to the Nanotechnology Initiative, nanotechnology is any technology where the core part is between 1 and 100 nanometers. Any scientist or business that uses such small technologies can credibly claim the
label. As a result, many different types of scientific research are now considered “nanotechnology,” much to the chagrin of early nanotechnologists who envisioned a more clearly delineated market (Grodal 2011). But, despite having indefinite boundaries, nanotechnology is heavily funded, growing, and well known even outside the scientific community. Total Quality Management (TQM), a method aimed at improving organizational performance, is extremely popular with both researchers and practitioners, even though its definition evolved to be “diffuse and ambiguous” (Zbaracki 1998). In the software industry, the empirical context for this study, many prominent market labels are lenient, such as “portal,” “platform,” “customer relationship management,” and “enterprise software.” Such market labels do little to convey to potential customers what they can expect from an organization that claims to be in the label, and so we might expect them to be less effective at attracting a targeted customer base. As a result, it is hard to see what an organization gains by identifying with such a market. Despite this, lenient market labels are common. How do they persist – and even flourish?

We propose that lenient market labels can grow because they present a lower entry threshold for organizations. We think that there is much to gain by understanding market entry as a selection process – one that embodies choices made by organizations and the audiences that potentially support them. Previous research has focused on how identifying with a market affects its organizational members. Since lenient labels are less useful, organizations are expected to drop these labels, leading to their decline. Indeed, if we only consider how helpful a label is in establishing credibility for an organization, then it makes no sense that lenient labels can thrive. However, if we also consider an organization’s decision to adopt a market label, the picture changes. Potential entrants are drawn to market labels when managers perceive that adopting the label will be worthwhile, and they must make this decision in the face of uncertainty about
whether their organizations will benefit from the affiliation. Precisely because lenient labels lack constraint, various organizations can credibly claim the label. At the same time, as suggested by previous research, we also expect that lenient market labels will be less valuable for affiliated organizations. As a result, we propose that lenient market labels will yield high rates of both entry and exit. Thus, lenient markets are not always temporary or destined to fade; when entry rates are higher than exit rates, lenient market labels will grow and can become prominent.

LENIENT MARKET LABELS

Markets classify organizations, which helps people – whether they are industry actors, customers, or researchers – make sense of a diverse domain. For example, defining relevant markets is necessary to study market structure or market concentration, and as a result, product differentiation and identifying substitutes is central in the literature on industrial organization economics (Berry and Reiss 2007; Sutton 2007). For research on marketing, it is critical to recognize how customers perceive product alternatives, and therefore this literature has heavily focused on cognitive understandings of product markets (Day, Shocker and Srivastava 1979; Sujan and Dekleva 1987; Meyers-Levy and Tybout 1989; Ratneshwar and Shocker 1991; Rosa, Porac, Runser-Spanjol and Saxon 1999). Organizational sociologists are attentive to how markets and organizational forms become infused with meaning, creating social expectations that induce conformity (Hannan, Pólos and Carroll 2007; Zuckerman 1999; DiMaggio and Powell 1983). Within these literatures, researchers agree that the concept of a “market” is important, but they also recognize that there is within-market variance and that boundaries are somewhat arbitrary. For example, recent research in finance has used organizational self-descriptions to create individualized sets of competitors that replace traditional industries. These network-based
industry measures, unique for each firm, have more explanatory power for a number of economic outcomes, as compared to assigning a firm to a traditional industry (Hoberg and Phillips 2012).

At the same time, observers do infer meaning from the labels that group organizations into different markets. Labeling is an important part of classification, a fundamental cognitive process that allows people to access and filter large amounts of information (Rosch 1978). Categories emerge when people associate a label with a schema, or a structured representation of a category. Schemas are invoked when people assume that category members will have certain properties (for example that a “university” will have faculty and students), or to decide whether a “candidate” is a true member of the category (for example, whether an “online university” is a true “university”) (Murphy 2004). Most categories do not have crisp boundaries, and people readily reconcile partial membership in categories. For example an olive is generally thought of as having partial fit in the category of “fruit” (Rosch 1975). Applied to organizations, this suggests that companies can have partial membership in markets, and that market boundaries are necessarily fuzzy (Hannan, Pólos and Carroll 2007; Hannan 2010). However, although previous research on markets and categories recognizes that boundaries are not crisp, these literatures have primarily focused on penalties that arise when boundaries remain fuzzy and on the social forces that reinforce boundary clarity.

Markets are socially constructed, but once in place they influence expectations and behavior (Berger and Luckman 1967). As a result, organizations often replicate existing structures, adopting accepted procedures in order to be viewed as legitimate actors (Edelman, Uggen and Erlanger 1999). Managers closely monitor competitors and position themselves with respect to them, creating self-reproducing cliques that become markets (Porac et al. 1995; White 1981). Organizations that do not conform to expectations associated with a market are likely to
be ignored or devalued (Zuckerman 1999; Hsu, Hannan and Koçak 2009; Hsu 2006). These pressures toward conformity lead to the development and maintenance of categorical boundaries (Lamont and Molnar 2002). As such, an implicit assumption across these studies is that if market labels are prominent or relevant in a domain, they will have an agreed-upon definition, strong boundaries, and clear constraints. The same thing that makes classification useful – namely that labels structure a complex domain so that it is easier to understand – also makes labels constraining – in that there are expectations of what an organization claiming membership in a label should or should not do.

Researchers do investigate category labels that have indefinite boundaries in early stages of category formation. However, these studies tend to focus on how activists battle to create boundaries and construct the social meaning of an emerging category (Rao 1998; DiMaggio 1991; Rosa, Porac, Runser-Spanjol and Saxon 1999). Recent work has formalized the evolution of a category (or market) as occurring in stages, where first people cluster organizations based on similarity, next a label is applied that might catch on, and later people come to an agreement that the label is infused with meaning, so that shared expectations develop about what a category member will be or do (Hannan, Pólos and Carroll 2007). This work emphasizes that categories and labels have fuzzy boundaries, but again, high levels of fuzziness are presumed to exist only as categories are emerging. Labels that do not develop a commonly accepted meaning are expected to fade away.

On the contrary, we observe that, in many domains, prominent market labels not only have fuzzy boundaries, but also that some evolve to exert very few constraints on organizational members. We call these lenient market labels. Leniency is defined as a lack of constraint in terms of what external audiences expect from organizations that identify with a market label.
When a label overlaps with many others, audiences come to assume that a wide range of activity is acceptable. For example, in the market for “disk arrays,” organizational members had many alternate identities. As a result, people began to view this market in a variety of ways, and the label did not develop strong, agreed-upon constraints (McKendrick and Carroll 2001).

It is important to note that leniency arises when a label overlaps with many others, but leniency does not necessarily imply that the label is superordinate in a hierarchy and contains nested sub-labels. For example, disk array producers also identified with “storage,” “storage subsystems,” “RAID,” and “network attached storage,” (McKendrick, Jaffee, Carroll and Khessina 2003), but organizations in these other labels were not all disk array producers. In the case of nanotechnology, this science overlaps with molecular physics, materials science, chemistry, biology, computer science, electrical engineering, and mechanical engineering, but scientists in these fields are not all nanotechnologists. Because lenient labels are not constraining, they may become broad, but this broadness results from its overlap with many other labels, not from it being a higher level of aggregation in a hierarchy.

In the software industry between 1990 and 2002, some of the most important market labels were lenient. These include “e-business applications,” “customer relationship management,” “enterprise software,” and “data mining.” For example, the “enterprise software” label is defined by Capterra as software that targets “any/all types of organizations… any/all industries .. any/all sizes of organizations…[and] include[s] function-specific … and industry-specific … solutions.” Wikipedia’s definition begins with “there is no single, widely accepted list of enterprise software characteristics,” and Perlmonks.org dedicates an entire article to trying to define the label, eventually claiming that enterprise software is “software whose failure

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1 http://www.capterra.com/enterprise_software_definition
2 http://en.wikipedia.org/wiki/Enterprise_software
everyone notices quickly” (Foy 2005). This indicates that audiences have not come to agreement upon a specific definition of what it means to be an “enterprise software” organization, and Capterra’s serious attempt at defining the boundaries of this market drives more inclusion than exclusion. Still, “enterprise software” was one of the largest and most talked about labels in software during this time period, as illustrated in figure 1. The first graph plots the leniency of the “enterprise software” label over time, and shows that “enterprise software” becomes a lenient market label in the mid to late 1990s. At the same time, the market label was increasingly covered in the *Wall Street Journal.*

---- Insert figure 1 about here ----

Another example of a lenient market label is “customer relationship management (CRM).” In 1999, *Red Herring* magazine defined CRM simply as software that “lies at the intersection of a business’s back-office ERP functions and its outward-facing front-office applications,” (Zerega 1999). As of 2012, the editors of *CRM Magazine* state that it is:

> a company-wide business strategy designed to reduce costs and increase profitability by solidifying customer loyalty. True CRM brings together information from all data sources within an organization . . . to give one, holistic view of each customer in real time . . . Once thought of as a type of software, CRM has evolved into a customer-centric philosophy.

By this definition, the CRM label became even more lenient, no longer even constraining an organization to produce software. Still, the leniency of the CRM label did not prevent it from also becoming a relevant and prominent market label; it was also frequently discussed in the *Wall Street Journal* during the study time frame, as illustrated in figure 2.

---- Insert figure 2 about here ----

Compare the above examples to constraining, or low-leniency, market labels. “Entertainment software” is a label that developed clear constraints – it refers to organizations that produce

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video games. This market has a trade association, Entertainment Software Association, which helps further the interests of entertainment software organizations, representing a designated set of “entertainment software” organizations. There is also annual trade fair, the Electronic Entertainment Expo (E3), and the Entertainment Software Rating Board (ESRB), a self-regulating organization that assigns age and content ratings to video games. “Entertainment software” developed a meaning that specifically denotes software organizations that produce video games, and so organizations that create other types of software directed at entertainment, such as digital audio, could not credibly claim this label. To contrast with “enterprise software,” figure 3 shows the leniency of “entertainment software” over time, as well as mentions in the *Wall Street Journal*. This market label was low-leniency, but in the media is as prominent or less so than the high-leniency labels “enterprise software” and “customer relationship management” described above.

--- Insert figure 3 about here ----

Another example is "electronic design automation," a label for software tools used to design electronic systems such as printed circuit boards and integrated circuits, which are frequently used by semiconductor chip manufacturers. This evolved to be a constraining market label that is consistently defined across sources using these specific qualities (Wang, Chang and Cheng 2009; Birnbaum 2004). At the same time, this market label was infrequently discussed in the *Wall Street Journal*, as shown in figure 4.

--- Insert figure 4 about here ----

In the software industry, many market labels evolved to be low-leniency, including “digital imaging,” “biometrics,” and “anti-virus software.” However, as the examples above illustrate, developing clear boundaries did not necessarily lead to more recognition or relevance
in this domain. In fact, some of the most frequently claimed market labels in the software industry were also the some of the most lenient, as shown in figure 5. It seems that market labels can be lenient, and still be relevant and grow large.

---- Insert figure 5 about here ----

Previous research indicates that whether a market label is lenient or constraining affects organizational action and how organizations are perceived. For instance, organizations that innovate are more likely to pioneer a new market only when they affiliate with constraining labels (identifying reference). End-users prefer organizations in constraining labels, while venture capitalists, interested in creating the next “new thing,” gravitate toward organizations that claim lenient labels (identifying reference). Together, these findings indicate that whether an organization is in high or low leniency labels has significant consequences. As a result, we think it is important to understand how lenient market labels can grow and flourish.

LENIENCY, FRAMING, AND ORGANIZATIONAL “FIT”

Organizational Entry

In any domain, the decision to affiliate with a market label is based not only on technical characteristics of an organization and its products, but also on more fungible elements such as how its products can be used, its target customers, and of course, the market labels that are already established. This choice is an issue of framing, where actors use labels as a way to guide how consumers or other audiences will interpret their products or services (Goffman 1974; Snow et al. 1986). The market label an organization claims not only reflects its internal identity, but also is a guide to how external audiences should evaluate the organization (Gioia, Schultz and Corley 2000). In many industries – and especially in the software industry – for a given
organization there are a number of market labels it could credibly claim, providing a choice of potential frames. For example, Coremetrics, a company born in the late 1990s that sold a product that tracked and reported on Web-site traffic, initially identified itself as a member of the “e-marketing” label, which implied that it was focused on online marketing. This label could also have included companies that provided email or search marketing, or less technical consulting. It then claimed the “business intelligence” label, an older and more established market label that indicated that a company provided in-depth reports on data from across many divisions in an organization. Later, it tried to pioneer a “marketing analytics” label, hoping that the label would signal its focus on marketing and also emphasize its abilities in technical reporting. This label was not especially distinct from the emerging “web analytics” label, which indicated that affiliated organizations produced reports with general metrics for a company’s online site, often sold to information technology departments. It was a good fit for Coremetrics’ product but included organizations with low-level reporting abilities and did not have the panache of a marketing focus. However, because the “marketing analytics” label did not catch on, Coremetrics later claimed to provide “web analytics.”

As this example illustrates, the decision to affiliate with a market label is a framing process where managers consider how well an organization’s offerings fit with what potential customers of a market are looking for. Given the penalties that arise if an organization is misclassified (Hsu 2006), managers are likely to pay special attention to product-market fit. For lenient labels, there are a number of different ways an organization can satisfy the demands of the market. Although there is not consensus on any one of them, there is also not disagreement on any one. By affiliating with a lenient label, an organization can cultivate an identity that fits into multiple frames. As a result, the organization may have the potential to appeal to a wide
range of perspectives, which can be beneficial, especially under conditions of uncertainty (Padgett and Ansell 1993; Stark 1996). Leniency allows managers to see what they want to see in a market. Consequently, we expect that for a lenient market label, managers of many different types of organizations will be more likely to comfortably frame their offerings as fitting into the label. This process has been observed among R&D consortia, where general-purpose (lenient) consortia attract more organizations than do consortia with a specific purpose (Barnett, Mischke and Ocasio 2000). Lenient consortia can be framed as consistent with the goals of a larger number of potential members. This is not to say that claiming a lenient label will fully protect organizations from accusations of inauthenticity; a rival might still allege that the organization is not a true member of the market – “Coremetrics is not a real e-marketing company.” However, if the label does not impose clear, consensual constraints, this accusation is difficult to verify. The constraints of market labels act as a type of barrier to entry, and lenient labels present a lower entry threshold.

H1: Organizations are more likely to enter a more lenient market label.

Organizational Exit

So far we have taken the perspective of an organization deciding which market label to claim. But how does a market label affect organizations that are already identified with the label? Much previous research takes this perspective, and concludes that labels that have ambiguous boundaries and that lack a consensual definition – or lenient labels – are not useful to an observer who is trying to evaluate an organization. This is because one of the purposes of market classification is to help people understand and interpret what an organization does. When a label
evokes shared meaning, organizations that match accepted standards will be seen as more credible than those that do not conform. Therefore, organizations that are considered legitimate members of a well-defined market will benefit from the affiliation (Hannan, Pólos and Carroll 2007). Conversely, since lenient market labels do not evoke commonly agreed upon expectations, they provide weak signals, and so are less valuable at attracting the right types of customers. Studies show that when boundaries of a label are ambiguous, members do not benefit as much from identifying with the label (Kovács and Hannan 2010; Ruef and Patterson 2009; Negro, Hannan and Rao 2010). For example, an “enterprise software” organization that sells a human resources product that will be of little use to a customer looking for “enterprise software” that helps streamline the supply chain. As a result, we expect that after an organization claims a lenient market label, managers are likely to find that the label is not especially useful for attracting customers who want their particular products. Thus, they will be more likely to subsequently drop the label.

Lenient labels are more likely to be dropped for a second reason – one linked to the ease with which such labels can be claimed. The less lenient the label, the more likely that organizations claiming the label will conform to its (well-defined) criteria. At the other extreme, very lenient market labels are likely to be claimed by a wide variety of organizations. As such, the entry process into lenient labels is inherently more exploratory, allowing for greater variability in the qualities of the organizations that end up claiming the label (March 1991). Some of these entrants will ultimately find themselves well served by having entered, but the permissive entry-selection process will also attract organizations that ultimately will find no benefit from the label affiliation. When thresholds for entry are low, we should expect higher
rates of subsequent attrition from a label (Barnett, Swanson and Sorenson 2003). Altogether, our arguments imply:

H2: Organizations are more likely to exit a more lenient market label.

Together, hypothesis 1 and hypothesis 2 indicate that there is more flow through lenient market labels as compared to constraining labels.

**MOVEMENT BETWEEN MARKET LABELS**

When organizations affiliate with and subsequently drop market labels, they engage in a search process surrounding their market identity. This imagery raises the question: what path do identity claims take over time? On the one hand, we might expect that organizations will move from lenient to constraining markets, because lenient labels do not provide as much value to their organizational members. An organization taking this path might try to develop a focused identity to send a clear signal to potential customers. On the other hand, organizations that claim lenient labels are more likely to be searchers, whose offerings do not neatly fit into constraining markets. Further, organizational learning processes tend to be conservative, reinforcing existing structures even as the organization copes with change (March, Scproull and Tamuz 1991). Any time an organization affiliates with a new market label, it will likely need to make changes to accommodate its new identity. We think that these changes are more disruptive when an organization moves from a lenient to a constraining label. Organizations in lenient labels face limited resistance when it comes to taking the organization in new directions, and employees are not accustomed to having to defend whether what they are doing is in line with existing
standards or expectations. To move from a lenient to a constraining market label, organizations will have to conform to the new expectations, which will require instituting new structures and routines. Therefore, we expect that for organizations already in lenient labels, moving into another lenient label will require fewer internal adjustments.

H3: Organizations that are in more lenient market labels are more likely to enter more lenient labels, as compared to organizations in less lenient labels.

Thus, once organizations are in lenient market labels, they are even less likely to return to constraining ones. This hypothesis implies that when lenient market labels become prevalent in a domain, they promote the growth of other lenient labels, further fueling their persistence.

**EXTERNAL INFLUENCE**

External actors also influence an organization’s identity claims, especially if they control important resources. For example, government funding set aside for nanotechnology provides scientists incentives to reframe their work as being part of that label (Grodal 2011). The perception that nanotechnology is resource rich, coupled with its loosely defined boundaries, has fostered its growth. In the software industry, venture capitalists have become increasingly important. In the United States, the annual amount of venture capital investment tripled between 1991 and 1996, and the software industry was consistently the largest or second largest recipient of this investment (Onorato 1997). Venture capitalists look for potential investments that can disrupt the market and result in a large pay-off, and from their perspective, organizations that claim lenient labels have the flexibility to realize these goals. Consequently, venture capitalists
are different from consumers in that they prefer to invest in organizations that claim lenient labels (identifying reference). Venture capitalists are often on the boards of their portfolio companies, giving them much influence over these organizations (Norton and Tenenbaum 1993). We think the strong influence of venture capitalists, coupled with their preference for leniency, will push recently funded organizations toward entering lenient market labels.

H4: Organizations that have recently received venture capital funding are more likely to enter a lenient market label, as compared to organizations that have not recently received venture capital funding.

**EMPIRICAL TEST: THE SOFTWARE INDUSTRY**

We study these ideas in the context of the software industry between the years 1990 and 2002. This industry is segmented by a large number of market labels – called “market spaces” by insiders. These labels are used by software firms to frame their offerings for critical audiences such as the media, potential investors, customers and employees. Market labels are important to the dynamics within this industry, and range from constraining to lenient.

Software has been around since computers were commercialized in the 1950s. The software industry began to be referred to as such in the mid to late 1960s around IBM’s 1968 decision to unbundle hardware and software in the face of regulatory pressure. This change provided an opportunity for independent software vendors to thrive (Campbell-Kelly 2003; Steinmueller 1995). In the 1970s, software market classification emerged. Initially, the main division was between “system” and “application” software, which was subdivided into industry

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4 The ENIAC, the first fully functional digital computer, was completed in 1946 for the U.S. government. Computers were sold for commercial use beginning in the 1950s.
classifications. The invention of the personal computer in the 1980s provided opportunities for organizations to pioneer new types of classification. In 1982 the “productivity application” label emerged, which included spreadsheets, word processing, and personal databases. Later in the decade, growing hardware markets for printers, modems, and hard disks gave rise to the label “utility software,” (Steinmueller 1995). In the 1990’s a number of new labels came about including “network management tools”, “ERP”, “security software”, “object management software”, “middleware”, “financial applications”, “human resource management”, “CAD”, and “integrated voice response systems,” (Frye and Melewski 1995). The creation of the World Wide Web in the 1990s (Fabrizio and Mowery 2007), coupled with the economic boom of the late 1990’s, again led to new types of software. Companies began to claim new market labels such as “data mining,” “OLAP (On-Line Analytical Processing),” “object-oriented programming,” and “Customer Relationship Management” (Hayes 2000; Comerford 1999).

DATA AND METHODS

To test our hypotheses, we need data on organizational claims to market labels. Press releases are a good source for these data within the software industry. Within each press release, software organizations frame their offerings by claiming a market label. For example, in a press release from February 2000, Citrix systems states, “Citrix Systems, Inc. is a global leader in application server software and services,” (figure 6 lists other examples of identity statements from press releases in these data). Thus, press releases provide a written record of the labels organizations claimed over time.

Software organizations issue press releases to announce all types of news: a new vice president, a new product, a new partnership, having received venture capital funding, or any
other notable event. Press releases are suggested or required by the major stock exchanges, and a study of public companies found an average of 1.5 media articles per press release issued from 2001 to 2006 (Soltes 2010). Thus, even if people do not directly read press releases, they can learn about their contents through the media. Any company, no matter how small, can issue a press release, so these releases contain many small and otherwise difficult-to-track organizations. In addition, press releases contain any market label that an organization tried to claim; unlike compiled lists that force organizations to choose their market from a list created by an outsider, press releases provide the many different labels that were both well established and those that organizations were attempting to pioneer. As a result, press releases provide rich data on market labels and organizational affiliation with these labels.

---- Insert figure 6 about here ----

We used press releases to assemble data on the market labels organizations claimed during our study period. Our initial source was all press releases issued through Businesswire, PR Newswire, and Computerwire from 1990 until 2002 that contained at least three mentions of the word “software.” There are 268,963 of these. A combination of custom coded text-matching programs and manual examination of these programs’ output resulted in 4,566 software organizations that issued press releases during this period. The identity statements made by these organizations indicate label affiliation. An extensive list of market labels was assembled from articles in Software Magazine and Computerworld, from the business sectors listed in Software Magazine’s Software 500, and from manual inspection of the identity statements. Text matching programs searched all identity statements for these labels. This provided the organizations’ claims to market labels for each year between 1990 and 2002. The final data contain 456 market labels and 4,566 organizations.

--- Footnote ---

5 We include press releases from 1989 to construct variables to estimate outcomes in the year 1990.
Figure 7 shows a map of market labels in the software industry in 1991. This is a network plot where labels are linked based on the number of organizations that claim both labels, and node size is based on label leniency. This plot shows the extensive classification within the software industry. High-leniency market labels are more central and overlap with many other labels.

--- Insert figure 7 about here ---

With these data, we were able to investigate our hypotheses at the dyadic level. We created organization-label dyads to investigate whether the organization from the dyad enters or exits the market label from the dyad. A dyadic analysis allows us to use both organizational and label covariates to predict organizational entry and exit. For our entry analysis, data include dyads of organizations paired with labels they do not already claim, for the years in which the organization is issuing press releases.\(^6\) We only include a dyad if the organization has never previously affiliated with the label. Our data contain 1,893,569 potential organization-label pairs, 23,629 market label entries, and 6,485,521 organization-label-years. For our exit analysis, data include dyads for each organization and the labels it claims in the current year. Our data include 21,589 organization-market label pairs and 13,880 market label exits over 39,359 organization-label-years.

**Leniency**

Leniency represents a lack of constraint imposed by a market label on its organizational members. As described above, labels become lenient when they have high overlap with other labels in a domain. Previous research shows that when members of a product market identify

\(^6\) For organizations that “skip” years in terms of claiming market spaces in press releases, we attribute the previous year’s market space claims to the skipped year.
elsewhere, the market is less likely to develop an agreed-upon social meaning (McKendrick, Jaffee, Carroll and Khessina 2003; McKendrick and Carroll 2001), and a previously well-defined market can become blurry (Phillips and Kim 2009). Market labels that have broad overlap do not impose strong constraints in identity space. In this way, these labels are lenient.

Mathematically, we build the concept of leniency using the fuzziness of a label’s boundaries, an established construct in the literature on cognition and categorization that refers to categories that do not have clear boundaries separating members from non-members (Rosch and Mervis 1975; McCloskey and Glucksberg 1978; Hampton 1998). A market label is fuzzy if it has a high degree of overlap with at least one other label. Lenient labels are not only fuzzy, but also overlap broadly with other labels in a domain. Leniency is calculated by multiplying fuzziness of a market label by the number of distinct other labels with which they identify. We conceive of market labels as fuzzy sets, so that organizations can have partial membership in a label. We suggest that the more frequently an organization claims a label, the stronger its tie to that market. Therefore, we calculate organization $i$’s grade of membership in label $A$, or $\mu_i(A)$, by dividing (the number of times organization $i$ claims label $A$ in its press releases) by (the number of times it claims any label) in a given year:

$$
\mu_i(A) = \frac{\text{claims}_i(A)}{\text{claims}_i(\{A,B,\ldots\})} \quad 0 \leq \mu_i(A) \leq 1
$$

(1)

The contrast of label $A$ can be calculated as the average grade of membership of member organizations:

$$
\text{contrast}_A = \frac{\sum_{\mu_i(A) > 0} \mu_i(A)}{N_A} \quad 0 \leq \text{contrast}_A \leq 1
$$

(2)
Here, \( N_A \) is the number of organizations with non-zero grade of membership in \( A \). Labels with high contrast contain members that do not claim many other identities on the market. As a result, high contrast labels have strong boundaries. The opposite of contrast is *fuzziness*, which indicates that a label has unclear boundaries (Hannan, Pólos and Carroll 2007):

\[
fuzz_A = 1 - \text{contrast}_A \quad 0 \leq \text{fuzz}_A \leq 1
\]  

(3)

Note that a label can have high fuzziness if it shares members with only one other label. To capture whether a label broadly overlaps with many others, leniency multiplies fuzziness by the (natural log of the) number of distinct other market labels with which members identify. Leniency is measured every year as it can change over time.

\[
\text{leniency}_A = \text{fuzz}_A \cdot \ln(N_{\text{ocar}})
\]  

(4)

The distribution of leniency for software market labels is illustrated in figure 8.

--- Insert figure 8 here ---

**Dependent Variables**

We use *market label entry* as the dependent variable to test hypotheses 1, 3, and 4. This is a binary variable that equals 1 if the organization claims the label from the dyad in the current year, and 0 if the organization does not claim the label. We code market entry as 1 only if the organization has never previously claimed to be a member of that label.

We use *market label exit* as the dependent variable to test hypothesis 2. This is a binary variable that equals 1 if the organization drops the label from the dyad in the current year, and 0 if the organization does not drop the label. We code exit as 1 in the last year that the organization from the dyad claims membership in the market label from the dyad. Therefore, if an organization exits and re-enters a label, only the final exit is coded as a 1. Our data include the
years 1990 through 2002, so we cannot define market exit for the year 2002. As a result, we run our exit analysis for the years 1990 through 2001.

Independent Variables

We test hypotheses 1 and 2 using the leniency of the label from the dyad. We test hypothesis 3 by interacting the leniency of the organization’s labels with the leniency of the market label from the dyad: \((\text{leniency of organization’s labels} \times \text{leniency of the “target” label})\). The leniency of an organization’s labels is computed as a weighted average of the leniency of the labels the organization claims, weighted by its grade of membership in each label. We test hypothesis 4 by interacting the leniency of the label from the dyad with a dummy variable that indicates whether the organization received venture capital funding in the previous year: \((\text{leniency of the “target” market label}) \times \text{(organization received venture capital funding)}\).

Control Variables

We include a number of label-level and organizational-level variables in our model as controls. For label characteristics, we include the number of organizations in the label (weighted by grade of membership), to account for the possibility that populated labels might attract more entries.\(^7\) We also include the number of organizations that entered and exited the label (also weighted by grade of membership) to account for whether the label is growing or declining in popularity. Finally, we included the age of the market label measured since 1990 (the inception of our data).

Organizational-level controls include whether the organization was in Software Magazine’s Software 500, an annual ranking of software organizations by revenue, to account for heterogeneity in size and quality. Organizations may be more likely to enter new labels after

---

\(^7\) This is also called the fuzzy density of the label.
receiving new investments, so we also include whether the organization has received venture capital funding. We include the time since an organization has last entered any label, and the age of the organization, measured since 1990 (the inception of our data). All independent and control variables are measured as of the beginning of each time period. Table 1 provides descriptive statistics for the dependent, independent, and control variables for all organization-label dyads in our entry data. These data contain all “potential” pairings of organizations with market labels. Table 2 provides descriptive statistics for the dependent, independent, and control variables for the organization-label dyads in our exit data, which contain all actual pairings of organizations and market labels.

Model

To test our hypotheses we estimate the instantaneous hazard rate of an organization’s entry into and exit from the market label of the organization-label dyad, in separate models. This is the instantaneous likelihood that the organization enters or exits a particular market label during time period $\Delta t$ in the limit where $t \to 0$, and can be operationalized in terms of two random variables: $Y(t)$, which indicates whether an organization enters or exits a market label at time $t$, and $t_n$, the time of its entry or exit:

$$ r(t) = \lim_{\Delta t \to 0} \frac{\Pr(Y(t-t_n + \Delta t) | Y(t-t_n) = 0)}{\Delta t} \quad (5) $$

This rate is estimated as a function of the independent and control variables listed above:

$$ r(t-t_n) = r_n(t-t_n) \cdot \exp(\beta_{\text{ind}} \cdot x_{\text{ind}} + \alpha_{\text{control}} \cdot x_{\text{control}}) + \epsilon \quad (6) $$

We use piecewise continuous hazard rate models employing the stpiece routine in Stata 11 written by Jesper Sørensen. Robust standard errors are used, clustered by label.
RESULTS

Entry into and Exit from Lenient Labels

Table 3 contains tests of hypotheses 1 and 2. Models 1-2 are entry models that test hypothesis 1.

----- Insert table 3 about here -----  

Model 1 includes controls only. Model 2 includes the leniency of the market label from the organization-label dyad. Results show that the more lenient the label, the more likely an organization will enter it, significant at p<0.001. Model 2 is also an improvement in fit over model 1 at p<0.001, providing support for hypothesis 1. High-leniency labels are much more likely to attract entry as compared to low-leniency labels. An organization is more than twice as likely to enter a market label with mean leniency, and six times more likely to enter a label one standard deviation above mean leniency, as compared to a label one standard deviation below mean leniency.\(^8\) Figure 9 plots these effects.

----- Insert figure 9 about here -----  

Models 3 and 4 are exit models that test hypothesis 2. Model 3 contains controls only, and model 4 includes the leniency of the market label from the dyad. Results show that organizations are more likely to exit lenient labels, significant at p<0.001. Model 4 is an improvement over model 5 at p<0.001, providing support for hypothesis 2. Organizations are 14\% more likely to exit a label of mean leniency, and 20\% more likely to exit labels one standard deviation above mean leniency, as compared to a label one standard deviation below mean leniency.\(^9\) Thus organizations are more likely to both enter and exit lenient market labels.

---

\(^8\) From table 1, the mean level of market space leniency is 1.4, and one standard deviation above the mean is 2.4 in the entry data.

\(^9\) From table 2, the mean level of market space leniency is 2.1, and one standard deviation above the mean is 3.0, for the exit data.
The rate of entry is much higher than the rate of exit, helping to explain the prominence of lenient market labels in this domain. Figure 10 illustrates these effects.

--- Insert figure 10 about here ---

It may be useful to compare the effect of leniency to that of market label size, where size is defined in terms of the number of organizations that claim the label. Entry and exit rates are symmetric for size: as the number of members in a label increases, entry increases and exit decreases. Large labels are more attractive than small labels to both potential entrants and to existing members. In the case of leniency, more lenient labels yield higher entry and higher exit rates. Thus lenient labels are more attractive to potential entrants, but less attractive to existing members. These results are consistent with previous literature that suggests that vaguely defined markets do not provide as much advantage to organizations as those with a clearer definition: organizations that claim lenient labels are more likely to leave. But they also indicate that considerations of product-market fit can fuel entry and hence the growth of lenient labels.

--- Insert table 4 about here ---

Movement Between Market Labels

Table 4 contains tests of hypotheses 3 and 4. Model 5 tests hypothesis 2. It is an entry model that contains the interaction between the leniency of an organization’s labels and the leniency of the “target” label, or the market label from the dyad. We include the leniency of the organization’s labels as a control. Results show that the interaction is positive and significant at p<0.001, and that model 5 is an improvement in fit over model 2 for two degrees of freedom at p<0.001, providing support for hypothesis 3. Organizations that were already in lenient labels are even more likely to enter a lenient label than organizations in constraining labels. Further, when the
interaction is included, the main effect of the leniency of the labels the organization is already in has a marginally significant negative effect. The effect of leniency of the target label remains positive and significant at p<0.001. Together, these results show that once an organization is in a high-leniency market label, not only is it especially likely to claim another lenient label; but it is also marginally less likely to claim a constraining label.

To explore this further, in model 6 we investigate whether the relative difference in leniency between the target market label and the organization’s labels affects entry rates. We include the ratio between the leniency of the target label and the leniency of the organization’s labels. Results show that this effect is negative and significant at p<0.01. Both the leniency of the target label and the leniency of the organization’s labels remain positive and significant at p<0.001. This model indicates that organizations move into lenient labels in increments. Although they are more likely to both enter and exit lenient labels, they are unlikely to jump from highly constraining to highly lenient ones. Together, models 5 and 6 indicate that an organization’s path from constraining to lenient market labels is a slow spiral. Once an organization is in lenient labels, it is more likely to move to another lenient market label, in support of hypothesis 3.

External Influence

Model 7 tests hypothesis 4, which states that organizations that recently received venture capital funding are more likely to enter lenient labels. Results show the interaction between an organization receiving venture capital funding and label leniency is positive and significant at p<0.01, and model 7 is an improvement in fit over model 2 at p<0.01. An organization that recently received venture capital funding is 9% more likely to claim a lenient label, compared to
an organization that did not receive venture capital funding. Also note that when the interaction is included the positive main effect of an organization having received venture capital funding loses its significance due to a reduction in the coefficient. This indicates that organizations that receive venture capital funding are not simply more likely to claim a new market label; rather they are more likely to claim *lenient* labels. For comparison purposes, model 8 includes the interaction in exit models. The effect is insignificant due to a small coefficient. Organizations that receive venture capital funding are more likely to *enter* lenient labels, but not *exit* them. Together, this supports the idea that venture capitalists prefer lenient labels because they are flexible (identifying reference), and indicates that this preference can further fuel the growth of lenient labels when venture capitalists are an important external influence in an industry.

*Control Variables*

The control variables also affect entry into and exit from market labels. Market labels that are large and that have a lot of recent entries are more likely to attract more entries, while labels with recent exits are less likely to have entries, significant at p<0.01. This indicates that organizations look to the choices of others when entering markets. Older market labels are also more likely to attract entrants, significant at p<0.001 in model 1, although the effect is not robust to the inclusion of leniency. Organizations that are in the Software 500 are more likely to claim a new label (p<0.001), suggesting that resources may affect an organizations ability (or perceived ability) to expand or change. As we would expect, an organization that has recently entered a new label it is less likely to do so again (significant at p<0.001). The effect of organizational age is not significant in model 1, although it becomes positive and significant at p<0.001 when leniency is included.
In terms of market exit, results show that organizations are less likely to exit large market labels, significant at p<0.05. Note that size both increases entry and decreases exit. This may be because the size of a label indicates that there is stable customer demand, or other types of resources. Recent entries do not affect exit in the base model, although the effect becomes positive and significant at p<0.05 when leniency is included. Recent exits have a positive effect, significant at p<0.001. This may pick up on changing external conditions that make a label less desirable. The age of a market label does not show a significant effect. Organizations that are in software magazine and older organizations are more likely to exit labels, significant at p<0.001. Together with the entry effect, this may indicate that organizations rich in resources are more willing or able to change their identities. Those that receive venture capital funding are also more likely to exit (p<0.001), indicating that venture capital investors influence the identity claims of their portfolio firms. Organizations that have recently exited a label are more likely to subsequently exit another label (p<0.001). This may be picking up on troubled organizations that are refocusing their market identities.

DISCUSSION

Although existing research implicitly assumes that only well-defined markets become relevant, we note many instances where lenient market labels are some of the most important in a domain. The software industry provides many examples of this, but this phenomenon is by no means restricted to software. From “nanotechnology” in science to “social entrepreneurship” in business to “leadership” curricula offered at many schools of business, lenient labels abound. But why? If the purpose of a market label is to define what an organization does, how can lenient labels flourish?
Attention to entry selection processes helps to explain the persistence of lenient market labels. Although lenient labels do not provide members as much clarity and credibility as well-defined markets, they allow a wide range of organizations to plausibly position their products in a market label. Lenient labels provide managers the flexibility to interpret what they think a label “really is,” and perhaps even hope to define the label’s boundaries and position their organization as central in the new competitive sphere. In this way, lenient market labels provide a lower threshold for entry in terms of product-market fit. In support of these ideas, results show organizations are much more likely to enter lenient labels. But once an organization enters a label, the realities of the market set in. It is easier to spin a tale that an organization will dominate a market prior to entry. After affiliating with a label, sales numbers, media coverage, and recruiting indicate how the organization fares with respect to its competitors. If lenient labels do not provide as much value as do well-defined markets, we should expect a higher rate of exit. Indeed, findings also support this idea.

These results indicate that lenient market labels are not necessarily temporary or a passing fad. There is more flow through lenient labels, with organizations both entering and exiting at higher rates. If lenient market labels have higher rates of entry than exit, they can persist and become important in a domain. For example, in the software industry, results show that entry into lenient labels is much higher than exit, which is consistent with the observation that some of the largest market labels in the software industry during this time period were lenient. Lenient labels may realize a high entry to exit ratio in domains where pressures for organizations to find a satisfactory product-market fit outweigh the challenges that arise when a market is not well defined. In industries where products are unique and where there is a strong
focus on innovation, we may find that the flexibility lenient labels afford outweighs benefits associated with constructing a clear and commonly accepted definition for a market.

Results also show that once organizations are in a lenient label, they tend to move to other lenient labels, rather than to constraining ones. This may seem paradoxical; if leniency is part of the problem with a market label that leads organizations to exit, why would they not move to a more constraining label? Organizations that claim lenient labels are more likely to be searchers that do not clearly fit into a constraining market. To move from a lenient to a constraining label, an organization must implement significant changes in terms of its structures, routines, and even its outlook, which will make such a move more hazardous. Further, organizations learn in ways that tend to reinforce their experiences, and managers may not interpret problems they are encountering as attributable to the leniency of a market. A different lenient label will be more familiar in terms of how employees have learned to view and interpret markets, and so will seem more promising to managers.

Findings showing that organizations are less likely to enter labels that are much more lenient than their current label are also consistent with this interpretation. Organizations incrementally move to labels that are slightly more lenient. Once they land in a highly lenient label, they are unlikely to move back into a constraining market. These results have implications for how industries evolve to be like the software industry, peppered with lenient market labels. This outcome may be path-dependent, where a few lenient labels happen to initially appear. Once these grow, dynamics of the market set in, and organizations in lenient labels fuel the proliferation of other lenient labels.

Results indicate that external influences also can drive the growth of lenient market labels. In this context, venture capitalists are an important resource for software organizations,
and they tend to prefer lenient labels (identifying reference). Findings here show that recently funded organizations are more likely to join lenient labels, consistent with the notion that venture capitalists influence entry decisions. Thus, these investors also indirectly contributed to the persistence of lenient labels in this industry.

Findings imply that there may be much to gain from modeling entry as a selection process. The growth of markets can result from either high entry or low exit, but often it is assumed that when there is explosive growth, both will operate. On the contrary, here we show that at times the same process that leads to high rates of entry can also lead to high rates of exit. For example, leniency makes market labels more attractive from the perspective of product-market fit, and less attractive from the perspective of the benefits an organization will receive from affiliating with the market. Overall, we suggest that by modeling entry and exit as separate processes, we can gain a clearer understanding of market evolution.

Finally, results support the idea that there is a trade-off to identifying with a lenient as opposed to a constraining market label. Contrary to assumptions in previous literatures, we show that lenient market labels can persist over time, and that that this is because lenient market labels are an attractive point of entry for organizations. The assumption in previous research that lenient labels are less useful than constraining ones and so will eventually fade away, relies too heavily on the presumption that there will be an alternative label that is constraining, which will be a viable choice for an organization. Instead, the realities of the market push managers to face trade-offs. For organizations that do not easily fit into well-defined markets, joining a lenient market label may be its best option. Further, once an organization affiliates with a lenient label, it is more likely to subsequently join other lenient markets, rather than constraining ones. This
means that we should not expect lenient markets to be temporary. Rather, lenient labels can become an established and important part of market classification.
REFERENCES


### Tables

**Table 1.** Descriptive statistics for market label entry analysis.¹

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization enters market label</td>
<td>0.0036</td>
<td>0.0603</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Leniency of market label</td>
<td>1.403</td>
<td>0.9920</td>
<td>0</td>
<td>4.063</td>
</tr>
<tr>
<td>(Leniency of &quot;target&quot; market label) / (leniency of organization's labels)</td>
<td>0.6229</td>
<td>1.4315</td>
<td>0</td>
<td>67.05</td>
</tr>
<tr>
<td>(Leniency of &quot;target&quot; market label) x (leniency of organization's labels)</td>
<td>2.480</td>
<td>2.779</td>
<td>0</td>
<td>15.75</td>
</tr>
<tr>
<td>Leniency of organization's labels (weighted average)</td>
<td>1.657</td>
<td>1.155</td>
<td>0</td>
<td>4.01</td>
</tr>
<tr>
<td>Organization received VC funding x label leniency</td>
<td>0.1243</td>
<td>0.5070</td>
<td>0</td>
<td>4.063</td>
</tr>
<tr>
<td>Number of organizations that claim the market label (weighted by GoM)</td>
<td>4.688</td>
<td>10.33</td>
<td>0</td>
<td>163.8</td>
</tr>
<tr>
<td>Entries into label last year</td>
<td>2.309</td>
<td>5.479</td>
<td>0</td>
<td>86.70</td>
</tr>
<tr>
<td>Exits from label last year</td>
<td>2.079</td>
<td>5.226</td>
<td>0</td>
<td>102.7</td>
</tr>
<tr>
<td>Age of label (since 1990)</td>
<td>5.787</td>
<td>3.669</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Organization was in software magazine last year</td>
<td>0.1362</td>
<td>0.3430</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Organization received VC funding last year</td>
<td>0.0809</td>
<td>0.2727</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Time since organization last entered a market label</td>
<td>1.077</td>
<td>1.501</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Organization age (since 1990)</td>
<td>2.814</td>
<td>2.852</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Year</td>
<td>1998.6</td>
<td>2.600</td>
<td>1990</td>
<td>2002</td>
</tr>
</tbody>
</table>

¹ These data contain 1,893,569 potential organization-market label pairs for the years 1990 through 2002. There are 23,629 market label entries over 6,485,521 organization-label-years.
Table 2. Descriptive statistics for market label exit analysis.\(^1\)

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization exits market label</td>
<td>0.3527</td>
<td>0.4778</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Leniency of market label</td>
<td>2.103</td>
<td>0.8985</td>
<td>0</td>
<td>4.046</td>
</tr>
<tr>
<td>Organization received VC funding x label leniency</td>
<td>0.2040</td>
<td>0.7036</td>
<td>0</td>
<td>4.046</td>
</tr>
<tr>
<td>Number of organizations that claim the market label (weighted by GoM)</td>
<td>23.06</td>
<td>32.94</td>
<td>0</td>
<td>163.8</td>
</tr>
<tr>
<td>Entries into label last year</td>
<td>12.05</td>
<td>18.14</td>
<td>0</td>
<td>86.70</td>
</tr>
<tr>
<td>Exits from label last year</td>
<td>9.296</td>
<td>15.15</td>
<td>0</td>
<td>80.21</td>
</tr>
<tr>
<td>Age of label (since 1990)</td>
<td>6.885</td>
<td>3.236</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Organization was in software magazine last year</td>
<td>0.2194</td>
<td>0.4139</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Organization received VC funding last year</td>
<td>0.0885</td>
<td>0.2841</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Time since organization last exited a market label</td>
<td>1.182</td>
<td>1.792</td>
<td>0</td>
<td>12</td>
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<td>Organization age (since 1990)</td>
<td>3.098</td>
<td>2.984</td>
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<tr>
<td>Year</td>
<td>1997.9</td>
<td>2.745</td>
<td>1990</td>
<td>2001</td>
</tr>
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</table>

\(^1\) These data contain 21,589 organization-market label pairs for the years 1990 through 2001. There are 13,880 market label exits over 39,359 organization-label-years.
Table 3. Piecewise continuous hazard rate models on the rate of organizational entry into and exit from a market label.

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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<tr>
<td></td>
<td>Entry</td>
<td>Exit</td>
<td>Entry</td>
<td>Exit</td>
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<tr>
<td>Leniency of market label</td>
<td>0.761***</td>
<td>0.0627***</td>
<td>0.0434</td>
<td>0.0172</td>
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<tr>
<td>Number of organizations that claim the market label</td>
<td>0.0231**</td>
<td>0.0292***</td>
<td>0.00827*</td>
<td>0.00774*</td>
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<tr>
<td>(weighted by GoM)</td>
<td>(0.00788)</td>
<td>(0.00433)</td>
<td>(0.00333)</td>
<td>(0.00305)</td>
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<tr>
<td>Entries into label last year</td>
<td>0.0463***</td>
<td>0.0224**</td>
<td>0.00480</td>
<td>0.00758*</td>
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<tr>
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<td>(0.0107)</td>
<td>(0.00813)</td>
<td>(0.00342)</td>
<td>(0.00330)</td>
</tr>
<tr>
<td>Exits from label last year</td>
<td>-0.0380***</td>
<td>-0.0375***</td>
<td>0.0231***</td>
<td>0.0241***</td>
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<td>(0.00994)</td>
<td>(0.00807)</td>
<td>(0.00425)</td>
<td>(0.00407)</td>
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<td>0.0640***</td>
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<td></td>
<td>(0.0162)</td>
<td>(0.0120)</td>
<td>(0.00514)</td>
<td>(0.00551)</td>
</tr>
<tr>
<td>Organization was in Software Magazine rankings last year</td>
<td>0.625***</td>
<td>0.671***</td>
<td>0.177***</td>
<td>0.167***</td>
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<tr>
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<td>(0.0331)</td>
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<td>Organization received VC funding last year</td>
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<td>0.163***</td>
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<tr>
<td></td>
<td>(0.0362)</td>
<td>(0.0366)</td>
<td>(0.0261)</td>
<td>(0.0260)</td>
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<tr>
<td>Time since organization last exited a market label</td>
<td>-0.108***</td>
<td>-0.0881***</td>
<td>0.0154***</td>
<td>0.0168***</td>
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<tr>
<td></td>
<td>(0.0912)</td>
<td>(0.0820)</td>
<td>(0.00450)</td>
<td>(0.00447)</td>
</tr>
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<td>Time since organization last entered a market label</td>
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<td>0.0264***</td>
<td>0.0406***</td>
<td>0.0401***</td>
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<tr>
<td></td>
<td>(0.00780)</td>
<td>(0.00691)</td>
<td>(0.00390)</td>
<td>(0.00387)</td>
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<tr>
<td>Organization age (since 1990)</td>
<td>-6.009***</td>
<td>-7.169***</td>
<td>-1.571***</td>
<td>-1.624***</td>
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<td></td>
<td>(0.150)</td>
<td>(0.138)</td>
<td>(0.102)</td>
<td>(0.106)</td>
</tr>
<tr>
<td>Time piece: 0-1 year</td>
<td>-6.531***</td>
<td>-7.851***</td>
<td>-1.860***</td>
<td>-1.914***</td>
</tr>
<tr>
<td></td>
<td>(0.163)</td>
<td>(0.145)</td>
<td>(0.103)</td>
<td>(0.107)</td>
</tr>
<tr>
<td>Time piece: 1-2 years</td>
<td>-6.536***</td>
<td>-7.896***</td>
<td>-2.129***</td>
<td>-2.183***</td>
</tr>
<tr>
<td></td>
<td>(0.178)</td>
<td>(0.152)</td>
<td>(0.115)</td>
<td>(0.119)</td>
</tr>
<tr>
<td>Time piece: 2-4 years</td>
<td>-6.484***</td>
<td>-7.916***</td>
<td>-2.383***</td>
<td>-2.430***</td>
</tr>
<tr>
<td></td>
<td>(0.191)</td>
<td>(0.169)</td>
<td>(0.119)</td>
<td>(0.122)</td>
</tr>
<tr>
<td>Year dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Log pseudo likelihood</td>
<td>-133291.8</td>
<td>-129444.2</td>
<td>-24810.6</td>
<td>-24798.4</td>
</tr>
</tbody>
</table>

+ p<0.10 * p<0.05 ** p<0.01 ***p<0.001; Standard errors are clustered by label. All independent variables are measured at the start of each time period.

1 Models are run on 1,893,569 potential organization-market label pairs for the years 1990 through 2002. There are 23,629 market label entries over 6,485,521 organization-label-years.

2 Models are run on 21,589 organization-market label pairs for the years 1990 through 2001. There are 13,880 market label exits over 39,359 organization-label-years.
Table 4. Piecewise continuous hazard rate models on the rate of organizational entry into and exit from a market label.

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry</td>
<td>-0.0246**</td>
<td>(0.00884)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exit</td>
<td></td>
<td></td>
<td>0.0927**</td>
<td>0.00478</td>
</tr>
<tr>
<td>(Leniency of &quot;target&quot; market label) / (leniency of organization's labels)</td>
<td>0.0666***</td>
<td>(0.0116)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Leniency of &quot;target&quot; market label) x (leniency of organization's labels)</td>
<td>0.0591+</td>
<td>0.0759***</td>
<td>(0.0327)</td>
<td>(0.0195)</td>
</tr>
<tr>
<td>Leniency of organization's labels (weighted average)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization received VC funding x label leniency</td>
<td>0.00479</td>
<td>(0.0049)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leniency of market label</td>
<td>0.674***</td>
<td>0.776***</td>
<td>0.753***</td>
<td>0.0622***</td>
</tr>
<tr>
<td>Number of organizations that claim the market label (weighted by GoM)</td>
<td>0.0305***</td>
<td>0.0292***</td>
<td>0.0293***</td>
<td>-0.00773*</td>
</tr>
<tr>
<td>Entries into label last year</td>
<td>0.0214**</td>
<td>0.0223**</td>
<td>0.0222**</td>
<td>-0.00759*</td>
</tr>
<tr>
<td>Exits from label last year</td>
<td>-0.0395***</td>
<td>-0.0377***</td>
<td>-0.0377***</td>
<td>0.0240***</td>
</tr>
<tr>
<td>Age of label (since 1990)</td>
<td>0.0117</td>
<td>0.0108</td>
<td>0.0100</td>
<td>-0.00579</td>
</tr>
<tr>
<td>Organization was in <em>Software Magazine</em> rankings last year</td>
<td>0.658***</td>
<td>0.650***</td>
<td>0.672***</td>
<td>0.167***</td>
</tr>
<tr>
<td>Organization received VC funding last year</td>
<td>0.291***</td>
<td>0.296***</td>
<td>0.103</td>
<td>0.152+</td>
</tr>
<tr>
<td>Time since organization last exited a market label</td>
<td>0.0168***</td>
<td>(0.00447)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time since organization last entered a market label</td>
<td>-0.0839***</td>
<td>-0.0844***</td>
<td>-0.0879***</td>
<td>(0.00812)</td>
</tr>
<tr>
<td>Organization age (since 1990)</td>
<td>0.0248***</td>
<td>0.0223**</td>
<td>0.0266***</td>
<td>0.0401***</td>
</tr>
<tr>
<td>Time piece: 1-2 years</td>
<td>-7.910***</td>
<td>-8.052***</td>
<td>-7.836***</td>
<td>-1.914***</td>
</tr>
<tr>
<td>Time piece: 2-4 years</td>
<td>-7.958***</td>
<td>-8.093***</td>
<td>-7.882***</td>
<td>-2.182***</td>
</tr>
<tr>
<td>Time piece: 4+ years</td>
<td>-7.986***</td>
<td>-8.101***</td>
<td>-7.901***</td>
<td>-2.430***</td>
</tr>
<tr>
<td>Year dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Log pseudo likelihood</td>
<td>-129343.3</td>
<td>-129398.7</td>
<td>-129437.2</td>
<td>-24798.4</td>
</tr>
</tbody>
</table>

+p<0.10 * p<0.05 ** p<0.01 *** p<0.001; Standard errors are clustered by market label. All independent variables are measured at the start of each time period.

1 Models are run on 1,893,569 potential organization-market label pairs for the years 1990 through 2002. There are 23,629 market label entries over 6,485,521 organization-label-years.
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Figures

Figure 1. Leniency of the “enterprise software” label, and number of mentions of the label in the *Wall Street Journal*, over time.
Figure 2. Leniency of the “customer relationship management” label, and number of mentions of the label in the Wall Street Journal, over time.
Figure 3. Leniency of the “entertainment software” label, and number of mentions of the label in the *Wall Street Journal*, over time.
Figure 4. Leniency of the “entertainment software” label, and number of mentions of the label in the Wall Street Journal, over time.
Figure 5. Relationship between label leniency and its number of members.
Figure 6. Sample Press release and statements of label affiliations.

Accrue Announces BuyPath Offering Unmatched Merchandising Analysis of the Visitor Path From Entry to Purchase

1,088 words
4 October 1999
13:21 GMT
Business Wire
English
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FREMONT, Calif.--(BUSINESS WIRE)--Oct. 4, 1999--

New Feature of Accrue Insight(TM) eBusiness Analysis

Application Provides Powerful Analysis of Web Site Navigation

by Customer Segment

Accrue Software, Inc. (NASDAQ: ACRU), a leading provider of eBusiness analysis software and services, today announced BuyPath(TM), a new feature of Accrue Insight(TM) that enables eBusiness marketers to analyze and compare site navigation for customer segments and to gain insights into visits that involve transactions or that touch high-value content.

Using BuyPath, the marketer can determine which visitor segments are the most valuable and which referrers and content are most effective in accomplishing eBusiness goals. A key goal of e-commerce is converting visitors into customers. BuyPath enables the comparison of the navigation patterns of precisely-defined customer segments.

For example, comparing new visitors from Yahoo! against returning visitors from Excite e-Commerce

<table>
<thead>
<tr>
<th>Organization</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watson General</td>
<td>May 1994</td>
<td>Watson General currently provides remote software monitoring systems.</td>
</tr>
<tr>
<td>American Software</td>
<td>May 1994</td>
<td>American Software develops, markets and supports the industry’s most comprehensive offering of integrated supply chain management systems.</td>
</tr>
<tr>
<td>MicroStrategy</td>
<td>January 1996</td>
<td>MicroStrategy is the leading provider of relational OLAP (ROLAP) products and services for developing and accessing enterprise data warehouses.</td>
</tr>
<tr>
<td>VCON</td>
<td>October 1996</td>
<td>VCON is one of the leading manufacturers and marketers of desktop videoconferencing hardware and software products in the industry.</td>
</tr>
<tr>
<td>TSSI</td>
<td>May 1999</td>
<td>TSSI is a leading provider of test automation software technology and solutions.</td>
</tr>
<tr>
<td>Accrue Software</td>
<td>October 1999</td>
<td>Accrue Software, a leading provider of e-business analysis software and services.</td>
</tr>
<tr>
<td>Citrix Systems</td>
<td>February 2000</td>
<td>Citrix Systems, Inc. is a global leader in application server software and services.</td>
</tr>
<tr>
<td>Acxiom</td>
<td>April 2000</td>
<td>Acxiom Corporation is a global leader in real-time customer data integration and customer relationship management.</td>
</tr>
<tr>
<td>Plasmon</td>
<td>August 2000</td>
<td>Plasmon, a leading manufacturer of automated data storage solutions, today announced its Diamond® storage management software.</td>
</tr>
<tr>
<td>Veridicom</td>
<td>November 2001</td>
<td>Veridicom, Inc. is a leader in fingerprint-based biometrics solutions.</td>
</tr>
</tbody>
</table>
Figure 7. Map of labels in the software industry for 1991.
Figure 8. Distribution of leniency for software market labels, 1990 – 2002.
Figure 9. Predicted effects of organizational entry into market labels, by leniency.\textsuperscript{1}

\textsuperscript{1}Plot is based on results from model 2.
Figure 10. Predicted effects of organizational exit from market labels, by leniency.\textsuperscript{1}

\textsuperscript{1}Plot is based on results from model 4.