

Exclusivity, Contingent Control Rights, and the Design of Internet Portal Alliances

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Abstract

We explore the relationship between exclusivity and the use of verifiable performance measures to allocate state-contingent control rights using a sample of over 100 Internet portal alliance contracts. We find that the stronger the exclusivity arrangement between the parties, the more likely are contingent control rights to be incorporated into alliance contracts. In particular we find evidence that, for both portals and their partner firms, the more exclusively bound one party is, the more likely its counterparty is to be granted contingent control rights. Additionally, we find that portals' alliance partners are more likely to receive contingent control rights when they are prohibited from doing business with other portals, and that contingent control rights are less likely to appear as the industry matures. Our findings are consistent with theoretical explanations that exclusivity provisions and contingent control rights both provide incentives to invest in the face of potential hold-up problems and also with the proposition that exclusive arrangements lead firms to seek contingent control rights to avoid lock-in when environmental uncertainty is high.

Keywords: alliances, exclusivity, control rights

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1. Introduction

The design of inter-firm agreements, particularly in the face of information asymmetry and uncertainty, has been one of the most vibrant areas of theoretical economic inquiry over the past two decades. Yet our empirical understanding about whether these arrangements are designed and work in a manner that is consistent with theory has lagged. This relative neglect reflects the complexity of the arrangements, the difficulty in accessing data, and the challenge of developing clean tests of theoretical predictions.

The determinants of exclusivity in commercial relationships have received extensive theoretical attention, yet there has been little empirical study of exclusivity in high-tech industries. Similarly, the relationship between exclusivity decisions and other features of inter-firm agreements has been relatively neglected. In this paper, we seek to address these gaps. This paper explores the empirical relationship between exclusivity provisions and the use of contingent control rights in alliances between Internet portals and other firms at the outset of the industry. Contingent control rights are provisions that give one of the contracting parties certain prerogatives in specific states of the world. In the agreements we analyze, these states of the world relate to specific measures that provide information about the commercial or technical performance of the alliance. We find that these contingent control rights are important features of many alliance contracts and that there is a robust empirical relationship between exclusivity provisions and the use of contingent control rights.

Although the literature suggests that the degree to which it is desirable to incorporate contingent control rights in a contract may depend on the degree of exclusivity between the alliance partners, its predictions about this relationship are not entirely clear. One set of predictions is based on the idea that contingent control rights enable a firm to avoid lock-in to a (potentially inferior *ex post*) supplier. These predictions argue that if firm A commits only to purchase services from firm B, then A values the option to renegotiate the relationship more than if it had made no such commitment. A second set of predictions is generated by the literature that examines the impact of exclusivity on investments in relationship-specific assets. These theories argue that the function of exclusivity function in an alliance contracts is to generate a relative improvement in the weaker party's outside option—thereby making that party more likely to invest in the relationship-specific asset (Roider [2004], de Meza and Selvaggi [2007]). Using an incomplete contracting lens, these theories suggest that a commitment from firm A to purchase services only from firm B may also be accompanied by control rights granted to B, which allow it to renegotiate the contract if A does not perform, thereby safeguard's B's investment in the relationship-specific asset. Stated more simply, both exclusivity and contingent control rights are allocated in such a manner as to support investment in relationship-specific assets.¹

Our analysis of the relationship between exclusivity and contingent control rights and yields some support for both sets of predictions. We find strong support for the idea

¹ We assume in this argument that the investment in the relationship-specific asset is non-contractible.

that contingent control rights and exclusivity are both allocated to support relationship-specific investments. Contingent control rights are more likely to be granted to partner firms when they have exclusive arrangements with portals, and these rights are more likely to be granted to portals when they have exclusive arrangements with partners. We find some support for the lock-in hypothesis as well. Partner firms seem more likely to seek contingent control rights when they have committed to an exclusive arrangement with the portal firm, although the converse does not hold. Further, our analysis of the degree to which the use of contingent control rights changes over time suggest additional support for the lock-in hypothesis, although other interpretations are possible.

Our sample of over one hundred alliance contracts between internet portals and their partner firms is particularly well-suited for this analysis. The contracts we examine exhibit unidirectional exclusivity restrictions for both upstream and downstream firms as well as contingent control rights that may be granted to either party in the agreement. These contracts also vary significantly in timing, allowing us to assess the degree to which environmental uncertainty plays a role in the use of contingent control rights. Moreover, portal alliance contracts offer a particularly attractive empirical testing ground for three reasons:

- First is the large number and heterogeneous nature of the contracts. Hundreds of consumer-oriented Internet companies went public during the second half of the 1990s. Many of these completed IPOs while still in their formative stages. Many incumbent companies also launched Internet initiatives. As a result, the

contracting parties ranged from well-established corporations to very young entities.

- Second, the standards for disclosure in this industry have been high. Publicly traded entities are required to file all “material” contracts. Due to the relatively limited revenues of many portals and other Internet concerns and the significant impact that announcements concerning alliances have had on these firms’ share prices, the disclosure of agreements during this period was extensive. While firms could request confidential treatment for portions of the alliance agreements, their failure to disclose might become an issue if the firm was subsequently subject to shareholder litigation.
- The final attractive aspect is the mapping between the contracts themselves and economic theory. These agreements carefully delineated ownership, exclusivity, and other provisions that have typically been examined in the theoretical depictions of contracting. In Elfenbein and Lerner [2003], we argued that in the early years of the industry, the uncertainty surrounding the environment in which portals and partner firms contracted suggested that problems of non-contractibility were likely to exert powerful forces on the structure of contracts. Indeed, in this environment, the allocation of an observable subset of alliance assets were allocated as suggested by the property rights theory of Grossman and Hart [1986] and Hart and Moore [1988], although the relationship between ownership, control rights, and payment terms suggested that contracting in this setting was more complicated than existing theories lead us to believe.

There is a relatively modest body of empirical literature directly related to this paper. Lafontaine and Slade [2008] summarize the findings of a variety of prior empirical studies of exclusivity that focus primarily on the consequences of exclusivity in competitive markets. Mathewson and Winter [1994] report on the relationship between territorial exclusivity and other attributes of franchise contracts such as operating restraints and contract length. Azoulay and Shane [2001] find that new franchise chains that adopt exclusive territories are more likely to survive than those that do not. In work that is closer to this paper, Hall [1991] examined nearly 100 contracts across a spectrum of high-technology industries. The analysis sought to test predictions from his model, which had hypothesized relationships between the exclusivity of the agreement, the strength of intellectual property rights, and the use of royalties. Anand and Khanna [2000] report the incidence of exclusivity in a large cross-industry sample of technology licensing contracts and find that the use of exclusivity provisions varies widely across industries and depends on the stage of development of the technology. More broadly, this paper seeks to contribute to the empirical literature examining the impact of firm and environmental characteristics on the governance structure of alliances contracts (e.g., Lerner and Merges [1998], Efenbein and Lerner [2003], Lerner, Shane, and Tsai [2003], Higgins [2007], and Robinson and Stuart [2007a, 2007b], Ryall and Sampson [2009], Lerner and Malmandier [forthcoming]) and of other inter-firm relationships such as franchising (e.g., Arrunada, Garicano, and Vazquez [2001]).

The plan of this paper is as follows. In Section 2, we review the prior research relating to the presence of exclusivity and contingent control rights. In Section 3, we

provide a brief overview of Internet portals and the alliances into which they enter. In Section 4, we discuss the structure of the alliance contracts. We describe the creation of the data set in Section 5. Section 6 presents the analyses, and the final section concludes the paper.

2. Theory

Three related streams of literature suggest a relationship between exclusivity and contingent control rights in generating appropriate incentives for investment. The first is the literature that formally addresses the degree to which exclusivity addresses problems stemming from incomplete information and incomplete contracts. A second, complementary line of research addresses a similar set of issues and highlights the important role played by of control rights, which typically safeguard one party in “bad” states of the world. A final, less formal, literature focuses on the degree to which relationships both support and impede effective partnerships with implications both for the use of exclusivity provisions in designing alliance contracts and for contingent control rights. We explore this literature in greater detail below.

A. Exclusivity

A broad theoretical literature examines the determinants of exclusivity between trading partners. Treatments of exclusivity in the technology licensing typically assume that final output is contractible and that the licensor has an essential input of uncertain value. These treatments focus on the interaction between payment terms and exclusivity decisions in shaping downstream markets (Kamien and Tauman [1986]) and in

addressing moral hazard problems by licensors (Gallini and Wright [1990]) and licensees (Hall [1991]).

A separate literature, inspired by the potentially anti-competitive implications of exclusive relationships between manufacturers and retailers, focuses on the conditions in which exclusive dealing is preferred to other arrangements such as common agency in competitive markets.² Exclusivity may emerge to prevent retailers from competing too aggressively in downstream markets (Katz [1989])³, may be of greater value when retailers have private information (Gal-Or [1991]), and may depend in part on the degree of product differentiation (Martimort [1996]). Bernheim and Whinston [1998] show that “exclusive dealing can serve as a device for extracting rents from markets other than the ones in which they are employed ... [i.e.,] when retail markets develop sequentially and in which manufacturers must serve more than one market to achieve important economies (p67).” Taken together this suggests that exclusivity decisions depends on the degree of substitutability of rival producers’ products, the information advantage held by retailers over the producers, and the degree to which producers average costs overall may depend on sales in a particular market.

² Common agency is the situation in which a single retailer in a given territory sells the product of multiple manufacturers in a given product category or in which multiple retailers sell the products of multiple manufacturers. Exclusive dealing involves two-way exclusivity in which a manufacturer partners with one and only one retailer in a given territory.

³ In a similar vein, Valletti [2004] explores the case in which consumer switching costs lead to the formation of exclusive relationships. Exclusive arrangements prevent upstream parties from appropriating investments that retailers make in acquiring market share (by reducing first period prices in a multi-period model).

Other scholars have focused in the role that exclusivity plays in facilitating (efficient) relationship-specific investments and/or in reducing hold-up. A number of informal arguments, beginning with Klein [1980] suggest that exclusivity, frequently combined with long-term contracts and / or other self-enforcing mechanisms between contracting parties, lead to higher levels of investment in relationship-specific assets than would otherwise be achieved. Similarly, Marvel [1982] suggests that exclusivity provisions can protect upstream parties from sellers who may opportunistically by offering competing versions of a product the manufacturer has invested in promoting and supporting.

More formal treatments of this set of problems have emerged. McAfee and Schwartz [1994] examine a setting in which a monopolist serves a number of downstream firms, but cannot commit to refrain from secret price cuts. Fear of opportunism results, leading to an inefficiently low level of effort from the downstream firms. Exclusive contracts, although introducing new inefficiencies, can reduce the problems stemming from opportunism. This mechanism works because it is easier to detect whether a new competitor has been brought in than to monitor the terms that can be offered to rivals. Segal and Whinston [2000] directly tackle the question about whether exclusivity supports non-contractible investments. They find that exclusivity support non-contractible investments between a buyer and a given supplier only when the investment affects the value of trade between the buyer and an alternative supplier. In a slightly richer model, in which bargaining considerations are examined, de Meza and Selvaggi [2007] find that exclusive arrangements can protect relationship-specific

investments. In particular, by increasing the bargaining power of a party that is more vulnerable to hold-up, exclusive contracts support higher equilibrium levels of investment than would otherwise be possible.

A final theoretical perspective on exclusivity is provided by Roider [2004]. Building on a property-rights framework, Roider explores the optimal structure of an inter-firm agreement when output is partially contractible. In this model, two firms decide who should own the productive asset, the quantity of trade that occurs between the two parties, and whether the parties may trade externally or not, i.e., whether they have an exclusive arrangement. Residual control rights provide incentives only when external trade is permitted. Similar to deMeza and Selvaggi [2007], in Roider's model, exclusivity is an equilibrium outcome when the differences in bargaining power (threat points) between parties involved in the exchange is extreme, and when high levels of output are specified. Exclusivity is not, however, a unique equilibrium in this model.

B. Contingent Control Rights

While the incomplete contracting perspective has generated important insights about the role of exclusivity in inter-firm agreements, as discussed above, it has also proven to be a fruitful framework for understanding the boundaries of organizations and the design of relationships between firms more generally. Economic theory has taken an increasing interest in understanding the sources of contractual incompleteness. One approach, typified by Williamson [1985] is to examine the trade-off between the need for *ex post* adaptation of contractual arrangements and the *ex ante* costs of writing

increasingly complete contracts. Bajari and Tadelis [2001] offer one formalized approach to exploring this tradeoff in the context of procurement contracts. In their model, incorporating more potential future states of the world into the contract comes at increasing cost. The value of incorporating these contingencies depends on other incentives provided to a supplier and the complexity of the project to be supplied. Although in our setting we examine the use of standard state contingent provisions which should not increase the cost of drafting a contract substantially, a key concern may be that these control rights may be *ex post* inefficient if they direct parties toward actions that turn out to have distant relationship to the ability of the partnership to generate value.

A separate set of insights into the question of contractual incompleteness—highlighting the role of contingent control rights—stems from the security design literature (e.g., Aghion and Bolton [1992] and Dewatripont and Tirole [1994]). This literature examines how the choice of equity vs. debt financing impacts the incentives of financiers and entrepreneurs through the creation of differing profiles of control rights in different states of the world. Aghion and Bolton [1992] for instance, find that even in a setting where it is efficient to grant control to the entrepreneur, he may need to relinquish control to an investor in order to induce the financier to invest in the first place. A second set of insights has been generated by principle-agent theories that explicitly consider the relationship between the structure of the information asymmetry between two parties and their decision to allocate control rights. Dessein [2002], for example, suggests that allocating more control rights to better-informed parties reduces information distortion, whereas Aghion and Tirole [1997] suggest that providing better-informed

parties with more control rights provides the right incentives for information acquisition. Dessein [2005] explores these questions in the context of strategic alliances. He depicts a setting where, if no information problems were present, the firm making the critical technological contribution to the project would retain complete control over the project (*i.e.*, interference by the other party reduces the total surplus). But because the innovating firm has private information about its quality or the congruence of its incentives with the other firm, it will signal this to its partner by providing the other firm with some control rights. This step is not too costly for a high quality firm or a firm with highly congruent preferences, which knows that the information received by the other party is likely to be favorable, but can be costly for a low quality firm or a firm that has different preferences than its partner.

This model highlights an important potential connection between exclusivity and the use of contingent control rights. Although Dessein [2005] focuses on the degree to which a single party receives private benefits from shirking, in many relationships both parties may have incentives to undertake unobservable actions that are privately (but not jointly) optimal. Moreover, one party in the relationship may be more vulnerable to hold-up than another. In these cases, the vulnerable party may be more likely to seek contingent control rights to reduce the severity of the potential hold-up. Thus, if granted, contingent control rights may provide improved incentives for the vulnerable party to make relationship-specific investments, and may also serve a screening function when there is private information about partners' intentions (*i.e.*, its propensity to hold up).

These same considerations in models such as those of de Meza and Selvaggi [2007] lead the vulnerable firm to be granted exclusivity, as well.

While contingent control rights may be allocated to protect a vulnerable party from hold-up (or to screen out potentially incompatible partners), they may also be desirable to preserve a firm's options in an environment of high uncertainty. When the *a priori* value of a relationship is uncertain, one or both parties may wish to have the right to renegotiate or exit the arrangement. This can be of particular value when supplier (or buyer) capabilities and strategies are shifting rapidly (Lazzarini, Miller, and Zenger [2008]), as they were in the early stages of the Internet industry. While "spot-outsourcing" (Baker, Gibbons, Murphy [2002]) may offer one alternative governance structure in this setting, the need for relationship-specific investments to be made raises the likelihood that long-term contracts will be signed (Joskow [1989]). Conditional on signing long-term contracts, the greater the uncertainty in value of the agreement or the ability of the partner firm, the more likely parties are to seek to include unilateral rights to renegotiate the contract to avoid lock-in to a firm whose relative capabilities turn out to be superseded by another.⁴ These considerations are exacerbated by exclusivity restrictions, which make bad states of nature more consequential. A firm that is contractually prohibited from dealing with alternative partners is likely to desire contingent control rights more than had it not signed an exclusive contract.

⁴ In our data, we examine only contracts which are "long term" by contemporary standards of the industry.

In summary, one view of the relationship between exclusivity and contingent control rights suggests that when relationship-specific investments are important and parties have asymmetric vulnerability to *ex post* hold-up, granting the weaker party exclusivity and contingent control rights *both* improve that party's incentives to invest in the relationship, and hence may be found together. A second, complementary view suggests that the party granting exclusivity (whether to provide incentives for relationship-specific investment or for other reasons) may seek contingent control rights to avoid being locked-in to dealing with a partner who turns out *ex post* to be sub-optimal. Additionally, this view suggests that contingent control rights will be more likely to be sought when environmental uncertainty—in particular, uncertainty about whether the partner or the match will be effective—is high.

3. Portals and Portal Alliances in the Early Evolution of the Internet

Portals—which can be defined as Internet sites that provide (directly or indirectly) a broad array of services and linkages to users—are a relatively new organizational form and, like the Internet, have grown rapidly. The first portals began operations in 1994, shortly after the introduction of the World Wide Web and the widespread diffusion of the Internet browser. Many Internet portals, such as Yahoo!, originated as classified collections of links to other web sites. Others, such as Lycos, began as search engines, enabling users to locate web sites on certain topics or featuring specific phrases. Many portals were new entrants, some were producers of browser software (e.g., Netscape), and still others had previously operated proprietary on-line services (for instance, America Online). Although subscribers to these proprietary services initially had access only to

the features developed for the service itself, these firms increasingly began providing Internet access and created portals of their own. Beginning in 1997, portals began adding a broad array of materials to their sites. These included content, such as stock prices and news headlines, as well as services, such as on-line auctions and personal e-mail. The basic services were typically available for free. Portals generated revenues principally through the sale of banner and sponsorship advertisements. Many portals also sought to diversify their revenue bases with transaction fees from merchandise sold on their sites by strategic partners and through other means; however, during this period, these strategies met with limited success.

Alliances could benefit a portal in two ways. First, in exchange for advertisements, promotions, and other services, the portal frequently received direct compensation. Second, the agreements may have increased the appeal of the portal's site by deepening its content and extending its features.⁵ These new features, which the portal had neither the time nor skills to develop itself, could attract new users and could also encourage more frequent or longer visits by existing users, thereby providing more opportunities to display ads. In addition, during the years under study, analysts often considered measures of web site traffic such as the number of unique visitors per month

⁵The appeal of a portal's web site can be measured in at least two different ways. The first is a measure called reach. This is the total number of unique visitors to a web site divided by the total number of all Internet users in a given period. The top Internet portal, Yahoo!, was visited by more than half of all Internet users in July 2001. The second type of measurement is of how many pages that the average user examines on the site. Also, it should be noted that the product of these two measures (i.e., the unique audience multiplied by the number of pages viewed per person) is a good proxy for the number of advertising opportunities for the firm during the period in question.

and the average number of minutes per user per month in establishing recommended valuations for portals. Trueman, Wong, and Zhang [2000] find Internet firms' valuations responded to these measures of traffic.

Alliances were also useful for the partner firms, be they content, service, or technology providers. Many Internet sites struggled during this period to acquire a sufficient user base. In many segments of the Internet industry, analysts predicted that there would be a substantial shake-out, in which only one or two leading firms would survive and emerge as profitable. Portal alliances were one method of attracting users. Alliances also often permitted partners to rapidly test their business models and to acquire customer data. Even if they were executed on relatively unattractive terms, alliances could thus be beneficial for the partners as well.

The patterns of alliance formation provide some evidence that alliances were indeed thought to be critical to the strategies of many Internet portals and their alliance partners. America Online / Netscape, Yahoo, Lycos, Excite, and Microsoft—the firms with the strongest positions in the industry—were the firms most involved in alliance formation (Elfenbein [2004]).

4. Alliance Contracts

The alliance agreements themselves were, in general, complex and varied considerably in their structure, even within the same industry category. Consider the following two examples:

In December 1998, Autoweb.com, which operated a site that allowed users to research new automobiles and to purchase them online, entered into a 13-month advertising and promotion agreement with Yahoo! Inc. The agreement specified the types and placements of Autoweb.com links on the Yahoo site, including banner and button placement, a link allowing users to search Autoweb's site, and links within Yahoo's auto classifieds service. Yahoo, for its part, would be solely responsible for the user interface and graphic display of Autoweb links. Limited exclusivity provisions were built into the agreement. The contract prohibited Autoweb from displaying any links to Yahoo's competitors on its front page. Yahoo, in turn, was prohibited from including graphic links to more than three other auto merchants, and was prohibited from displaying banner advertisements from any competitor on specified pages. Payment and performance provisions were also specified. The contract detailed the number of impressions⁶ that Yahoo was to deliver (by type of advertisement); it granted Autoweb access to a database where these impressions would be calculated; and it described the contingencies that would result should Yahoo fail to deliver the required number of impressions during the term of the agreement. In addition, the contract loosely specified some technical performance targets for Autoweb. As compensation, Yahoo received a fixed slotting fee and a referral fee for each click-through⁷ under the agreement. This agreement did not involve the creation of a new site but rather focused on the links between two existing sites. Thus, the discussion of ownership was naturally limited; each

⁶An impression is recorded each time each time an advertisement appears in a page viewed by a user.

⁷A click-through occurs when a user follows a displayed link to another site.

party merely affirmed its ownership rights over the user data that it collected in the course of operations.

By contrast, an agreement signed between Lycos and Autobytel.com, then an Autoweb rival,⁸ in February 1999 had a completely different structure. This agreement created a co-branded version of the Autobytel site for Lycos users. The co-branded site would have “the [A]utobytel 'look and feel' but with Lycos' logo displayed on the home page and each page related to new car buying.” The creation of this new site required provisions about who would design, operate, serve, and pay for the site (Autobytel in all cases). The contract guaranteed Autobytel a minimum number of impressions, but also granted an unlimited number of links resulting from over 100 search terms, for which Lycos would provide exclusivity. (These search terms included misspellings such as “Alfa Romero” and colloquialisms such as “beemer.”) Lycos was also prohibited from providing promotional links to any other on-line service involved in direct new-car sales. In return for these links, Autobytel paid a fixed fee and would pay an additional transaction-based royalty for each purchase request over a specified number submitted by Lycos' customers on the Autobytel site.⁹ To ensure compliance, each firm was given audit rights to examine the others' records. Autobytel retained rights to all customer data, but agreed to provide aggregated customer profile data for Lycos.

⁸Autobytel.com announced that it would merge with Autoweb in April, 2001.

⁹The number of impressions and the magnitude of the fees were redacted from the publicly filed versions of both contracts.

As the examples above suggest, there was a great deal of heterogeneity in the alliances that portals entered into. In Elfenbein and Lerner [2003] we focus on the allocation of asset ownership and control rights. In this paper, we focus on the use of exclusivity restrictions and performance guarantees that grant one party or the other certain control rights in specific states of the world.

5. Data

A. Constructing the Dataset

To undertake the analysis, we identified a set of 106 contracts between portals and other firms entered into between 1995 and 1999. These contracts were identified primarily from Recap/IT, a consulting firm that maintains a database of contracts involving Internet, technology, and telecommunications firms. Publicly traded Internet firms, like other concerns, are required by the U.S. Securities and Exchange Commission (SEC) to file material documents. Internet companies tend to interpret this requirement conservatively, and often file alliance contracts. Recap/IT identifies alliances from press releases, analyst reports, and reviews of SEC filings. Their database includes links to the filings of these firms detailing each agreement.

Because all contracts in the database (and the analysis) had been deemed “material” and filed with the SEC, a natural question is what type of selection biases are at work. Typically, alliances are considered “material” for firms with limited revenues or assets: a definition of materiality is that “there is a substantial likelihood that a reasonable shareholder would consider it important in making an investment decision.” Since we

can observe agreements filed by either party, the only subset of agreements that we cannot observe are those between two established firms. For example, analyst reports indicate that America Online and Yahoo! signed alliances with several large retail banks in 1998 and 1999. These agreements were not filed with the SEC by either party, and are thus not included in our sample. It is not clear *ex ante* what bias will be introduced by our sampling technique.

For our analysis, we selected a random sample of 106 alliances from this database. We sought to create a population that avoided undesirable heterogeneity. In particular, we eliminated alliances where:

- One of the parties was non-profit organization.
- One of the parties had a controlling interest in the other, either through a majority equity stake or through a purchase option.
- The two parties had a previous alliance covering the same set of technologies, and consequently were renegotiating the terms of an earlier alliance.

We reviewed these documents carefully to identify the key features of these agreements. After considerable experimentation, we developed a coding form that captured the key features of these alliances. In many cases, firms filed multiple copies of the same documents with the SEC. In these cases, different versions of the documents were reviewed to insure that information that was redacted in one version was not included in another.

We also gathered two types of supplemental information. First, to assess the financial health of the contracting parties, we examined the Compustat and Worldscope databases for the end of the fiscal quarter immediately prior to the alliance. For firms where this information was not available from Compustat or Worldscope, we gathered the information from 10-K filings, IPO prospectuses, and other securities filings.

Second, we employed information from an Internet and on-line usage tracking service, Media Metrix (formerly known as PC Meter), which has compiled information from the earliest days of the industry.¹⁰ For each of the two contracting parties, we assessed their Internet properties' "reach"—the percentage of all U.S. users who accessed the site at least once in a given month—and the total number of days and minutes that the average accessing user viewed the site in that month. In making these calculations, we compiled all properties owned by the contracting firm: for instance, the usage data for an alliance signed by Disney in 1999 would include information about visits to ABC.com.

B. Measuring Exclusivity

As a practical matter, the types of exclusivity that we observe in these contracts differ somewhat from the types of exclusivity that theory leads us to expect. In particular, we observe a number of types of exclusivity provisions that place restrictions on both the upstream and downstream parties. By contrast, the technology licensing

¹⁰Media Metrix determined usage by examining the activity of a representative panel of Internet users. The size of the panel and accuracy of the measures has increased over time. We used data on U.S. users only: while in recent years, Media Metrix has introduced statistics on non-U.S. Internet usage, these were not available for the entire period. During the period under study, U.S. users had a dominant presence at most commercial Internet sites.

literature typically focuses only on constraints that bind upstream parties and the literature exclusive dealing focuses mainly on constraints that bind downstream parties. The bargaining literature examines some bilateral restrictions, but unlike the contracts we study, it analyzes exclusive contracts as being completely restrictive. In our data, there are numerous exclusivity restrictions, suggesting a continuous rather than absolute conceptualization of exclusivity.

Table 1 examines the exclusivity restrictions associated with the sample contracts. Panels A and B focus on exclusivity obligations restricting the actions of portals and partners, respectively. For both portals and partners, we examined seven different types of exclusivity obligations, which are listed in the left hand column of the table.¹¹ In both cases, these seven exclusivity obligations were divided into two categories, those that related to establishing other alliances with competitors and those that related to restrictions on advertising competitors. Some restrictions clearly subsumed others. For example, restricting a party from advertising a competitor anywhere on the co-party's site clearly prohibited them from advertising a competitor on a particular section of its site. Therefore, in generating composite measures of the exclusivity of the agreements, some terms were given larger weights than others. These weights are listed in the second

¹¹For portals we examined whether the portal was restricted from entering into any or more than a set number of agreements with competitors; from advertising competitors anywhere on the site, in specific areas of the site, or on a continuous basis; from establishing any links to competitors' sites; and from granting the use of certain keywords or search terms to other firms. We similarly analyzed whether the partner was restricted from entering into any agreement with a competitor or agreements with competitors involving specific content; from advertising competitors anywhere on its site, in specific areas, or on a continuous basis; from promoting competitors more prominently than the portal; or from establishing any links to competitors' sites. In all cases, +1 denoted a case where this exclusivity provision was present and 0 where it was absent.

column to the left. The results that follow are robust to several other weighting schemes, including the simple scheme in which each provision is given equal weight.

As Panel A shows, 40.5 percent of the alliance agreements restricted the portals from signing an alliance with any of the partner's competitors, and 8.5 percent of the agreements restricted the total number of alliances that portals could sign with partners in a given category. Roughly one-quarter of the time, portals assigned keywords uniquely to the partner firm. Overall, the portal's ability to sign agreements with the partner's competitors was at least somewhat restricted in 61.3 percent of the contracts. Restrictions on portals' advertising behavior were present somewhat less frequently. At least some restriction on the portal's ability to advertise competitors was present in 46.2 percent of the contracts.

Panel B examines the exclusivity obligations for partners. Generally, agreements contained fewer exclusivity obligations for partners than for the portals. In 15 percent of the cases, partners were prohibited from signing (any or particular) alliances with the portal's competitors. Restriction on the partners' advertising was somewhat more frequent. In 32.1 percent of alliance contracts, there was at least one of this type of restriction.

C. Measuring Contingent Control Rights

We examined the use of two types of contingent control rights that could be included in alliance contracts. The first set of terms related to technical performance and

could be granted to the portal. These terms included the speed with which the partner's pages loaded, the percentage of time the website was available, the level of customer service, and the competitive ranking by specified third parties (e.g., a trade magazine) of the site relative to its peers. The second set of terms related to the minimum level of commercial activity that the site, content, or service covered by the agreement needed to reach and could be granted to the partner. Targets included a minimum number of user impressions that the site would garner (whether all impressions or those of some targeted subset of users), "click-throughs" into another area, revenues, or new customers. In case these levels were not reached, the contract stipulated that the agreement be typically terminated or renegotiated. These variables were recorded as +1 if the provision was present and 0 otherwise.

Table 2 summarizes the incidence of each of these performance measures in the alliance contracts. Panel A examines the use of technical contingencies in the contract, and Panel B examines the use of market-related contingencies. The median agreement contracted on no technical contingencies and one market-related contingency. In both cases, the average contract contained less than one of each type of contingency. Table A1 in the appendix presents a number of examples relating to the technical execution of portal alliances.

D. Control Variables

Table 3 summarizes the sample of agreements used in this analysis. Panel A summarizes the relative effort required in the alliance. We examined five activities that

frequently were required after the agreement was signed: the development of material for the site (whether content, services, or technology), the maintenance and hosting of the site, the provision of customer service, order fulfillment, and billing. We coded these as +1 if the portal was required to make the greater effort on this dimension, -1 if the partner was required to do so, and 0 if the effort was jointly shared or not required by the agreement. While the sum of these five effort measures ranged from +5 to -5, in most cases, the bulk of the post-agreement effort was required of the partner.

Panel B presents the traffic on Internet sites of the two parties in the month before the signing of the agreement. Not surprisingly, portals' sites were visited by more users, more frequently, and for longer than partners' sites. In the ensuing analysis, we use the relative site visitation data as our proxy for the value of the partner's technology. Our assumption is that the higher the traffic on the partner's web site (relative to that of the portal), the more valuable is the partner's technology.

Panel C considers the relative financial health of the two parties. There was a great deal of variation, which reflected the fact that we examined the financial health of the entire corporate entity if it had 100% ownership of the contracting firm. For instance, in a transaction involving Snap.com, the financial information of its parent, General Electric, was recorded.

Panel D provides information about the level of industry development at the time at which the contract was signed. In the sample of 106 alliance contracts, 67 different

partner firms were represented. Of these, 63 firms fell into 26 distinct segments of the Internet industry and four were categorized as “traditional” firms. These industry segments, the public firms that composed them, and the date of these firms’ IPOs are provided in Table A2 in the Appendix. The “traditional” category was assumed to begin at the same time as the earliest IPO among all firms in Table A2, December 15, 1994.¹² As Panel D shows, more than half of the contracts in our sample were signed before the first IPO in the industry segment of the partner. Contracts were signed up to 2 years before this watershed date and up to 4.5 years after the date. We interpret the difference (in days) between the contract date and the date of the first IPO in the partner category as the maturity of the industry segment at the time of contracting.

6. Analysis

We start by analyzing the correlation between the use of contingent control rights, exclusivity, and other attributes of the contracting firm and contracting environment at the time of the agreement. Table 4 displays these correlations. When more restrictions are placed on the portal, market contingencies are significantly more likely to be present in the contract, but technical contingencies are no more likely to be observed. When more restrictions are placed on the partner firm, both technical contingencies and market contingencies are significantly more likely to be incorporated into the contract. There is no relationship between the use of contingent control rights and the date of the agreement; however, the contingent control rights are used significantly less frequently as

¹²We also delete these four “traditional” firms in the diagnostic regressions. The results are largely unchanged, although the coefficient of interest loses statistical significance in some cases.

the partner's industry segment matures. The remaining correlations suggest relationships between the presence of contingent control rights, the relative bargaining power of the parties, and the type of commercial relationship that the alliance fulfils.

To control for these additional factors, we analyze the relationship between exclusivity and the use of contingent control rights by estimating models of the form:

$$C_i^{m \in \{\text{market, technical}\}} = \alpha + \beta_1 X_i^{\text{partner}} + \beta_2 X_i^{\text{portal}} + \gamma M_i + \delta Z_i + \varepsilon_i \quad (1)$$

where C_i^m is a measure of the extent to which contract i employs contingencies, X_i^{partner} is a measure of exclusivity restrictions that bind the partner and X_i^{portal} is a measure of exclusivity restrictions that bind the portal, M_i is a measure of the maturity of the industry (or industry segment) at the time the agreement was signed, Z_i are other observable characteristics of the contract i and its contracting parties, and ε_i is the idiosyncratic error.¹³ We separately examine contingent control rights granted to the partner (market contingencies) and contingent control rights granted to the portal (technical contingencies). In each regression we look at the relationship between these contingent control rights and exclusivity provisions that bind both parties. If exclusivity provisions serve to raise the value of an option to renegotiate, then we would expect β_1 to be greater than zero when the dependent variable is market contingencies and β_2 to be greater than zero when the dependent variable is technical contingencies. If exclusivity provisions

¹³ The empirical challenge of incorporating exclusivity into the regressions of contingent control rights is the standard one. Because contingent control rights and exclusivity are negotiated simultaneously as part of a single contract, the most that one can infer from a statistically significant relationship between these two measures of contract structure is a correlation in the data.

generate incentives to invest in the presence of hold-up opportunities, then we would expect β_2 to be greater than zero when the dependent variable is market contingencies and β_1 to be greater than zero when the dependent variable is market contingencies. To the degree that options to renegotiate become more valuable the greater the environmental uncertainty, we expect γ to be less than zero.

In Table 5, we present the results of an ordered logit regression incorporating raw exclusivity measures. In Table 6, we replace exclusivity measures with residuals from first stage regressions, which predict the levels of exclusivity.¹⁴ These residuals are the component of exclusivity that is unexplained by structural features of the relationship and other features of the contract. In unreported regressions, we employ a simultaneous equations approach, in which we model contingent control rights and exclusivity restrictions (both for the portal and for the partner firm) as being chosen simultaneously. The results of these three-stage least squares estimations corroborate those displayed in Tables 6 and 7, as the coefficients are of the same sign and magnitude as in the OLS analogs to the reported regressions. In most cases, these coefficients are significant as well.

This analysis produces two main results. First, there is a robust statistical link between exclusivity restrictions on the *partner* and the use of *market contingencies*. This result provides support for the hypothesis that exclusivity raises the value of contingent

¹⁴ First-stage R^2 values are .18 and .11 for partner restrictions and portal restrictions, respectively.

control rights. We cannot explain, however, why the same pattern is not present for portal alliances. One possibility is that portals expected to be in numerous lines of business simultaneously, and could therefore better afford to have an exclusive arrangement underperform than a partner firm whose main connection to the marketplace might be the portal. Second, there is a positive link between exclusivity restrictions on the *partner* and the use of *technical contingencies*, and a robust statistical link between exclusivity restrictions on the *portal* and the use of *market contingencies*. This suggests that exclusivity restrictions and the use of contingencies may be included in the contracts based upon potential hold-up considerations that result from the underlying activities of the alliance or attributes of the partners themselves. Overall, the results are suggestive that contingent control rights and exclusivity provisions are found in tandem in the face of potential hold-up problems. Whether they do so because they have complementary function, or reflect signaling in games of imperfect information, remains to be resolved in future work.

Robustness

One potential problem with analyzing state-contingent control rights is that not all of these rights are equal. Some contingencies may cover more states of nature than others, and these provisions vary in strength. Thus, the probability-weighted likelihood that an actual transfer of control occurs will vary with the type of control right and the individual contract. While we have no empirical strategy to deal with the second of these issues, we can address with the first concern—that some control rights cover more states of nature than others—by examining the contingencies separately using a seemingly

unrelated regression (SUR) approach. To complement each of the regression analyses reported below, we undertake unreported additional analyses using a non-linear (logit) SUR to examine the allocation of individual contingencies. In all cases, the coefficients of the variables of interest estimated using the SUR procedure were of similar sign and jointly significant at levels equivalent to those estimated using the composite measures.

In addition, we explore the degree to which our results are specific to the specific measures of contingent control rights that we use. In testing the theory above, we have assumed that all market contingencies are granted to the partner firm and all technical contingencies are granted to the portal. While the technical contingencies are contingent control rights that may only be allocated to the portal firm and market contingencies are generally allocated to the partner firm, some market contingencies may be allocated to the portal firm or to both firms. In particular, portal firms may be granted control rights if minimum revenue targets are not met. We repeat the analysis, excluding minimum revenue targets from the measure of contingencies granted to the partner firm. The resulting regressions have the same character as those displayed in Tables 5 and 6. There continues to be a large and positive correlation between contingent control rights granted to the partner and portal exclusivity restrictions. These coefficients continue to be significant with p-values of less than .01. The positive correlation between contingent control rights granted to the partner and partner exclusivity also continues to be positive; however, these estimates are at the border of significance, with p-values ranging from .074 to .275.

7. Conclusion

Despite the desirability of testing the various theoretical depictions of inter-firm agreements—not to mention the important role that alliances and licensing play in many high-technology industries—the structure of these agreements has attracted surprisingly little empirical attention. To assess this gap, we employ a sample of over 100 alliances involving Internet portals. In this paper, we have sought to understand the relationship between the presence of exclusivity provisions and the use contingent control rights in an environment in which relationship-specific investments are important and in which the *ex ante* knowledge of counterparty's capabilities was highly uncertain. Although the roles played by exclusivity and contingent control rights in generating appropriate incentives for investment have each individually received attention in the theoretical literature, there has been little discussion of their interaction. We hope that this work highlights potential future avenues of inquiry in this area.

We find that parties include more state-contingent control rights in contracts when more exclusivity restrictions are present. In particular, more contingent control rights are granted to partner firms the more exclusivity binds *either* party, and more contingent control rights are granted to portals when *partners* sign exclusive contracts. Parties also include more performance measures in contracts when environmental uncertainty is greater; as industry segments mature, these provisions tend to be dropped. The patterns of correlation between contingent control rights and exclusivity are partially consistent with theories of avoiding lock-in, and of supporting relationship-specific investment in the face of potential hold-up problems. These results may also be interpreted as offering

support for “control theory” models such as Dessein [2005]. The value of granting state-contingent control rights in solving adverse selection problems may be higher when the performance measurements upon which they are based are noisy. Moreover, they may also serve a more beneficial purpose by screening when incentive compatibility (or fear of hold-up) is more likely to be a severe problem.

We end with a firm conviction that considerable opportunities exist for further empirical research into these issues. Of particular interest is the question of understanding the extent to which the patterns seen here generalize across industries. (Anand and Khanna [2000] represent one pioneering attempt to look at strategic alliances on a cross-industry basis.) The Internet industry during this period was one of enormous uncertainty and the contracts we analyze here were in many cases signed by inexperienced participants. Understanding the extent to which similar results are seen in other industries—and attempting to understand the determinants of any differences—would be a rewarding area for future work.

8. References

- Aghion, Philippe, and Patrick Bolton, 1992, "An Incomplete Contracts Approach to Financial Contracting," *Review of Economic Studies*. 59, 473-94.
- Aghion, Philippe, and Jean Tirole, 1997, "Formal and Real Authority in Organizations," *Journal of Political Economy*. 105, 1-29.
- Anand, Bharat N., and Tarun Khanna, 2000, "The Structure of Licensing Contracts," *Journal of Industrial Economics*. 48, 103-35.
- Arrunada, Benito, Garicano, Luis, and Luis Vazquez, 2001, "Contractual Allocation of Decision Rights and Incentives: The Case of Automobile Distribution," *Journal of Law, Economics, and Organization*. 17, 257-284.
- Azoulay, Pierre, and Shane, Scott, 2001, "Entrepreneurs, contracts, and the failure of young firms," *Management Science*. 47(3): 337-358.
- Bajari, Patrick, and Steven Tadelis. 2001. "Incentives Versus Transaction Costs: a Theory of Procurement Contracts," *RAND Journal of Economics*. 32, 387-407.
- Bernheim, B. Douglas. and Michael D. Whinston, 1998, "Exclusive Dealing," *Journal of Political Economy*. 106(1): 64-102.
- Diamond, Douglas, 1991, "Debt Maturity Structure and Liquidity Risk," *Quarterly Journal of Economics*. 106, 709-37.
- De Meza, David and Mariano Selvaggi, 2007, "Exclusive Contracts Foster Relationship-Specific Investment," *RAND Journal of Economics*. 38(1): 85-97.
- Dessein, Wouter, 2002, "Authority and Communication in Organizations," *Review of Economic Studies*. 69, 811-838.
- Dessein, Wouter, 2005, "Information and Control in Alliances and Ventures," *Journal of Finance*. 60, 2513-49.
- Dewatripont, Mathias, and Jean Tirole, 1994, "A Theory of Debt and Equity: Diversity of Securities and Manager-Shareholder Congruence," *Quarterly Journal of Economics*. 109, 1027-54.
- Elfenbein, Daniel W, 2004, "Empirical Studies of Technology and Alliance Contracts," Unpublished Ph.D. Dissertation, Harvard University.
- Elfenbein, Daniel W. and Josh Lerner, 2003, "Ownership and Control in Internet Portal Alliances: 1995-1999," *RAND Journal of Economics*. 32, 356-69.
- Gal-Or, Ester, 1991, "A common agency with incomplete information." *RAND Journal of Economics*. 22(2): 274-286.
- Gallini, Nancy, and Brian Wright, 1990, "Technology Transfer under Asymmetric Information," *RAND Journal of Economics*. 21, 237-52.
- Grossman, Sanford J., and Oliver D. Hart, 1986, "The Costs and Benefits of Ownership: A Theory of Lateral and Vertical Integration," *Journal of Political Economy*. 94, 691-719.

- Hall, Christopher D., 1991, "Renting Ideas," *Journal of Business*. 64, 21-48.
- Hart, Oliver D., and John Moore, 1988, "Incomplete Contracts and Renegotiation," *Econometrica*. 56, 755-785.
- Higgins, Matthew, 2007, "The Allocation of Control Rights in Pharmaceutical Alliances" *Journal of Corporate Finance*. 13, 58-75.
- Kamien, Morton, and Yair Tauman, 1986, "Fees versus Royalties and the Private Value of a Patent," *Quarterly Journal of Economics*. 101, 471-93.
- Katz, Michael L., 1989, "Vertical Contractual Relations" in R. Schmalensee and R.D. Willig, eds., *Handbook of Industrial Organization*. New York: North Holland Press.
- Klein, B. "Transaction Cost Determinants of 'Unfair' Contractual Arrangements." *American Economic Review*. 70(2): 356-62.
- Lafontaine, Francine, and Slade, Margaret. 2008. "Exclusive Contracts and Vertical Restraints: Empirical Evidence and Public Policy" in *Handbook of Antitrust Economics*. ed. Paolo Buccirossi. Cambridge, MA: the MIT Press.
- Lazzarini, Sergio G., Gary J. Miller, and Todd R. Zenger, 2008, "Dealing with the paradox of embeddedness: the role of contracts and trust in facilitating movement out of committed relationships," *Organization Science*. 19(5): 709-728.
- Lerner, Josh and Robert Merges, 1998, "The Control of Technology Alliances: An Empirical Analysis of the Biotechnology Industry," *Journal of Industrial Economics*. 46, 125-56.
- Lerner, Josh and Ulrike Malmendier. Forthcoming. "Contractibility and the Design of Research Agreements." *American Economic Review*.
- Martimort, David, 1996, "Exclusive Dealing, Common Agency, and Multiprincipals Incentive Theory." *RAND Journal of Economics*. 27(1): 1-31.
- Mathewson, Frank, and Ralph Winter, 1994, "Territorial Restrictions in Franchise Contracts." *Economic Inquiry*. 32(2): 181-192.
- McAfee, R. Preston and Marius Schwartz, 1994, "Opportunism in Multilateral Vertical Contracting: Nondiscrimination, Exclusivity, and Uniformity." *American Economic Review*. 84(1): 210-230.
- Robinson, David, and Toby Stuart, 2007a, "Financial Contracting in Biotech Strategic Alliances," *Journal of Law and Economics*. 50: 559-595.
- Robinson, David and Toby Stuart, 2007b, "Network Effects in the Governance of Strategic Alliances," *Journal of Law, Economics, and Organization*. 23, 247-73.
- Roider, Andreas, 2004, "Asset Ownership and the Contractibility of Interaction" *RAND Journal of Economics*. 35(4): .787-802.
- Ryall, Michael, and Rachele Sampson, 2009, "Formal Contracts in the Presence of Relational Enforcement Mechanisms: Evidence from Technology Development Projects," *Management Science*. 55(6): 906-925.

- Segal, Ilya R. and Michael D. Whinston, 2000, "Exclusive Contracts and Protection of Investments," *RAND Journal of Economics*. 31, 603-33.
- Trueman, Brett, M.H. Franco Wong, and Xiao-Jun Zhang, 2000, "The Eyeballs Have It: Searching for the Value in Internet Stocks," *Journal of Accounting Research*. 38 (Supplement), 137-162.
- Williamson, Oliver E., 1985, *The Economic Institutions of Capitalism*. New York: Free Press.

Table 1

Exclusivity of portal alliances. The sample consists of 106 alliances involving Internet portals between 1995 and 1999. Observations are summarized by the date of the agreement; and the presence (coded as +1) or absence (coded as 0) of contract terms relating to exclusivity obligations on the portal and the partner firm.

Panel A: Portal Exclusivity Obligations						
	<i>Weight</i>	<i>Mean</i>	<i>Median</i>	<i>St. Dev.</i>	<i>Min</i>	<i>Max</i>
<i>Relating to Competitors:</i>						
Portal cannot establish any agreements with competitors	2	.405	0	.493	0	1
Portal cannot establish more than N agreements with competitors	1	.085	0	.280	0	1
Portal cannot grant the use of certain keywords to competitors	1	.264	0	.442	0	1
Total Portal Agmt. Restrictions	n.m.	.386	.333	.359	0	1
<i>Relating to Advertising:</i>						
Portal cannot advertise partner competitors	2	.160	0	.368	0	1
Portal cannot advertise partner competitors in certain areas	1	.264	0	.443	0	1
Portal cannot advertise partner competitors on a continuous basis	1	.038	0	.191	0	1
Portal cannot link to partner competitors	2	.132	0	.340	0	1
Total Portal Ad. Restrictions	n.m.	.221	0	.331	0	1
Total Portal Exclusivity ^a	n.m.	.608	.458	.564	0	2
Panel B: Partner Exclusivity Obligations						
	<i>Weight</i>	<i>Mean</i>	<i>Median</i>	<i>St. Dev.</i>	<i>Min</i>	<i>Max</i>
<i>Relating to Competitors:</i>						
Partner cannot establish any agreements with competitors	2	.075	0	.265	0	1
Partner cannot establish certain agreements with competitors	1	.075	0	.265	0	1
Total Partner Agmt. Restrictions	n.m.	.126	0	.230	0	1
<i>Relating to Advertising:</i>						
Partner cannot advertise portal competitors	2	.113	0	.318	0	1
Partner cannot advertise portal competitors in certain areas	1	.085	0	.280	0	1
Partner cannot advertise portal competitors on a continuous basis	1	.019	0	.137	0	1
Partner cannot link to portal competitors	2	.094	0	.294	0	1
Partner must promote portal at least as Prominently as competitors	1	.113	0	.318	0	1
Total Partner Ad. Restrictions	n.m.	.126	0	.229	0	1
Total Partner Exclusivity ^b	n.m.	.234	0	.387	0	2

^{a,b}Normalized by the maximum in each category. The maximum possible value of this measure is 2.
n.m. = Not meaningful.

Table 2

Contractual contingencies in portal alliances. The sample consists of 106 alliances involving Internet portals between 1995 and 1999. The table presents several measures of contractual contingencies. In each case, the measure is coded as +1 if the provision is present in the agreement and 0 if the provision is absent. The bottom measure in each panel represents the sum of the preceding five (Panel A) or four (Panel B) measures.

Panel A: Provisions Relating to Technical Performance					
	<i>Mean</i>	<i>Median</i>	<i>Stan. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Speed Target	.298	0	.459	0	1
Uptime Target	.288	0	.455	0	1
Customer Service Target	.135	0	.342	0	1
Competitive Ranking Target	.147	0	.355	0	1
Sum of Four Technical Contingencies	.852	0	1.239	0	4

Panel B: Provisions Relating to Product Market Performance					
	<i>Mean</i>	<i>Median</i>	<i>Stan. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Minimum Number of Impressions	.660	1	.476	0	1
Minimum Targeted Impressions	.085	0	.280	0	1
Minimum Number of Click-Throughs	.047	0	.213	0	1
Minimum Revenue Targets	.132	0	.340	0	1
Minimum Number of New Customers	.028	0	.167	0	1
Sum of Five Market Contingencies	.953	1	.797	0	3

Table 3

Summary Statistics for Control Variables. The sample consists of 106 alliances involving Internet portals between 1995 and 1999. Observations are summarized by the date of the agreement, the effort required of the portal and partner (cases where the portal is expected to make the greatest effort are coded as +1, those where the partner is as -1, and those where the effort is shared or not applicable are coded as 0), the traffic on the portal and the partner's Internet properties in the month before the signing of the contract, and the financial position of the portal and the partner in the quarter before the signing of the contract (in millions of dollars).

Panel A: Effort Required by Two Parties					
	<i>Mean</i>	<i>Median</i>	<i>Stan. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Site development	-0.65	-1	0.66	-1	1
Maintenance and hosting	-0.58	-1	0.69	-1	1
Customer service	-0.56	-1	0.54	-1	1
Order fulfillment	-0.50	-1	0.56	-1	1
Billing	-0.46	-1	0.59	-1	1
Sum of five effort measures	-2.75	-3	2.30	-5	5
Panel B: Traffic on Internet Properties of Portal and Partner					
	<i>Mean</i>	<i>Median</i>	<i>Stan. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
reach of portal	29.5%	31.2%	19.8%	0.8%	67.1%
reach of partner	4.9%	1.5%	10.2%	0.2%	55.3%
Days per viewer-month for portal	3.30	3.21	1.36	1.10	6.50
Days per viewer-month for partner	1.67	1.46	0.68	1.00	4.50
Minutes per viewer-month for portal	19.34	14.10	15.67	4.20	73.90
Minutes per viewer-month for partner	8.87	7.30	6.43	1.40	36.70
Panel C: Financial Position of Portal and Partner					
	<i>Mean</i>	<i>Median</i>	<i>Stan. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
Sales of portal	953	30	2873	0	23978
Sales of partner	759	4	4276	0	37903
Net income of portal	134	-1	437	-104	2284
Net income of partner	39	-3	257	-433	1986
Cash of portal	1606	174	4271	0	21761
Cash of partner	720	17	3327	0	24956
Shareholders' equity of portal	2646	306	6621	-1	37165
Shareholders' equity of partner	1161	16	4346	-8	24067
Panel D: Industry Development					
	<i>Mean</i>	<i>Median</i>	<i>Stan. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
First IPO in Category ^a	12/02/97	04/18/98	565 days	12/15/94	12/16/99
Contract Date – First IPO in Category	149	-17	502	-720	1497

^aFirst IPO in Category is the first IPO in the industry subcategory of the partner firm.

Table 4

Correlation between measures of contractual contingencies, timing of agreement, and industry maturity. The sample consists of 106 alliances involving Internet portals between 1995 and 1999. Market contingencies and technical contingencies are the sum of the five and four individual provisions described in Table 2. Portal restrictions are the “total portal restriction” measured in Table 2 Panel A and Partner restrictions are the “total partner restriction” measure in Table 2 Panel B. Other variables include the year of the agreement, the maturity of the partner’s industry segment (measured as days since the first IPO in the segment), the relative effort required of the portal and partner after the alliance signing on five key dimensions (with those where the most effort is required of the portal coded as -5 and the most effort by the portal as +5), the relative reach of the portal and the partner in the month before the signing of the contract (+1 denoted a case where the portal has the greater reach, -1 those where the partner did, and 0 intermediate cases), and the relative sales of the portal and the partner in the quarter before the signing of the contract (+1 denoted a case where the portal has the greater sales, -1 those where the partner did, and 0 intermediate cases), the commercial focus of the agreement (either content, product sales, technology / service, or some combination of these three categories). p-values for individual correlations are in brackets. Dashes represent self-correlations, which are omitted. Maturity is the difference between the date on which the contract was signed and the date of the first IPO in the industry subcategory of the partner firm.

Column:	Technical Contingencies (1)	Market Contingencies (2)	Portal Restrictions (3)	Partner Restrictions (4)	Date of Agreement (5)	Maturity (6)	Relative Effort (7)	Portal has greater sales (8)	Portal has greater reach (9)	Alliance promoted Content (10)	Alliance promoted product sales (11)
Market Contingencies	.1610 [.1059]	—									
Portal Restrictions	.0121 [.9043]	***.4050 [.0000]	—								
Partner Restrictions	***.2569 [.0092]	***.2645 [.0061]	.1504 [.1239]	—							
Date	.0226 [.0567]	-.0636 [.5169]	.0092 [.9255]	-.0067 [.9460]	—						
Maturity	**-.2435 [.0152]	**-.2128 [.0310]	.0448 [.6533]	*-.1645 [.0969]	.1045 [.2936]	—					
Relative Effort	-.2107 [.0335]	-.1653 [.0905]	-.0379 [.6997]	-.1115 [.2552]	.0275 [.7793]	.4451 [.0000]	—				
Portal has greater sales	** .1945 [.0478]	.0998 [.3089]	-.1353 [.1668]	.1243 [.2042]	** .1953 [.0448]	.1045 [.2936]	**-.2224 [.0220]	—			
Portal has greater reach	** .2208 [.0257]	.0708 [.4707]	.0414 [.6732]	-.0184 [.8513]	.0083 [.9325]	**-.2228 [.0237]	-1.210 [.2166]	** .1986 [.0413]	—		
Content	-.1359 [.1753]	.0562 [.5710]	-.1303 [.1874]	.1574 [.1105]	.1261 [.2021]	-.0957 [.3409]	.1556 [.1147]	.0668 [.5002]	.0104 [.9163]	—	
Product sales	*.1987 [.0475]	***.2635 [.0072]	** .2004 [.0424]	.0335 [.7366]	**-.2883 [.0036]	-.0308 [.7576]	***-.4562 [.0000]	.0346 [.7576]	.2950 [.0025]	-.1624 [.1013]	—
Service agreement	-.0301 [.7665]	**-.2510 [.0105]	*-.1871 [.0585]	-.1306 [.1885]	-.1322 [.1830]	***.2804 [.0047]	*.1886 [.0564]	-.0713 [.4743]	*-.2014 [.0414]	***-.4043 [.0000]	***-.6144 [.0000]

*** = significant at 1%, ** = significant at 5%, * = significant at 10%

Table 5

Ordered logit regression analyses of the relationship of contingencies and exclusivity in portal alliances. The sample consists of 106 alliances involving Internet portals between 1995 and 1999. The dependent variables are the sums of five measures of the contingencies in the contract relating to product market performance (+1 denoted a case where this contractual element was present and 0 a case where it was absent) and four relating to technical performance. Independent variables include the maturity of the partner's industry segment (measured as days since the first IPO in the segment), of the measure of exclusivity restrictions on the partner and portal, the commercial focus of the agreement (either content, product sales, technology / service, or some combination of these three categories), the year of the agreement, the relative effort required of the portal and partner after the alliance signing on five key dimensions (with those where the most effort is required of the portal coded as -5 and the most effort by the portal as +5), the relative reach of the portal and the partner in the month before the signing of the contract (in most regressions, +1 denoted a case where the portal has the greater reach, -1 those where the partner did, and 0 intermediate cases), and the relative sales of the portal and the partner in the quarter before the signing of the contract (+1 denoted a case where the portal has the greater sales, -1 those where the partner did, and 0 intermediate cases). Two regressions include controls for the type of the agreement and the portals entering into the agreements (not reported). Heteroskedastic-consistent standard errors in brackets.

	Technical Contingencies			Market Contingencies		
	<i>Controlling for deal type</i>	<i>Including Year, Effort, and Firm Characteristics</i>	<i>Including Portal Dummies</i>	<i>Controlling for deal type</i>	<i>Including Year, Effort, and Firm Characteristics</i>	<i>Including Portal Dummies</i>
Partner exclusivity restrictions	**1.46 [.671]	**1.51 [.735]	1.09 [1.17]	**1.21 [.550]	*1.14 [.620]	*1.14 [.596]
Portal exclusivity restrictions	-.017 [.172]	-.105 [.218]	-.031 [.442]	***1.52 [.225]	***1.57 [.288]	***1.75 [.248]
Industry segment maturity ^a	***-.112 [.042]	-.087 [.060]	.013 [.062]	**-.071 [.034]	**-.070 [.032]	-.059 [.049]
Year of agreement		.140 [.185]	-.100 [.383]		-.134 [.264]	-.037 [.338]
Relative effort required after alliance signing		-.025 [.155]	.035 [.170]		-.012 [.103]	-.110 [.145]
Does the portal have greater sales?		.215 [.616]	.181 [.814]		.199 [.456]	.188 [.328]
Does the portal have greater reach?		.776 [.569]	.734 [.926]		-.068 [.450]	-.154 [.451]
Did the alliance promote content?	-.444 [.495]	-.638 [.495]	-1.21 [1.01]	1.10 [.787]	1.14 [.807]	1.38 [.847]
Did the alliance promote product sales?	**1.52 [.637]	1.22 [.835]	1.12 [1.04]	1.37 [.843]	1.35 [.981]	1.35 [1.06]
Did the alliance involve a service agreement?	**1.24 [.657]	*1.14 [.663]	***1.68 [.685]	.840 [.731]	.806 [.804]	.777 [.846]
Number of observations	96	96	96	99	99	99
Log likelihood	-95.73	-93.32	-81.08	-97.59	-97.24	-94.43
Pseudo R ²	.094	.109	.233	.145	.149	.173

^aCoefficients in this row have been multiplied by 100.

*** = significant at the 1% confidence level (two-sided test), ** = significant at the 5% confidence level (two-sided test), * = significant at the 10% confidence level (two-sided test)

Table 6

Ordered logit regression analyses of the relationship of contingencies and exclusivity in portal alliances. The sample consists of 106 alliances involving Internet portals between 1995 and 1999. The dependent variables are the sums of five measures of the contingencies in the contract relating to product market performance (+1 denoted a case where this contractual element was present and 0 a case where it was absent) and four relating to technical performance. Independent variables include the maturity of the partner's industry segment (measured as days since the first IPO in the segment), the count of the number of exclusivity restrictions on the partner and portal, the commercial focus of the agreement (either content, product sales, technology / service, or some combination of these three categories), the year of the agreement, the relative effort required of the portal and partner after the alliance signing on five key dimensions (with those where the most effort is required of the portal coded as -5 and the most effort by the portal as +5), the relative reach of the portal and the partner in the month before the signing of the contract (in most regressions, +1 denoted a case where the portal has the greater reach, -1 those where the partner did, and 0 intermediate cases), and the relative sales of the portal and the partner in the quarter before the signing of the contract (+1 denoted a case where the portal has the greater sales, -1 those where the partner did, and 0 intermediate cases). Two regressions include controls for the type of the agreement and the portals entering into the agreements (not reported). Heteroskedastic-consistent standard errors in brackets.

	Technical Contingencies			Market Contingencies		
	<i>Controlling for deal type</i>	<i>Including Year, Effort, and Firm Characteristics</i>	<i>Including Portal Dummies</i>	<i>Controlling for deal type</i>	<i>Including Year, Effort, and Firm Characteristics</i>	<i>Including Portal Dummies</i>
Partner exclusivity restriction residual	***1.83 [.529]	***1.94 [.575]	**1.71 [.878]	**1.49 [.672]	**1.48 [.662]	**1.42 [.622]
Portal exclusivity restriction residual	.092 [.210]	-.039 [.228]	-.031 [.487]	***1.60 [.262]	***1.60 [.290]	***1.77 [.236]
Industry segment maturity ^a	**-.114 [.048]	-.083 [.656]	.013 [.062]	**-.079 [.035]	**-.068 [.030]	-.057 [.047]
Year of agreement		.212 [.189]	-.064 [.389]		-.042 [.249]	.037 [.321]
Relative effort required after alliance signing		-.058 [.169]	.005 [.207]		-.111 [.151]	-.110 [.145]
Does the portal have greater sales?		.291 [.600]	.257 [.872]		.118 [.422]	.188 [.328]
Does the portal have greater reach?		.719 [.583]	.808 [.875]		-.054 [.362]	-.154 [.451]
Did the alliance promote content?	-.403 [.479]	-.582 [.458]	-1.30 [.882]	.676 [.812]	.684 [.823]	.812 [.823]
Did the alliance promote product sales?	**1.54 [.676]	1.15 [.917]	1.12 [1.04]	1.31 [.864]	1.27 [1.00]	1.23 [1.09]
Did the alliance involve a service agreement?	*1.15 [.750]	1.07 [.743]	**1.50 [.677]	.192 [.794]	.164 [.836]	.049 [.857]
Number of observations	96	96	96	99	99	99
Log likelihood	-94.95	-92.92	-79.97	-96.19	-96.04	-93.75
Pseudo R ²	.101	.121	.243	.158	.159	.179

^aCoefficients in this row have been multiplied by 100.

*** = significant at the 1% confidence level (two-sided test), ** = significant at the 5% confidence level (two-sided test), * = significant at the 10% confidence level (two-sided test)

Table A1

Examples of performance-based contingent control rights in portal alliance contracts. The table below contains excerpts from selected contracts.

<i>Source Contract</i>	<i>Text</i>
Yahoo-Autoweb	6.4 The Autoweb Site shall comply with the scale, speed and performance requirements mutually agreed upon by the parties but in no event less than that provided by the Yahoo Main Site.
AOL-1800 Flowers	3. SPEED; ACCESSIBILITY. 1-800-Flowers will ensure that the performance and availability of the Affiliated 1-800-Flowers Site (a) is monitored on a continuous, 24/7 basis and (b) remains competitive in all material respects with the performance and availability of other similar sites based on similar form technology. 1-800-Flowers will use commercially reasonable to ensure that: (a) the functionality and features within the Affiliated 1-800-Flowers Site are optimized for the client software then in use by AOL Users; and (b) the Affiliated 1-800-Flowers Site is designed and populated in a manner that minimizes delays when AOL Users attempt to access such site.
AOL-1800 Flowers	5. SERVICE LEVEL RESPONSE. 1-800-Flowers agrees to use commercially reasonable efforts to provide the following service levels in response to problems with or improvements to the Affiliated 1-800-Flowers Site: <ul style="list-style-type: none"> • For material functions of software that are or have become substantially inoperable, 1-800-Flowers will provide a bug fix or workaround within two (2) business days after the first report of such error. • For functions of the software that are impaired or otherwise fail to operate in accordance with agreed upon specifications, 1-800-Flowers will provide a bug fix or workaround within three (3) business days after the first report of such error. • For errors disabling only certain non-essential functions, 1-800-Flowers will provide a bug fix or workaround within sixty (60) days after the first report of such error.
Yahoo - American Greetings	3.2 (c) American Greetings shall operate and maintain the American Greetings Site to be one of the top [] ^a sites for the on-line provision of Greetings (as determined, to the extent practical, over a reasonable period of time, by an independent, qualified and industry-recognized third party based on the quantity and quality of customers and product offerings).

^aThe actual number was redacted from the contract disclosed to investors.

Note: Both the Yahoo–Autoweb and AOL–1-800-Flowers.com contracts specify performance requirements such as speed and availability (or uptime) for the partners’ website. The AOL–1-800-Flowers.com contract also specifies certain customer service requirements for the partner firm. Finally, the Yahoo–American Greetings contract specifies that American Greetings remain among the top websites in its category as determined by and independent third party. In the contracts above, Autoweb, 1-800-Flowers.com, and American Greetings are the partner firms.

Table A2

Constructing Industry Segment Maturity. IPO data were provided by Rob Cash of JP Morgan. SIC Code derived from SEC filings collected from the SEC's Edgar Online service. Category determined by examining company description in earliest SEC filing.

Category	Company Name	IPO Date	SIC Code
Access / ISP	Netcom On-Line	15 Dec 1994	7389
	Communication Services, Inc.		
	WebSecure, Inc.	05 Dec 1996	7374
	At Home Corporation	10 Jul 1997	7370
	Pacific Internet	05 Feb 1999	4899
	Juno Online Services, Inc.	25 May 1999	7370
	Ramp Networks	22 Jun 1999	3968
	Voyager.net, Inc.	21 Jul 1999	7389
	NetZero, Inc.	23 Sep 1999	7370
	Onemain.com	25 Mar 1999	7373
	Biznessonline.com	12 May 1999	7373
Auctions	Ebay Inc.	23 Sep 1998	7389
	Take to Auction.com	13 Jun 2000	7389
Auto Sales	Autoweb.com	22 Mar 1999	7500
	Autobytel.com	26 Mar 1999	5900
Book Sales	Amazon.com	15 May 1997	5961
	Fatbrain.com	19 Nov 1998	5990
	Barnesandnoble.com	25 May 1999	5735
Clothing Sales	Fashionmall.com	21 May 1999	5940
Electronics & Software Retailing	Egghead.com (New)	17 Apr 1997	5045
	Beyond.com	17 Jun 1998	7372
	Cyberian Outpost, Inc	31 Jul 1998	5734
	Digital River Inc.	11 Aug 1998	7373
	Pcorder.com	25 Feb 1999	5734
	iGo Corp	14 Oct 1999	5961
	Buy.com	07 Feb 2000	5734
Employment Websites	CareerBuilder, Inc.	11 May 1999	7200
	Hotjobs.com	10 Aug 1999	7361
	Headhunter.net	19 Aug 1999	7310
	E-Cruiter.com	07 Dec 1999	7389
Flower Sales	1-800-Flowers.com	02 Aug 1999	N/A
	Ftd.com	28 Sep 1999	7389
Gardening Community Site	Garden.com	16 Sep 1999	5200
Greeting Cards	Egreetings Network, Inc.	16 Dec 1999	5947
Multi-Product Retailing	Shopping.com	25 Nov 1997	5311
	Amazon.com	15 May 1997	5961
Health Sites	WebMD Corp.	10 Feb 1999	7374
	drkoop.com	07 Jun 1999	8090

	Medscape, Inc	27 Sep 1999	7375
	Healthcentral.com	07 Dec 1999	7375
Investment Information	Marketwatch.com	15 Jan 1999	2711
	Multex.com	17 Mar 1999	7374
	Thestreet.com	10 May 1999	2711
Insurance Sales	InsWeb Corp	22 Jul 1999	7389
	Quotesmith.com	03 Aug 1999	7374
Music Sales	N2K, Inc.	17 Oct 1997	5961
	CDNow, Inc.	10 Feb 1998	5735
	Launch Media, Inc.	23 Apr 1999	7375
	Liquid Audio, Inc.	08 Jul 1999	7373
	Musicmaker.com	06 Jul 1999	3652
	MP3.com	20 Jul 1999	3652
Online Advertising	DoubleClick, Inc.	19 Feb 1998	7310
	24/7 Media, Inc.	13 Aug 1998	7310
Online Communities (Professional / Industrial)	VerticalNet, Inc.	11 Feb 1999	7310
	Intraware, Inc.	25 Feb 1999	7375
Online Communities (Consumer Segments)	iVillage Inc.	18 Mar 1999	7375
	Women.com	14 Oct 1999	2741
Portals / Search	Lycos, Inc.	02 Apr 1996	7380
	Excite Inc.	04 Apr 1996	7372
	Yahoo! Inc.	11 Apr 1996	7373
	Infoseek Corp.	11 Jun 1996	7372
	go2net, Inc.	23 Apr 1997	7374
	Crosswalk.com	24 Sep 1997	N/A
	Theglobe.com	12 Nov 1998	7310
	iVillage Inc.	18 Mar 1999	7375
	Quepasa.com	24 Jun 1999	7310
	Ask Jeeves, Inc.	30 Jun 1999	7375
	LookSmart Ltd	19 Aug 1999	7373
	Sina.com	13 Apr 2000	N/A
	Sohu.com	12 Jul 2000	N/A
	About.com	24 Mar 1999	7370
	Goto.com	18 Jun 1999	7389
	Inktomi Corp.	09 Jun 1998	7373
Public Information	Infospace	15 Dec 1998	7374
	US Search Corp	24 Jun 1999	7389
Securities Brokerage	E*Trade Group, Inc.	16 Aug 1996	6211
	Stockwalk.com	26 Sep 1996	6211
	Ameritrade Holding Corp.	03 Mar 1997	6211
	Onlinetrading.com	10 Jun 1999	6211
	Web Street, Inc.	17 Nov 1999	6211
Specialty Retail	Ashford.com	22 Sep 1999	5945
Sports Information	Sportsline USA, Inc.	13 Nov 1997	7374
	Quokka Sports, Inc.	27 Jul 1999	7999

Stamp Sales	E-Stamp Corp	08 Oct 1999	5961
	Stamps.com	25 Jun 1999	5961
Toy Retailing	eToys Inc.	19 May 1999	5945
	SmarterKids.com	22 Nov 1999	5945
Travel	Cheap Tickets, Inc.	19 Mar 1999	5615
	Expedia, Inc.	09 Nov 1999	4700
	Getthere.com	23 Nov 1999	7372
Web Software	USWeb Corporation	05 Dec 1997	7373
	Verisign, Inc.	29 Jan 1998	7371
	Pacificnet.com, Inc.	24 Dec 1998	7371
	Internet Pictures Corp	25 Aug 1999	7379
	iManage Inc	17 Nov 1999	7372
Youth Community & Shopping	iTurf Inc.	09 Apr 1999	5961
	Alloy Online, Inc.	14 May 1999	5961
