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ABSTRACT

Web-based B2B exchanges have experienced a significant growth in recent years. While some B2B exchanges have met with huge success, several others have failed to live up to expectations. There is hardly any systematic study to assess the value of B2B marketplaces for participating firms. Our research employs an event-study methodology to investigate the effect of various industry, firm, and exchange-related factors on the value-added to the firms joining a B2B exchange. We find that firm-type (manufacturing vs. non-manufacturing) significantly affects the gains to participating firms but the role of the firm in the marketplace (buyer, seller or both) is not significant. We also find that the exchange-governance mechanism (consortia-based vs. public) and its value-proposition (transactional, collaborative or both) significantly influence the value-added to participating firms. These findings have significant implications for firms' choices of online-marketplaces as well as for the design, and marketing strategies of online exchanges.

Keywords

B2B Markets, IT Value, IT Infrastructure, Event-Study, Empirical Analysis, Business-To-Business Exchanges, Collaborative, Transactional, E-Marketplaces,

INTRODUCTION

The advent of online Business-to-Business (B2B) marketplaces has provided firms new alternatives to improve the efficiency and effectiveness of their supply chains. Several firms have used these online marketplaces to rationalize their transaction and collaboration-intensive procurement functions. While there were high expectations about the growth of online B2B markets, reality fell far short of these expectations. It is clear that online B2B commerce is still in its infancy and has substantial potential. The actual realization of this potential will however, depend on an in-depth understanding of the various factors that make online B2B marketplaces valuable to firms. For instance, the value of online B2B marketplaces to firms is likely to depend on firm as well as industry characteristics. Added to this, there is a wide variation in the design of online marketplaces making this a problem of significant complexity. While researchers have begun to examine issues relating to online B2B marketplaces, there are no systematic studies on how various factors affect a firm's decision to adopt online B2B marketplaces.

This paper seeks to identify and measure the impact of various firm, industry and exchange-related factors on the value added to firms joining online B2B exchanges, using a traditional event-study methodology. Our study has several interesting findings. We find that while membership in a B2B exchange creates significant value for firms, the benefits to firms differs substantially across firms, industries and marketplaces. In particular, we find that non-manufacturing firms benefit more than manufacturing firms. We also find that online exchanges are more valuable to firms that buy as well as sell products and services, compared to firms using these exchanges for just one of these functions. As for the B2B marketplaces themselves, marketplaces providing transaction as well as collaboration capabilities are more valuable to firms than those providing transaction capabilities alone. Firms joining consortium-owned exchanges experience a positive abnormal return, while those joining a public exchange are adversely affected. These findings have significant implications not only for firms seeking to benefit from online marketplaces, but also for the technological and marketing strategies of online exchanges.

The remainder of the paper is organized as follows. The next section reviews the existing literature, followed by an outline of our hypotheses. We then discuss the methodology employed, and present our findings. The paper concludes with a discussion of limitations and directions for future research.

LITERATURE REVIEW

There is hardly any consensus on what constitutes a B2B exchange (Stockdale and Standing, 2002). In this paper, a B2B market is defined as Internet-enabled marketplace where buyers and sellers can find information, transact, and collaborate with each other using the tools and features provided by the exchange.

Concomitant with the growth of online B2B marketplaces, there has been an increased interest among researchers and practitioners in understanding the role of B2B marketplaces as well as their adoption by firms. A few theoretical and analytical studies (Bakos, 1997, Fath and Sarvary, 2002, Nickerson and Owan, 2002, Stockdale and Standing, 2002) examine issues relating to B2B marketplaces, including the value of such marketplaces. Most empirical studies, though, focus on the impact of various design and structural factors on the value-added to the exchange themselves, rather than its participants. For instance, Rajgopal et al. (2002) examine the impact of B2B marketplace strategies (for instance, the introduction of new products and services, acquisition of major customers, promotions, stakeholder related actions, strategic alliances, acquisitions and international expansion.) on their stockholders' wealth. They find that these strategies positively affect the market value of these exchanges. Using an event-study methodology Chen and Siems (2001) investigate the impact of the marketplace structure (vertical versus horizontal marketplaces) as well as the impact of partnering/alliance strategies on the value-added to these B2B exchanges. The focus of the current paper though, is on the impact of related factors on the participating firms.

Researchers have called for empirical research on the value of B2B exchanges (Dai and Kauffman, 2002, Kauffman and Walden, 2001, Subramaniam and Shaw, 2002). The few empirical studies that examine the impact of related factors on the value-added to participating firms are mostly confined to a single exchange or participating firm, limiting our ability to generalize across firms, industries or marketplaces. For instance, Subramaniam and Shaw (2002) evaluate the performance implications of a manufacturing firm's web-based procurement system. Choudhary et al. (1998) study the Inventory Locator Service (ILS), a B2B marketplace for aircraft parts, and find that both buyers and sellers benefit from its use. Our study seeks to examine a broader set of factors spanning several industries, firms, and marketplaces to generate useful decision guidelines for firms as well as exchanges.

HYPOTHESIS DEVELOPMENT

Our study examines the role of firm-related characteristics, primarily the *type of firm (manufacturing vs. non-manufacturing)*, and the *role of the firm in the exchange* (buyer vs. seller) as well as the role of industry-related characteristics (based on SIC codes). In addition to the above firm and industry related factors, we also examine the impact of exchange related features. Exiting studies have categorized B2B exchanges based on their industry or product focus (vertical versus horizontal), the pricing mechanisms used (systematic versus spot markets), their value propositions (information, transactional and collaborative functions), and their governance structures (public, private and consortia; buy-side, sell-side or neutral exchanges) among others (Skjott-Larsen, Kotzab and Grieger, 2003). Of these exchange-related features, two categories are of significant interest to our study[1] – an exchange's *value proposition* i.e. unique selling proposition (USP) and its *governance structure*. The following paragraphs outline the hypotheses for our study.

Industry

While the last few years have witnessed the emergence of online B2B marketplaces in several industry sectors, only a few have managed to survive. For instance, Day et al. (2003) find that the failure rate of B2B exchanges varies widely across industries with the highest survival rate (67%) in the electronics industry, and the lowest (24% survival) in the grocery industry. Industries differ on several factors including competitive intensity, supply-chain inefficiencies, complexity of business processes and value-chain – factors that impact the value of an online B2B marketplace. This leads us to hypothesize that:

H1: *The abnormal return attributable to a firm joining a B2B exchange will depend on the industry in which it operates.*

[1] Our choice of categories is partly limited by the availability of data on firms joining horizontal exchanges and exclusive spot-market exchanges.

Firm: Type

It is well know that manufacturing firms rely heavily on relationships with a small number of suppliers (Bakos and Brynjolfsson, 1993, Levi, Kleindorfer and Wu, 2003), largely driven by their need for non-contractible and asset-specific investments. Private infrastructure like Electronic Data Interchanges (EDI or internet-enabled EDI) serves these needs better; therefore, joining a B2B exchange will not be as valuable for manufactures as it will be for retailers and non-manufacturers, who deal predominantly with relatively standardized products.

H2: *Non-manufacturing firms joining a B2B exchange will earn higher abnormal returns as compared to manufacturing firms.*

Firm: Role

The value of an online B2B marketplace is likely to depend on the role of firm (buyer, seller or both) joining the marketplace. Bakos (1997) argues that electronic marketplaces will lead to drastic reduction in the profits of the sellers due to reduction in buyer search cost. Most of the EDI literature also finds that buyers gain more than sellers in IT-mediated supply chains (Chwelos, Benbasat and Dexter, 2001, Riggins and Mukhopadhyay, 1994, Wang and Seidmann, 1995). However, Subramani (2004) suggests that suppliers may benefit from private exchanges. In an empirical study, Choudhary et al. (1998) find that ILS (an B2B exchange that supports identification process only) provides benefits to both seller and buyer. Existing research indicates that buyers and sellers are likely to differ in their benefits from membership in online B2B exchanges, though the relative magnitude of these benefits to buyers and sellers is less clear. Therefore, we hypothesize that,

H3a: *A firm joining/creating a B2B exchange as a buyer will experience different abnormal returns as compared to a firm joining a B2B exchange as a seller.*

H3b**:** *A firm joining an exchange, as both a buyer and seller will enjoy higher abnormal returns compared to a firm that joins an exchange in just one of these roles.*

Exchange: Value-Proposition

It is believed that collaborative marketplaces would differ from transactional marketplaces in their design, benefits as well as adoption considerations of participating firms (Christiaanse and Markus, 2003, El-Sawy and Pavlou, 2002). Transactional exchanges provide aggregation facilities like search cost efficiency, price transparency, liquidity, etc. whereas the collaboration exchanges (also referred as relational exchanges) focus on collaborative features like business processes integration, work process streamlining, etc.(Amit and Zott, 2001, Jap and Mohr, 2002). Collaboration based relationships create value and lead to long-term strategic benefits vis-à-vis transaction based relationships, which re-distribute value in a zero-sum game (Harreld and Schwartz, 2001, Jap and Mohr, 2002). Therefore, transaction based exchanges will be less beneficial than collaboration based exchanges, and the "balanced transaction-and-collaboration" exchanges will be most beneficial (Le, 2002). This leads us to hypothesize that,

H4a: *A firm joining a collaborative exchange will experience higher abnormal returns compared to a firm joining a pure transaction-based exchange.*

H4b: *A firm joining an exchange offering both collaborative and transactional services will experience higher abnormal returns than a firm joining an exchange that offer just one of these.*

Exchange: Governance

Researchers suggest that biased (buyer-dominated or supplier-dominated) marketplaces are better than neutral (i.e. public) exchanges in terms of total surplus generated as they can provide services at lower price and have higher liquidity (Yoo, Choudhary and Mukhopadhyay, 2001). Governance structure of an exchange also determines its ability to provide subsidy to suppliers selectively, which in turn increases the likelihood of success (Nickerson and Owan, 2002). In particular, consortium exchanges are thought be more effective than public exchanges due to reduced information distortion and asymmetries. This leads us to hypothesize that,

H5: *A firm joining a consortium sponsored B2B exchange will experience higher abnormal returns compared to a firm joining a public B2B exchange.*

METHODOLOGY

Prior research (Hitt and Brynjolfsson, 1996, Mukhopadhyay, Kekre and Kalathur, 1995) has largely resorted to accounting based measures to understand the value of IT investments to firms. However, in the context of B2B marketplaces it is difficult to isolate the impact of the adoption of B2B marketplaces on firm value using accounting measures. The strategic nature of the decision also makes the use of this approach inappropriate in such contexts (Bharadwaj, Bharadwaj and Konsynski, 1999). The event study methodology is based on an 'efficient market hypothesis' and is widely used in accounting, finance, management, and more recently, in information systems research as it overcomes the limitations of other approaches.

Event Study Methodology

Following standard event study methodology, we gathered data on stock prices of the firms on the event date and short event windows (0, 3 and 5 days). We use a market model to separate the security specific returns on the event day and to test the hypothesis that the returns on the event day and post event days differ significantly from zero (Kritzman, 1994). To ensure that there are no confounding factors affecting our results, we discard data points that have a confounding event such as stock-splits, mergers, acquisitions, earnings announcements, etc. Data analysis was undertaken as per well-established procedures as described in literature (Abagail and Siegel, 1997, Kritzman, 1994).

Our unit of analysis is a firm joining or creating a B2B exchange. The event under consideration is the public announcement of a firm's initiative to join or create a B2B exchange. We collect data on firms' announcements of joining or creating a B2B marketplace beginning from January 1998 to late 2003. Data was collected from the various B2B exchange Websites[2] as well as from Lexis-Nexus and newswires. The sampling design in our study is a nested design, where the sample of firms is decided by the exchanges that are included in the study and the publicly available information about the firms joining date.

Description of Data

The initial dataset consisted of 356 events. After discarding firms which are not listed on US stock exchanges and/or for which data regarding their B2B adoption dates were unavailable or ambiguous, our sample consists of 107 events, of which 11 events are in 2002, 28 in 2001, 66 in 2000 and 1 each in 1999 and 2003. We also drop firms for which stock-price data is not available for the estimation period. Our final sample consists of 88 events.

SIC Code	SIC Description (1987)	N	SIC Code	Description	N
10	Metal Mining	1	37	Transportation Equipment	7
20	Food and Kindred Products	17	42	Motor Freight Transport. & Warehousing	1
22	Textile Mill Products	1	45	Transportation by Air	6
25	Furniture and Fixtures	1	49	Electric, Gas and Sanitary Services	5
26	Paper and Allied Products	2	51	Wholesale Trade (Non-durable)	1
28	Chemical and Allied Products	15	52	Building Materials, Hardware, Garden Supply	1
29	Petroleum and Coal Products	6	53	General Merchandise Stores	3
33	Primary Metal Industries	4	54	Food Stores	2
34	Fabricated Metal Products	2	57	Furniture, Furnishings and Equipment Stores	2
35	Industrial Machinery & Equip.	1	59	Miscellaneous Retail	3
36	Electric. & Electronic Equip.	4	73	Business Services	1
00	(Identifier/SIC not located)	1			

Table 1. Distribution of Sample Firms based on 2-digit SIC Classification

[2] The sampling frame included all the B2B exchanges that are listed in the following two B2B directories: Forbes Best of the Web B2B Directory 2000 (http://www.forbes.com/bow/b2b/main.jhtml) and a B2B Directory included in a book named "B2B Exchanges 2.0: Not all e-markets are dot-bombs" (Woods, W. W. (2002) *B2B Exchanges 2.0: Not all e-markets are dot-bombs,* ISI Publications.

Table 1 provides the industry classification (as per 2 digit SIC codes) of firms included in our sample. Overall 22 industries are represented in the sample; however only 14 industries have more than one firm and 10 industries have more than 2 firms. The SIC codes (20-39) were used to classify firms as manufacturing or non-manufacturing firms.

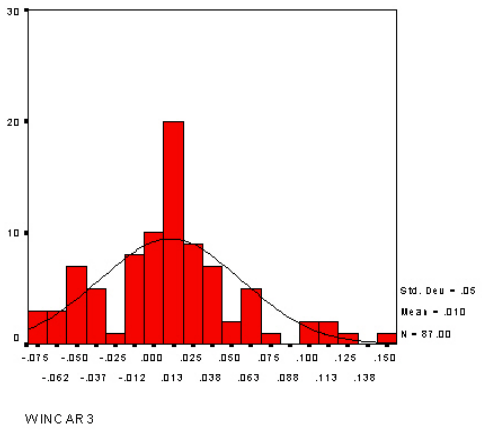
	Ownership		**Exchange USP**			**Firm Type**		**Firm's Role**			
Exchange Name	**Consortium**	**Public**	**Trans-actional**	**Collab-oration**	**Both**	**Manuf.**	**Non-Manuf.**	**Buyer**	**Seller**	**Both**	**Total**
Aeroxchange	✓		✓				2	2			2
B2eMarkets		✓			✓	2	1	3			3
Chemconnect		✓	✓			1				1	1
Cordiem		✓	✓			1	4	4	1		5
Covisint	✓		✓			9			9		9
e2open		✓		✓		5	1	6			6
Elemica		✓		✓		1		1			1
enermetrix		✓	✓				4	4			4
Envera		✓	✓			5				5	5
houstonStreet.com		✓	✓				1			1	1
nistevo		✓		✓		5		5			5
quadrem	✓		✓			3	2		1	4	5
SCO logistics		✓		✓		1		1			1
trade-ranger	✓				✓	5		5			5
transora	✓			✓		20	1			21	21
WWRE	✓				✓	2	11	13			13
Total	55	32	32	34	21	60	27	44	11	32	87

Table 2. Classification of Exchanges in the sample on the basis of Exchange Ownership and USP, Firm's Type and Role

The classification of exchanges and firms on other relevant attributes are based on information available from the news releases and from the exchange Websites. Classification of the exchanges in the sample on the basis of Ownership and USP and sample breakup based on the firm type and firm's role in an Exchange is shown in table 2.

RESULTS

Stock data is obtained from the CRSP database to calculate the abnormal returns for the firms in the sample within the 3 different time windows -- 5 days (-2,2), 3 days (-1,1) and 0 day. We estimate a market model using ordinary least squares. The CRSP equally weighed market index is used for estimating cumulative abnormal returns (CARs). The estimation period is 255 days in length and ends 46 days before the event date. The descriptive statistics for the dependent variable i.e. cumulative abnormal return are shown in Table 3.



Panel A: Distribution of mean CAR (WINCAR3)

Min.	**Max.**
-0.0778	0.1562
Mean	**Std. Deviation**
0.01038	0.04583
Skewness	
Statistic	**Std. Error**
0.506	0.258
Kurtosis	
Statistic	**Std. Error**
0.88	0.511

Panel B: Descriptive Statistics for mean CAR

Table 3. Sample Description (in terms of dependent variable i.e. CAR)

The mean CAR for each exchange is reported in Table 4. It can be seen that mean CAR of all the firms joining an exchange was positive for 8 exchanges (Cordiem, Covisint, Elemica, Envera, Quadrem, Trade-Ranger, Transora, and WWRE which together cover 64 out of 87 events). Mean CAR of all the firms joining an exchange was found to be negative for the other exchanges in our sample (i.e. 10 exchanges covering 22 events).

Exchange ID	Exchange Name	Mean CAR	N	Std. Dev.
1	Aeroxchange	-0.0371	2	0.05024
2	B2eMarkets	-0.0061	3	0.03074
3	ChemConnect	-0.0347	1	.
4	Cordiem	0.02897	5	0.02477
5	Covisint	0.00267	9	0.03754
6	E2Open	-0.0197	6	0.05235
8	Elemica	0.02346	1	.
9	Enermetrix	-0.0157	4	0.05616
10	Envera	0.0067	5	0.03398
11	HoustonStreet.com	-0.0519	1	.
12	Nistevo	-0.0128	5	0.03149
14	Quadrem	0.01222	5	0.01791
15	SCO Logistics	-0.061	1	.
16	Trade-ranger	0.0159	5	0.0359
17	Transora	0.01989	21	0.02298
18	WWRE	0.04645	13	0.07366
Total		0.01038	87	0.04583

Table 4. Distribution of Mean CAR (in a 3-day window)

Table 5 illustrates the cumulative abnormal returns (CARs) for the overall sample and for the different groups of firms and exchanges. We present the results for the 3-day event window. The results of 5-day window are very similar to the 3-day window in terms of the direction and significance of the effects.

Impact of Exchange and Industry

Effect of individual exchanges using ANOVA test, was found to be insignificant. We also perform a Tukey's multiple comparisons test for exchanges[3]. Our results indicate that the exchange in itself was not a significant determinant of the abnormal returns accruing to participating firms. A Tukey test (alpha=.05) was not able to detect any differences in the CAR accruing to firms joining the different exchanges.

However, we find that there is a strong support for hypothesis-H1 that the industry in which a firm operates is a significant predictor of abnormal returns accruing to firms joining a B2B exchange. Even after controlling for the exchange, the industry to which the firms belongs remains a significant factor that affects the value-added to participating firms. There are no significant interaction effects between the industry to which a firm belongs and the exchange.

Group	N	**Mean CAR (in %)**	**Significance**
Overall	88	1.04	*
Firm Type			
Manufacturer	60	0.36	
Non-Manufacturer	27	2.54	**
Ownership			
Consortium	55	2.02	***
Public	32	-0.65	
Role of Firm			
Buyer	44	0.99	$
Seller	11	0.72	
Both (Buyer and Seller)	32	1.21	*
USP			
Transaction	32	0.12	
Collaboration	34	0.58	
Both (Transaction and Collaboration)	21	3.17	***
Note: $, *, ** and *** denotes significance at 10%, 5%, 1% and 0.1% levels, respectively (one tailed t-test). N is the number of events. The figures are mean cumulative abnormal returns (in percentages) within the 3-day window.			

Table 5. Mean CAR around the announcement of joining a B2B exchange.

We conduct exploratory post-hoc tests to examine the value of B2B exchanges to firms in different industries. We find that firms in the food retailing benefit the most from joining online B2B marketplaces. Another interesting finding is that while firms from multiple industries (such as furniture, furnishing equipments [SIC 57], general merchandise [SIC 53] and food stores [SIC 54]) joined the same online B2B marketplace WWRE, the food store retailers gained the most, followed by

[3] For this specific analysis, we discard 4 exchanges that have only one firm in the dataset.

general merchandisers. On the other hand, firms belonging to the Electrical and Electronics Equipment industry experienced the smaller increase in abnormal returns.

Impact of Firm and Exchange Attributes

We analyzed the impact of firm (type and role) and exchange (governance and value-proposition) related attributes and their interactions. We perform six 2-way ANOVA tests, one for each of the six combinations of the 4 attributes (2 firm-specific and 2 exchange-specific) to test for interactions. All[4] the interaction terms (relating to firm type, firm role, exchange governance and exchange value-proposition) were insignificant at alpha=0.05. Therefore, we can safely ignore the interactions and analyze the main effects of each attribute by performing Tukey's tests. The results of the AVOVA and tukey test are documented in table 6 and 7, respectively.

	Sum of Squares	Significance
Exchange Effect	0.04865	0.061
Industry Effect	0.08977	**0.001**
Exchange USP Effect	0.0129	**0.045**
Governance Effect	0.01448	**0.008**
Firm's Role Effect	0.00021	0.952
Firm's Type Effect	0.00888	**0.039**

Table 6. Results of ANOVA Analyses

Impact of Firm Attributes

A comparison of *manufacturing* and *non-manufacturing* firms using Tukey test (alpha=.05) shows that non-manufacturing firms (mean wincar3=0.0254) earn a significantly higher CAR than manufacturing firms (mean wincar3=0.0036), thus supporting our hypothesis H2.

We also find that firms that join an exchange as both a buyer and supplier earn higher CAR (mean wincar3=0.0121) than those that join only as buyer (mean wincar3=0.0099) or supplier (mean wincar3=0.0072). Though the effect is on the posited direction, the differences are not significant (alpha = .05). Hence, we cannot accept hypothesis H3a and H3b.

Impact of Exchange Attributes

We find that B2B exchanges providing both collaborative *and* transactional features add greater value to firms (mean wincar3=0.0317) than exchanges providing only transactional services (mean wincar3=0.0012). Also, exchanges providing both collaborative and transactional features are marginally more valuable than those providing only collaborative features, but the difference is not significant. Further, though pure-collaborative exchanges lead to higher CAR (mean wincar3=0.0058) as compared to pure-transactional exchanges (mean wincar3=0.0012) the difference is not statistically significant.

We also find that consortia-led exchanges generate higher value (mean wincar3=0.0202) to participating firms than public exchanges (mean wincar3=-0.0065), thus supporting H5. Joining a public exchange, in fact, leads to negative CAR for the participating firm.

[4] It is pertinent to note that some of these combinations suffer from lack of adequate data points, affecting the validity of these results.

	Group 1 - Group 2	**Difference**
Role of the Firm		
	Buyer – Seller	0.002721
	Both – Buyer	0.002161
	Both – Seller	0.004882
Exchange USP		
	Collaboration - Transaction	0.004583
	Both - Collaboration	0.025844
	Both - Transaction	0.030427 *
Note: * denotes the significance of difference at alpha=0.05, using Tukey's test		

Table 7. Multiple Comparison Results

DISCUSSIONS AND CONCLUSION

Our findings illustrate that firms joining an online B2B marketplace experience a significant positive cumulative abnormal return of 1.04%, on an average, over a 3-day event window. This serves as a useful validation and measure of the value of online exchanges to participating firms. In comparison, Chen et al (2001) find that stakeholders in an exchange experience a positive abnormal return of 7.38% over a 3-day time period, suggesting that exchange owners were able to appropriate a greater part of the surplus created by these mechanisms. While it is clear that participation in online B2B marketplaces add value to firms, the value-addition varies widely depending of firm, industry and exchange related attributes (see table 8 for summary of the results). Contrary to the findings in the context of EDI, where buyers are the primary beneficiaries, we find that B2B exchanges are equally beneficial to both buyers as well as sellers. This is consistent with the findings of Choudhury et al. (1998) and generalizes the result to a much broader set of B2B exchanges.

Our findings also highlight the importance of marketplace design variables for exchange providers and the need for a judicial choice of service offering as well as positioning for different target segments. Trade press documents that online B2B marketplaces initially aimed to reduce transaction costs for their participants by providing pure transaction-based services but have started to differentiate themselves by providing collaboration tools in addition to transactional services. Marketplaces such as Elemica are increasingly positioning themselves as pure collaborative exchanges. Our results suggest that while collaboration features of an exchange are more valuable than transactional features, exchanges that provide a good balance of transactional and collaboration features are the most beneficial to member firms.

In addition, our findings show that exchange ownership and governance plays a crucial role in their success. It is possible that a poorer knowledge of the industry and the lack of adequate participation might create stumbling blocks for public exchanges, while exchanges owned by a consortium of firms within the industry are more likely to benefit from their ability to leverage existing resources and networks. While our results provide a glimpse into the relative value of different exchange governance mechanisms, a more detailed analysis is required for a better understanding of the factors that lead to the success of consortia-owned exchanges, and more specifically the failure of public exchanges.

Our study suffers from a number of limitations. While the event study methodology is particularly valuable in understanding the impact of the various factors on value-added to firms, the method does not shed light on the specific ways in which a firm is able or unable to leverage its choices in a beneficial way. Our study also suffers from lack of adequate data for measuring all the interaction effects, consequently biasing some of the results. Additional controls for firm and industry specific variables would also help refine the results of our study.

Hypothesis	Result	Significance
H1: *The abnormal return attributable to a firm joining a B2B exchange will depend on the* ***industry*** *in which it operates.*	As Expected	Significant
H2: *AR (****non-manufacturing****) > AR (****manufacturing****)*	As Expected	Significant
H3a: *AR (****buyer****) <> AR (****seller****)*	As Expected	Not significant
H3b: *AR (****buyer + seller****) > AR (****seller****)*	As Expected	Not Significant
*AR (****buyer + seller****) > AR (****buyer****)*	As Expected	Not Significant
H4a: *AR (****collaboration exchange) >*** *AR (****transaction based exchange****)*	As Expected	Not significant
H4b*: AR (****collaboration + transaction****) > AR (****transactional exchange****)*	As Expected	Significant
*AR (****collaboration + transaction****) > AR (****collaboration exchange****)*	As Expected	Not significant
H5: *AR (****Consortium sponsored exchange) >*** *AR (****Public****)*	As Expected	Significant

Table 8. Summary of Results

In summary, our research has examined how industry, firm (type of firms and its role as a buyer or seller or both) and exchange (exchange-governance and value-proposition) related attributes affect the value-added to a firm participating in an online B2B exchange. The empirical literature on the value of participating in B2B exchanges is still in its infancy (Kauffman and Walden, 2001), and we hope our research would serve as a cornerstone for future empirical studies and theory development.

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