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DETERMINANTS OF INFORMATION TECHNOLOGY OUTSOURCING

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Abstract

Financial reporting is a key outputs of Information Technology (IT). Thus to assure the reliability of financial reporting, the IT audit has to be evaluated. The evaluation of IT Audit is necessary also when the IT is outsourced.

This paper aims to identify the determinants of the Information Technology Outsourcing (ITO) decision in Italy and to test empirically the ITO framework developed theoretically by Lacity et al. (2011), using the variable construction based on Lacity et al. (2010). We use a questionnaire addressed to Italian companies which are today obliged to comply with Law 262/2005. The aim is to test the reliability of financial reporting through the evaluation of internal control, such as IT audit. We control for the non-response bias. We build a panel data for our regression model. We find that client firm characteristics, Task Complexity and ITO outcomes are significant for Italian listed companies in the ITO decision. The findings are original in that they concern a country which has specific characteristics and where very little empirical research exists on the topic.

Keywords: Information Technology, Auditing, Outsourcing, ITO decision, ITO outcomes
JEL classification: M42

1. INTRODUCTION

Financial reporting is a key output of Information Technology (IT). Information Technology Outsourcing (ITO) has been defined as ~~"~~the practice of transferring the management of IT assets and staff, and the delivery of IT services such as data entry, data center operations, applications development, applications maintenance, and network management to third-party vendors" (Hall and Liedtka 2005).

The objective of the paper is to identify the determinants of ITO decisions in Italy and to test empirically the ITO framework developed theoretically by Lacity et al. (2011) using the variable construction based on Lacity et al. (2010).

We develop the research building a questionnaire and addressing it to companies that have to comply with Law 262/2005 in Italy. These companies have been investigated

because the compliance with this law requires the evaluation of Information Technology Audit also when the IT is outsourced.

We find that some relevant variables discovered by previous international literature (Client firm characteristics, Task Complexity and ITO outcomes) are significant for Italian listed companies in the ITO decision. These results are interesting because this country (Italy) has specific characteristics, so that ITO is considered mainly by small companies, with better performances, lower leverage and lower degree of internationalization.

2. LITERATURE REVIEW

There are many reviews of ITO literature. Dibbern et al. (2004) covered the literature up until the year 2000. They organized ITO papers by whether the papers focused on the ITO decision (why, what, which) and/or implementation (how, outcome). One of their many findings was that 46 (55%) of the articles focused on why firms make outsourcing decisions. Dibbern et al. (2004) also analyzed the theories used in ITO research, and found that the most frequently used were TCE (19%), strategic management theories (17%), and Agency Theory (12%).

Fjermestad and Saitta (2005) conducted a selective review of 29 articles on ITO and strategic decision-making. The purpose of their review was to compose a critical factors framework. The resulting framework has eight components: alignment of business strategy, contracts, infrastructure and technology, culture, strategic partnership, management support, governance committees, and economics.

Mahnke et al. (2005) reviewed 19 ITO articles that used TCE, Resource-based View (also called the Competence Perspective), and the Relational View or some combination of the three theories. The purpose of the review was to propose a process model of ITO based on empirical findings from these three tested theories. They concluded that the independent variables from current theoretical explanations are too limited. They also noted that research shows wide variety in the dependent variable, in that outsourcing performance has been measured as degree of outsourcing, outsourcing intensity, outsourcing expenditure, technological performance, partnership quality, exchange performance, and cost savings achieved.

Gonzalez et al. (2006) analyzed 131 articles on ITO published between 1988 and 2005. The authors analyzed the perspectives of the articles and found that 82% assume a firm-level perspective. Specifically, 49% of the articles adopted the perspective of the client firm, 16% assumed the perspective of the supplier firm, and 17% considered both. The rest of the articles assumed larger units of analyses (such as a country or IT industry), or smaller units of analyses (such as the effect of ITO on IS staff).

Lacity et al. (2009) organized 191 ITO articles published between 1990 and 2008 around six practitioner concerns: (1) the types of firms most likely to outsource ITO, (2) the strategic intent and effects of ITO decisions, (3) the risks of ITO and risk mitigation strategies, (4) practices associated with successful ITO deals, (5) client and supplier capabilities, and (6) the extent to which ITO practices must be adapted for other forms of outsourcing such as business process outsourcing (BPO) and ASP.

Alsudairi and Dwivedi (2010) examined outsourcing research across 38 disciplines. They categorized 315 outsourcing articles published from 1992 to 2008. Among their findings, management had the most articles on outsourcing (136 articles), followed by information systems (128 articles). The Journal of Information Technology was the most

frequent outlet for outsourcing articles with 23, followed by Information & Management with 18 articles. US authors accounted for 52% of the articles, followed by UK authors with 15% of the articles. The most cited papers were published in MIS Quarterly and Sloan Management Review.

Lacity et al. (2010) coded the findings of 164 ITO articles published from 1992 to the first quarter of 2010 focusing on findings at the level of dependent and independent variables and the relationships between them.

Transaction Cost Economics (TCE) was the most frequently appropriated theoretical framework for the study of ITO (Klein, 2002; Dibbern et al., 2004; Lacity et al., 2011). TCE's main tenet is „to align transactions, which differ in their attributes, with governance structures, which differ in their costs and competencies, in a discriminating (mainly, transaction cost economizing) way" (Williamson, 1991, p. 79). In this sense, TCE clearly focuses make-or-buy decisions on the constructs of transaction attributes, governance structures, costs and has therefore been viewed as a strong theoretical base for analyzing ITO decisions (e.g. Aubert et al., 1996). As Karimi-Alaghehband et al. (2011) note, the empirical results of TCE tests in the context of ITO are mixed. Their interpretation of the mixed empirical results assumes ITO researchers frequently misappropriate the theory. TCE often operates better as a normative theory (Poppo and Lacity, 2002, 2006) and ITO researchers frequently ignore interaction effects. Lacity et al. (2011) offer additional insights into the mixed TCE results based on review of the empirical ITO literature. 73 empirical findings of TCE were found in 31 ITO articles. These papers are Alvarez-Suescun (2010), Ang and Straub (1998), Aubert et al. (2004), Barthélemy and Geyer (2005), Barthélemy (2001), Chen and Bharadwaj (2009), Clark et al. (1995), Diana (2009), Dibbern et al. (2008), Espino-Rodríguez and Gil-Padilla (2005), Gefen and Carmel (2008), Goo et al. (2007), Kern et al. (2002a,b), Kim and Chung (2003), Lacity and Willcocks (1995), Loebbecke and Huyskens (2006), Mayer and Salomon (2006), Miranda and Kim (2006), Nam et al. (1996), Oh et al. (2006), Poppo and Zenger (1998), Poppo and Zenger (2002), Rottman and Lacity (2008), Smith and Mckeen (2004), Stemersch et al. (2003), Thouin et al. (2009), Tiwana and Bush (2007), Wahrenburg et al. (2006), Wang (2002), Watjatrakul (2005), Wholey et al. (2001). Of these, slightly less than half of the empirical findings supported TCE logic. We are asking too much of TCE—the ITO phenomenon is more complex than can be accommodated by one decision- making theory. ITO research has matured to the point that we should be building our own endogenous theory rather than continuing to rely heavily on reference discipline theories. Thus Lacity et al. (2011) provide an ITO theoretical framework. They identify as determinants of ITO: transaction attributes, client firm characteristics, motivation to outsource, influence sources. They show that there is also a correlation with ITO outcomes that are dependent on: client firm capabilities, supplier firm capabilities, contractual governance, relational governance, decision characteristics and transaction attributes.

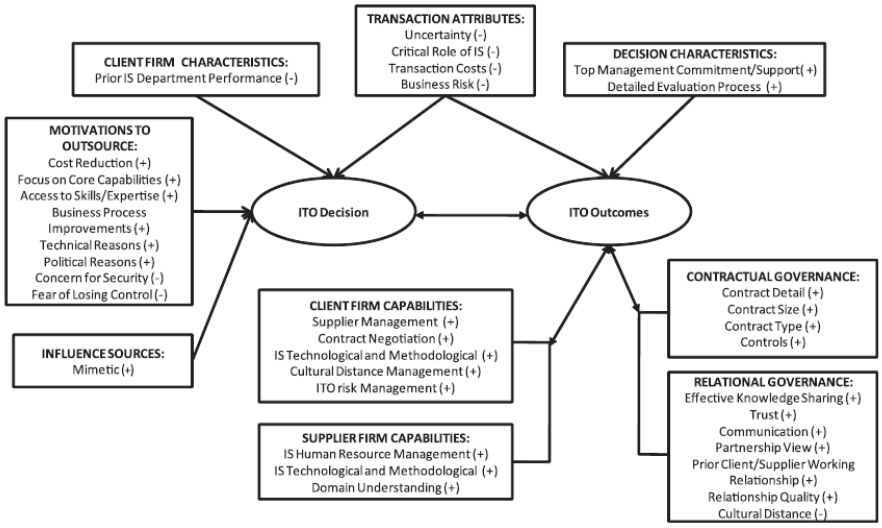

Figure no. 1 ITO framework

3. RESEARCH QUESTIONS

Our research question investigates the determinants of ITO, following framework put forward by the Lacity et al. (2011).

The determinants of ITO are: transaction attributes, client firm characteristics, motivation to outsource, influence sources and ITO outcomes. For each of these Construct categories we identify a variable to use in our regression model. We identify the variable based on the variable analysis of Lacity et al. (2010).

1. Client firm characteristics are Client Size, Prior Firm Performance, Financial Leverage and Business Strategic Type proxied by Internationalization;
2. Motivation to outsource are Focus on Core Capabilities/ Access to Expertise/ Skills proxied by Industry;
3. Influence sources come from Normative influence;
4. Transaction attributes are Task Complexity/ Task Structure/ Technical Knowledge Required based on the type of service outsourced coded from the less complex to the more complex: 0 = nothing, 1 = application services (ASP or license for use), 2 = front and back office management, documentation, printing and mailing, 3 = IT infrastructure and help desk, security, disaster recovery and business continuity management, 4 = full outsourcing;
5. ITO outcomes come from a composite index of Contractual governance, Relational governance, Client firm capabilities, Supplier firm capabilities, Decision characteristics, Transaction attributes. The weight of the elements on the composite index come from the correlation matrix results.

Based on the framework by Lacity et al. (2011), the variable that influences ITO outcomes can also be viewed as a determinant of the ITO decision, because there is a correlation between ITO outcomes and ITO decision. Thus we include the last composite index to control for this correlation. The Variables affecting ITO outcomes included in the index are:

1. Contractual governance; i.e. the degree of detail in clauses in the outsourcing contract, such as clauses that specify prices, service levels, benchmarking, warranties, and penalties for non-performance (e.g., Poppo and Zenger, 2002);
2. Relational governance; i.e. prior Client/Supplier Working Relationships;
3. Client firm capabilities; i.e. capabilities on IS Technical, Risk Management, Contract Negotiation proxied by Firm Age;
4. Supplier firm capabilities from Supplier Reputation;
5. Decision characteristics based on Engagement of Multiple Suppliers;
6. Transaction attributes are Task Complexity/ Task Structure/ Technical Knowledge Required based on the type of service outsourced as described above.

Table no. 1 Variable definition

Construct category	Variables	Definition	Data Source
Dependent			
ITO DECISION	Outsourcing Decision-Make or Buy	The dependent variable that has been used with the highest frequency in the literature (Lacity et al. 2010) 0 = IT is an in-house system 1 = IT system is in outsourcing.	Questionnaire
ITO DECISION	Outsourcing Decision – Degree of Outsourcing	Number of services outsourced	Questionnaire
ITO DECISION	Outsourcing Decision – Degree of Outsourcing	Percentage of services outsourced based on full outsourcing (100%)	Questionnaire
Independent			
Client firm characteristics	Client Size	Ln(total asset t)	Financial Reporting
Client firm characteristics	Prior Firm Performance	Operating income t-1 / total asset t-1	Financial Reporting
Client firm characteristics	Financial Leverage	Equity t / total asset t	Financial Reporting
Client firm characteristics	Business Strategic Type proxied by internationalization	1 = presence of other comprehensive income following the requirement of IAS 21 in the income statement of 2010 0 = otherwise	
Motivations to outsource	Focus on Core Capabilities/ Access to Expertise/Skills proxied by industry	0 = {manufacturing and service} 1 = {insurance, banking and finance}. Finance industry (coded 1) has more need to outsource in order to focus on its core capabilities (e.g. Linder, 2004) because of the regulation requirement (they are more regulated by Bank of Italy/ National Organization for Insurance ISVAP).	Borsa Italiana
Influence Sources	Influences – Normative	In this sample all the companies have to comply with law 262/2005 and evaluate internal information technology controls given	Regulation

		in outsourcing. Thus we exclude this variable because it result constant over the observation.	
Transaction attributes	Task Complexity/ Task Structure/ Technical Knowledge Required	0 = nothing 1 = application services (ASP or license for use) 2 = front and back office management, documentation, printing and mailing 3 = IT infrastructure and help desk, security, disaster recovery and business continuity management 4 = full outsourcing	Questionnaire
ITO outcomes	Composite index	The factor score of the variables affective ITO outcomes	Factor analysis
Variables affecting ITO outcomes			
Contractual governance	Contract Detail	The degree of detailed clauses in the outsourcing contract, such as clauses that specify prices, service levels, benchmarking, warranties, and penalties for non-performance (e.g., Poppo and Zenger, 2002)	Questionnaire
Relational governance	Prior Client/Supplier Working Relationship	1 = the supplier of the prior period is the same of this period 0 = otherwise	Questionnaire
Client firm capabilities	Capabilities on IS Technical, Risk Management, Contract Negotiation proxied by firm age	Number of years since the foundation year to actual year t (from firm website)	Web Site
Supplier firm capabilities	Supplier Reputation	When the client address only 1 supplier for all the services, the reason is linked with its higher reputation. 1= only 1 supplier 0=otherwise	Questionnaire
Decision characteristics	Engagement of Multiple Suppliers	Number of suppliers at which each client ask the outsourcer service.	Questionnaire
Transaction attributes	Task Complexity/ Task Structure/ Technical Knowledge Required	0 = nothing 1 = application services (ASP or license for use) 2 = front and back office management, documentation, printing and mailing 3 = IT infrastructure and help desk, security, disaster recovery and business continuity management 4 = full outsourcing	Questionnaire

RQ: What are the determinants of ITO decision?

4. METHODOLOGY

4.1 Questionnaire

We conducted the research through a questionnaire drafted in collaboration with external auditors from one of the Big4. Components for each construct were based on frameworks. External auditors made a key contribution in ensuring language would be comprehensible for the target companies. The questionnaire included multiple choice and yes/no questions about the procedures implemented for the evaluation process, with none of the questions requiring discretionary judgment.

The questionnaire was next tested on three firms: a bank, an insurance firm, and a manufacturing firm from the target population. On the basis of their responses and comments, the questionnaire, the study design, and the measurement of some constructs were slightly adapted.

The questionnaires focused on evaluating the year 2010 and were distributed by email in 2011. Responses were received in a narrow time frame of three months. The distribution procedure involved sending a survey package containing the questionnaire and a covering email underlining the importance of the research and encouraging firms to reply. In order to increase the response rate, companies which had not yet responded were contacted by phone after three weeks.

We opted to make the questionnaire confidential, i.e. although the names of respondent companies are known to us they are not disclosed here and results are shown only in aggregate form. We were thus able to link the data collected by questionnaires with other sources. Finally, we hand-collected data from the consolidated annual reports 2009-2010-2011 of firms using *International Financial Reporting Standards* (IFRS) from company websites and the website of the *Borsa Italiana*, the Italian Stock Exchange.

In addition, it was emphasized that the research was under the auspices of a well-known university, widely recognized as trustworthy, so that firms could be confident that sensitive information would not be disclosed.

Excel and STATA software packages were used to perform statistical analyses.

4.2 Sample Selection

The population is the 255 Italian companies listed on the Milan Stock Exchange. We sent the questionnaire to 122 companies which expressed interest in the research (Table 2). We received 109 answers (response rate: 89%; 43% of the population). Among respondents, 50 firms operate an ITC evaluation process. This sample thus represents nearly 20% of the population (50 of 255).

Table no. 2 Sample Selection

	Total	**Manufacturing and service industry**	**Finance industry**
Total number of companies listed on the Milan Stock Exchange in 2010	255	219	36
Less companies which have not accepted to answer because they consider private data sensible information	-133	-127	-6
Total companies to whom questionnaire sent	122	92	30
Less companies that do not answer at the questionnaire	-13	-8	-5

(Response rate: 89%; 43% of the population)			
Total number of companies that answer the questionnaire	109	84	25
Less number of companies without an ITC evaluation process	-59	-53	-6
Total number of companies with an ITC evaluation process (about 20% of the population)	50	31	19
Total number of observations for the period 2009-2010-2011	150	93	57

We performed tests for non-response bias and for the generalization of the results, and checked whether our results were affected by unknown factors that systematically distinguished respondents from non-respondents, and between companies without an ITC evaluation process (control group in Panel A, Table 3) and respondents from the other firms of the population (control group in Panel B, Table 3). We compared the mean of profitability and size between our sample and the control group. Control group data was collected from the financial reporting database DATASTREAM/WORLDSCOPE. The results in Table 3 show no evidence of a non-response bias and no evidence of difference with other firms in the population according to either profitability or size.

Table no. 3 Mean Comparison

Variable	**Sample Mean**	**Control group Mean**	**Two-groups mean comparison t test with unequal variances (two-tailed p-value)**
Panel A – Non-respondents (13) and companies without an ITC evaluation process (59)			
Size (total assets)	30173207,46	27845841	-0.1134 (0.9099)
Profitability (operative income/total assets)	0.0143167	0.0307055	1.1608 (0.2480)
n	50	72	
Panel B – Other firms of the population (203)			
Size (total assets)	30173207	11804580	-1,6044 (0.1124)
Profitability (operative income/total assets)	0.0143167	0.0074759	-0.6131 (0.5406)
n	50	203	

4.3 Model

ITO decision = α + β1 Transaction attributes + β4 Client firm characteristics + β6 Motivation to outsource + β8 Influence sources +β10 ITO outcomes

ITO decision can be: Outsourcing Decision-Make or Buy or Outsourcing Decision – Degree of Outsourcing (number or percentage). We show the descriptive statistics for both

and we use the continuous variables (number or percentage) to run the Ordinary Least Square regression.

For descriptive statistics we show Mean, Standard Deviation, Quartile (first/Q1, second/Median and third/Q3), Minimum and Maximum for continuous variables and the frequency for dummy variables.

For the Ordinary Least Square regression we show the β coefficient, the t-value in parenthesis and the significance level in asterisks. We interpret the sign of the coefficient to understand the direction of the relation between the independent and the dependent variables if the coefficients result significant based on t-value and stars. We include a constant to control for un-measurable elements.

4.4 Panel

We assume that the evaluation procedures of ITC do not change in the short term, given that they require high investments and a long training process. We therefore constructed a panel data set of questionnaire data for one year before and one year after 2010, which thus comprised data from the three years 2009, 2010 and 2011. We matched the questionnaire data with the financial data for each fiscal year. The final samples thus comprise 150 observations. We include the year fixed effect in the regression.

5. RESULTS

5.1 Descriptive statistics of ITO decision

The majority of companies in our sample (64%) outsource IT (Table 4, Panel B). The number of services outsourced is quite low, with a median equal to 1 and a mean equal to 2 (Table 4, Panel A) and the percentage of services outsourced is less than 50% with a mean of 36.7% and median of 20% (Table 4, Panel A).

Table no. 4 Descriptive statistics - Dependent Variables

	Mean	**Std. dev.**	**Q1**	**Median**	**Q3**	**Min**	**Max**
Panel A - Continuous and ordinal variables							
Outsourcing Decision – Degree of Outsourcing (number)	2	3	0	1	2	0	10
Outsourcing Decision – Degree of Outsourcing (percentage)	36.7%	40%	0	20%	70%	0	100%
				YES	**NO**		
Panel B – Binary variables							
Outsourcing Decision-Make or Buy				0.64	0.36		

5.2 Descriptive statistics - Determinants of ITO decision

Descriptive statistics show stable firm size in the sample (standard deviation of 2), a positive level of ROA in mean showing profitability and a financial leverage for which in mean the equity is 25% of the total asset showing capitalized firms (Table 4, Panel A). Task

complexity is 2 over a maximum of 4 and the ITO outcome shows the descriptive statistics of the composite index output of a factor analysis (Table 4, Panel A). The majority of companies in our sample are non-financial firms without a strategy of internationalization, with a frequency of 0.38 and 0.46 respectively (Table 5, Panel B).

Table no. 5 Descriptive statistics- Independent Variables

	Mean	**Std. dev.**	**Q1**	**Median**	**Q3**	**Min**	**Max**
Panel A - Continuous and ordinal variables							
Client Size	15	2	13	16	17	10	20
Prior Firm Performance	0.015	0.05	0.003	0.022	0.057	-0.18	0.18
Financial Leverage	0.25	0.18	0.09	0.22	0.36	0.0001	0.71
Task Complexity	2	2	0	1	3	0	4
ITO outcomes							
				YES	**NO**		
Panel B – Binary variables							
Internationalization				0.46	0.54		
Industry				0.38	0.62		

5.3 Descriptive statistics - Determinants of ITO outcome

Companies outsourcing ITC prefer to deal with few suppliers, mean of 2 and median of 1 supplier (Table 6, Panel A) because supplier reputation is high, 66%. By panel construction the relationship is 100% (Table 6, Panel B). The client capabilities proxied by the firm age show that Italian companies are quite old, mean of 75 and median of 63 years from the first year of the business and that the task complexity outsourced is high, mean and median of 3 over the maximum of 4 (Table 6, Panel A). Contract details are present in the majority of the sample, 52% (Table 6, Panel B).

Table no. 6 Descriptive statistics- Variables affecting ITO outcomes

	Mean	**Std. dev.**	**Q1**	**Median**	**Q3**	**Min**	**Max**
Panel A - Continuous and ordinal variables							
Task Complexity	3	1	1	3	4	0	4
Client firm capabilities	75	49	33	63	119	11	178
Engagement of Multiple Suppliers	2	1	1	1	2	1	7
				YES	**NO**		
Panel B – Binary variables							
Contract Detail				0.52	0.48		
Prior Client/Supplier Working Relationship				1.00	0.00		
Supplier Reputation				0.66	0.34		

5.4 Regression results

The RQ explores determinants of the ITO. The results (Table no. *7*) support the framework proposed by Lacity et al. (2011) and the results of prior literature. We find that transaction attributes, client firm characteristics and ITO outcomes are determinants of ITO decision.

We find significant relationships between Client Size, Prior Firm Performance, Financial Leverage, Business Strategic Type proxied by Internationalization. Specifically it seems that client size has a negative relationship with ITO decision (-0.0193 significant at 5% level) which is particularly true of smaller companies. Better performances generate resources that may lead to an ITO decision (the regression coefficient shows a positive relation: 0.758 significant at 1% level) while companies with a risky leverage show a lower probability of ITO decision (the regression coefficient shows a positive relation: -0.270 significant at 1% level). Task Complexity presents a positive relation with the ITO decision: a possible interpretation could be that companies tend towards full outsourcing (the regression coefficient show a positive relation: 0.231 significant at 1% level). Finally, ITO outcomes, deriving from a composite index of Contractual governance, Relational governance, Client firm capabilities, Supplier firm capabilities, Decision characteristics and Transaction attributes, show an indirect relation with ITO decision. The regression coefficient shows a negative relation: -0.44 significant at 1% level.

Prior Firm Performance and Task Complexity show a stronger relation because they are significant in both regressions.

In the regression using the Number as proxy for Degree of Outsourcing, the degree of internationalization show results similar to client size: a negative relation with ITO decision (-0.626 significant at 10% level).

Table no. 7 Regression Results

	Outsourcing Decision – Degree of Outsourcing	Outsourcing Decision – Degree of Outsourcing
	Number	Percentage
Client Size	-0.0163	-0.0193**
	(-0.19)	(-2.53)
Prior Firm Performance	4.839*	0.758***
	(1.82)	(3.32)
Financial Leverage	-0.25	-0.270***
	(-0.22)	(-2.78)
Internationalization	-0.626*	-0.0317
	(-1.87)	(-1.09)
Task Complexity	1.139***	0.231***
	(11.7)	(27.72)

Industry	0.0991	0.0306
	(0.18)	(0.65)
ITO outcomes	-0.193	-0.044***
	(-1.27)	(-3.38)
Constant	0.479	0.332***
	(0.38)	(3.06)
Year fixed effect	*included*	*included*
Adj. R^2	0.49***	0.85***
Sample size	150	150

t-stat values in parentheses. ***indicates significance at the 0.01 level or better, **indicates significance at the 0.05 level or better, *indicates significance at the 0.10 level or better.

6. CONCLUSIONS

The decision to outsource IT is widely explored by international literature in the field of management, information systems and other disciplines, but in Italy the topic has been relatively little researched until recently. The aim of this paper is to analyze the determinants of the ITO decision, building on the existing literature. We test the most relevant variables of ITO decision in Italy from an auditing perspective. The two original elements (Italian context and the auditing point of view) are introduced into a model where the ITO decision (dependent variable), which includes the degree of outsourcing, is associated with five classes of possible determinants (client characteristics, industry, transaction attributes, ITO outcome, regulation). Apart from industry and regulation, all the other variables show significant relationships with the ITO decision at varying levels. We find that 64% of Italian listed companies in our sample outsource IT and take this important decision on the basis of size, performance, leverage, internationalization (client characteristics), transactional attributes and ITO outcome. The paper confirms some relevant determinants discovered by previous literature.

The findings are original in that they concern a country where very little empirical research exists on the topic and which has specific characteristics. Limitations are due to sample size and the model used. Our main finding is that the decision to outsource or perform in-house IT is taken by Italian listed companies taking into account some of the most relevant variables proposed by international literature within the cost-benefit principle.

References

Alsudairi, M. and Dwivedi, Y.K., 2010. A Multi-disciplinary Profile of IS/IT Outsourcing Research, Journal of Enterprise Information Management 23(2): 215–258.

Alvarez-Suescun, E., 2010. Combining transaction cost and resource-based insights to explain it implementation outsourcing. Information Systems Frontiers 12 (5), 631–645.

Ang, S. and Straub, D., 1998. Production and Transaction Economies and IS Outsourcing: A study of the U.S. banking industry, MIS Quarterly 22(4): 535–552.

Aubert, B., Rivard, S. and Patry, M., 2004. A Transaction Cost Approach to Outsourcing Behavior: Some empirical evidence, Information & Management 41: 921–932.

Aubert, B., Rivard, S., Patry, M., 1996. A transaction cost approach to outsourcing behavior: some empirical evidence. Information and Management 30 (2), 51–64.

Barthélemy, J., 2001. The hidden costs of IT outsourcing. Sloan Management Review 42 (3), 60–69.

Chen, Y., Bharadwaj, A., 2009. An empirical analysis of contract structures in IT outsourcing. Information Systems Research 20 (4), 484–506.

Barthelemy, J. and Geyer, D., 2005. An Empirical Investigation of IT Outsourcing versus Quasi-outsourcing in France and Germany, Information and Management 42(4): 533–652.

Clark, T.D., Zmud, R. and McCray, G., 1995. The Outsourcing of Information Services: Transforming the nature of business in the information industry, Journal of Information Technology 10(4): 221–237.

Diana, M., 2009. Exploring information systems outsourcing in the US hospital-based health care delivery systems. Health Care Management Science 12 (4), 434–450.

Dibbern, J., Goles, T., Hirschheim, R. and Bandula, J., 2004. Information Systems Outsourcing: A survey and analysis of the literature, Database for Advances in Information Systems 34(4): 6–102.

Dibbern, J., Winkler, J. and Heinzl, A., 2008. Explaining Variations in Client Extra Costs between Software Projects Offshored to India, MIS Quarterly 32(2): 333–366.

Espino-Rodríguez, T., Gil-Padilla, A., 2005. Determinants of information systems outsourcing in hotels from the resource-based view: an empirical study. The International Journal of Tourism Research 7 (1), 35–47.

Fjermestad, J. and Saitta, J., 2005. A Strategic Management Framework for IT Outsourcing: A review of the literature and the development of a success factors model, Journal of Information Technology Case and Application Research 7(3): 42–60.

Gefen, D. and Carmel, E., 2008. Is the World Really Flat? A Look at Offshoring at an Online Programming Marketplace, MIS Quarterly 32(2): 367–384.

Gonzalez, R., Gasco, J. and Llopis, J., 2006. Information Systems Outsourcing: A literature analysis, Information & Management 43(7): 821–834.

Goo, J., Kishore, R., Nam, K., Rao, H.R. and Song, Y., 2007. An Investigation of Factors that Influence the Duration of IT Outsourcing Relationships, Decision Support Systems 42(4): 2107–2125.

Hall, J. and Liedtka, S., 2005. Financial Performance, CEO Compensation, and Large-Scale Information Technology Outsourcing Decisions, Journal of Management Information Systems 22(1): 193–222.

Karimi-Alaghehband, F., Rivard, S., Wu, S., Goyette, S., 2011. An assessment of the use of transaction cost theory in information technology outsourcing. Journal of Strategic Information Systems 20 (2), 125–138.

Kern, T., Willcocks, L., Van Heck, E., 2002a. The winners curse in IT outsourcing: strategies for avoiding relational trauma. California Management Review 44 (2), 47–69.

Kern, T., Kreijger, J., Willcocks, L., 2002b. Exploring ASP as sourcing strategy: theoretical perspectives, propositions for practice. Journal of Strategic Information Systems 11 (2), 153–177.

Kim, S. and Chung, Y.-S., 2003. Critical Success Factors for IS Outsourcing Implementation from an Interorganizational Relationship Perspective, The Journal of Computer Information Systems 43(4): 81–90.

Klein, H.K., 2002. On the Theoretical Foundations of Current Outsourcing Research, in R.A. Hirschheim, A. Heinzl and J. Dibbern (eds.) Information Systems Outsourcing: Enduring Themes, Emergent Patterns, Berlin, Heidelberg, New York: Springer, pp. 24–44.

Lacity, M. and Willcocks, L., 1995. Interpreting Information Technology Sourcing Decisions from a Transaction Cost Perspective: Findings and critique, Accounting, Management and Information Technologies 5(3/4): 203–244.

Lacity, M., Khan, S., Willcocks, L., 2009. A review of the IT outsourcing literature: Insights for practice. Journal of Strategic Information Systems 18: 130–146

Lacity, M., Khan, S., Yan, A., Willcocks, L., 2010. A review of the IT outsourcing empirical literature and future research directions. Journal of Information Technology 25 (4): 395–433.

Lacity, M., Willcocks, L., Khan, S., 2011. Beyond Transaction Cost Economics: Towards an endogenous theory of Information Technology Outsourcing. Journal of Strategic Information Systems 20: 139–157

Loebbecke, C. and Huyskens, C., 2006. What Drives Netsourcing Decisions? An Empirical Analysis, European Journal of Information Systems 15(4): 415–423.

Mahnke, V., Overby, M.L. and Vang, J., 2005. Strategic Outsourcing of IT Services: Theoretical stocktaking and empirical challenges, Industry and Innovation 12(2): 205–253.

Mayer, K.J. and Salomon, R.M., 2006. Capabilities, Contractual Hazards, and Governance: Integrating resource-based and transaction cost perspectives, Academy of Management Journal 49(5): 942–959.

Miranda, S. and Kim, Y., 2006. Professionalism Versus Political Contexts: Institutional mitigation and the transaction cost heuristic in information systems outsourcing, MIS Quarterly 30(3): 725–753.

Nam, K., Rajagopalan, S., Rao, H.R. and Chaudhury, A., 1996. A Two-Level Investigation of Information Systems Outsourcing, Communications of the ACM 39(7): 36–44.

Oh, W., Gallivan, M. and Kim, J. (2006). The Market‘s Perception of the Transactional Risks of Information Technology Outsourcing Announcements, Journal of Management Information Systems 22(4): 271–303.

Poppo, L., Lacity, M., 2002. The normative value of transaction cost economics: what managers have learned about TCE Principles in the IT context. In: Hirschheim, R., Heinzl, A., Dibbern, J. (Eds.), Information Systems Outsourcing in the New Economy. Springer-Verlag, Berlin-Heidelberg-New York, pp. 235–276.

Poppo, L., Lacity, M., 2006. The normative value of transaction cost economics: what managers have learned about tce principles in the IT context. In: Perspectives, New., Challenges, Global., Hirschheim, R., Heinzl, A., Dibbern, J. (Eds.), Information Systems Outsourcing: Enduring Themes. Springer-Verlag, Berlin-Heidelberg-New York, pp. 259–282.

Poppo, L. and Zenger, T., 1998. Testing Alternative Theories of the Firm: Transaction cost, knowledge-based, and measurement explanations for make-or-buy decisions in information services, Strategic Management Journal 19: 853–877.

Poppo, L. and Zenger, T., 2002. Do Formal Contracts and Relational Governance Function as Substitutes or Complements? Strategic Management Journal 23: 707–725.

Rottman, J. and Lacity, M., 2008. A US Client‘s Learning from Outsourcing IT Work Offshore, Information Systems Frontiers 10(2): 259–275.

Smith, H.A. and McKeen, J.D., 2004. Developments in Practice XIV: IT outsourcing – How far can you go? Communications of the AIS 14(1): 508–520.

Stemersch, S., Weiss, A., Dellaert, B., Frambach, R., 2003. Buying modular systems in technology-intensive markets. Journal of Marketing Research 19 (1), 1–23.

Thouin, M., Hoffman, J., Ford, E., 2009. IT outsourcing and firm-level performance. A transaction cost perspective. Information & Management 46, 463–469.

Tiwana, A., Bush, A., 2007. A comparison of transaction cost, agency, and knowledge-based predictors of ITO outsourcing decisions: A US-Japan cross cultural field study. Journal of Management Information Systems 24 (1), 259–300.

Wahrenburg, M., Hackethal, A., Frederick, L., Gellrich, T., 2006. Strategic decisions regarding the vertical integration of human resource organizations. The International Journal of Human Resource Management 17 (10), 1711–1726.

Wang, E., 2002. Transaction attributes and software outsourcing success: an empirical investigation of transaction cost theory. Information Systems Journal 12, 153–181.

Watjatrakul, B., 2005. Determinants of IS sourcing decisions: a comparative study of transaction cost theory versus the resource-based view. Journal of Strategic Information Systems 14 (4), 389–415.

Wholey, D., Padman, R., Hamer, R., Schwartz, S., 2001. Determinants of information technology outsourcing among health maintenance organizations. Health Care Management Science 4 (3), 229–239.

Williamson, O., 1991. Comparative Economic Organization: The analysis of discrete structural alternatives, Administrative Science Quarterly 36(2): 269–296.