

# Firm-Level Determinants of Business Process Outsourcing Decisions

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## ABSTRACT

*Although there are numerous contributions why firms outsource IT activities, research on Business Process Outsourcing (BPO) decisions is scarce. As BPO might affect outsourcer's core, decisions are likely to be taken on firm level. We therefore aim at answering the following research question: What is the impact of firm-level characteristics on the decision to outsource business processes? Using publicly available data we analyze BPO decisions in the German banking market. Our findings show that BPO is perceived to provide significant strategic value for outsourcers. We provide evidence that large and diversified banks with low cost efficiency are more likely to outsource. Contradictory to prior research findings we further demonstrate that more activities are sourced out, if outsourcer's profit increases. Further research is suggested to explain BPO success using publicly available data.*

**Keywords:** Business Process Outsourcing, outsourcing decision, firm characteristics, banking, JEL Classification: G21, G34

## 1. INTRODUCTION

The examination of outsourcing — the purchase of a good or service that was previously provided internally (Lacity and Hirschheim (1993)) — has been a domain of IS research for several years now. When considering outsourcing, most of the academic discussions have addressed the questions of “why”, “what”, “which” and “how” to outsource (Dibbern, Goles, Hirschheim and Jayatilaka (2004)). As several motives for outsourcing have been analyzed in prior IT outsourcing research, little is known in the context of Business Process Outsourcing (BPO) (Dibbern et al. (2004)). This is especially surprising as BPO is a fast growing area in the outsourcing market (Gartner (2004)). One of the unique characteristics of BPO seems to be its proximity to outsourcer's core: several researchers (see e.g. Rouse and Corbitt (2004); Franke and Wüllenweber (2006); Gewald (2006)) showed that benefits and risks of BPO are closely related to firm-level objectives and strategic directions. However, these findings provide an incomplete picture as they are drawn from empirical studies with process owners and thus provide only a process-level perspective. Taking a firm-level view, we therefore aim at answering the following research question:

*What is the impact of firm-level characteristics on the decision to outsource business processes?*

To answer our research question, we first review prior studies on business process outsourcing and motives for outsourcing decisions (section 2). In section 3, we derive our hypotheses and explain the methodology used. Section 4 presents descriptive statistics of our data. The results of our study are given in section 5. Finally, we summarize our findings and discuss further research (section 6).

## 2. LITERATURE REVIEW

In the last two decades academic research on outsourcing, especially IT-outsourcing, has evolved rapidly. According to Dibbern et al. (2004) most researcher have

focused on determinants and motives to outsource IT operations. As current outsourcing literature provides for very few comparative studies, differences between IT outsourcing and business process outsourcing have been suggested as promising research path (Dibbern et al. (2004)). However, little is known on BPO motives at all. Gewald (2006) as well as Gewald, Wüllenweber and Weitzel (2006) outline BPO's strategic importance. The authors analyze potential BPO benefits and risks as perceived by German bank managers. Focusing on core competencies has been identified in these studies as most important benefit associated with BPO. From the risk perspective, process's closeness to outsourcer's core was amongst the most significant inhibitors as BPO may result in substantial loss of know-how and innovative capabilities.

Besides these studies, empirical evidence is rare. Thus, we draw on prior research analyzing firm-level financial characteristics of companies involved in IT outsourcing arrangements. Loh and Venkatraman (1992) find that high overall costs as well as high IT costs and a poor IT performance are significantly correlated with outsourcing. Smith, Mitra and Narasimhan (1998) concluded that low overhead costs, low cash reserves, high debt, and declining growth rates determine outsourcing decisions. Hall and Liedtka (2005) demonstrate that IT outsourcing is determined by poor performance, poor cost control, and short term cash needs of the firms. Ang and Straub (1998) show that IT outsourcing is best explained by high production costs. The authors further outline that outsourcer's size is negatively related to outsourcing.

As the above studies focus on outsourcing decisions, there are several contributions on the firm-level effects *after* outsourcing. Most studies find outsourcing influencing firm's performance negatively Kotabe, Murray and Javalgi (1998); Görzig and Andreas (2003), marginally D'Aveni and Ravenscraft (1994) or having no significant effect (Gilley and Rasheed (2000)). Holzhäuser (2006) find that banks benefit from either a very high or a low vertical integration. Studying the influence of outsourcing on productivity, Girma and Gorg (2004) find labor productivity and total productivity growth positively related to outsourcing.

None of the literature we reviewed was attributed to pre-event firm characteristics of business process outsourcing. Within this paper, BPO is defined as the delegation of one or more entire business processes to third party providers, including the software and hardware that support those processes Halvey and Melby (2000). A business process is defined as a “set of logically related tasks performed to achieve a defined business outcome” (Davenport (2005)). Thus, BPO is the combination of application development/maintenance outsourcing, IT infrastructure outsourcing and the outsourcing of business activities which are not IT supported like business process re-design.

## 3. RESEARCH MODEL AND METHODOLOGY

### 3.1 Hypotheses

Following the studies outlined in section 2, we look at three categories of firm characteristics that might influence the BPO decisions: outsourcer's size, firm performance, cost efficiency, and degree of diversification.

*Size.* Concerning the outsourcer's size ambiguous explanations can be found in the literature. Ang et al. (1998) as well as Girma et al. (2004) argue that it is more difficult for smaller firms to achieve economies of scale and therefore outsource their operations. However, only Ang et al. (1998) confirm this hypothesis. Smith et al. (1998); Girma et al. (2004) as well as Hall et al. (2005) find a positive relation

of firm size and outsourcing as the absolute amount of outsourcing deals should be greater in larger firms than in smaller firms. We follow the later argument and propose that larger outsourcers tend to outsource business processes as for smaller outsourcers the efforts to monitor and control outsourced processes will exceed cost savings. In addition to firm size, we look at firm growth to account for size changes. Smith et al. (1998) find that declining growth rates entail outsourcing. They argue that firms who are lacking growth opportunities focus on cost reduction strategies and therefore tend to outsource.

H1: Firm size is positively, growth rates are negatively related to the decision to outsource business processes.

*Firm performance.* Hall et al. (2005) suggest that poorly performing firms are more prone to outsourcing as they will try to increase their short term performance. Outsourcing contracts can especially help to increase reported earnings in the year of the outsourcing event by selling their assets through the transfer of operations to the insourcer above book value. Loh et al. (1992) argue that under conditions of poor business performance firms seek to streamline their operations. Kotabe et al. (1998) postulate that outsourcing is negatively related to financial performance as it can be seen as a strategic reaction to declining competitiveness.

H2: Firm performance is negatively related to the decision to outsource business processes.

*Cost efficiency.* Most research articles on outsourcing show that firms outsource part of their operations, if cost efficiency is low. Hall et al. (2005) as well as Loh et al. (1992) find that high administrative costs and operating expenses – used as a synonym of low cost efficiency - are positively associated with outsourcing. In particular, we will draw special attention to wage levels as Girma et al. (2004) show that firms with high labor costs are more prone towards outsourcing in order to gain cost reductions.

H3: Cost efficiency is negatively, wage levels are positively related to the decision to outsource business processes.

*Diversification.* In the outsourcing literature hardly any study discusses the influence of diversification on outsourcing decisions. Only Holzhäuser (2006) find that diversified banks tend to operate at a lower level of vertical integration. However, empirical studies show that diversification is associated with higher costs (Holzhäuser (2006)). Thus, diversified banks will have a greater need to reduce costs and will pursue cost cutting strategies including BPO.

H4: Diversification is positively related to the decision to outsource business processes.

Finally, we control whether the banks are a savings institute ('Sparkasse'). In Germany, these institutes are institutionally tied and might decide within their group that all institutes source out. In this case, we would have to reduce our sample to count all 'Sparkasse' outsourcing deals as one single outsourcing event. To control for this effect we use a dummy variable which is set to one, if the bank is a savings bank and zero otherwise.

### 3.2 Methodology

We chose to analyze BPO arrangements in the German banking area. As IS research should account for industry-specific results Chiasson and Davidson (2005), we selected the financial services sector as research object, since it is the second largest buyer of outsourcing services Gartner (2004). We use publicly available accounting data to explain outsourcing decisions as audited financial data provide a more objective evaluation of a firm's performance than the perception-based intermediate metrics typically used in case studies (Smith et al. (1998)). Further, respondents answers in surveys may be self justifying (Ang et al. (1998)).

To derive factors explaining outsourcing decisions we compare firm characteristics of banks where we observed BPO the year prior to the outsourcing event to

the characteristics of the control group without BPO in the same year. We apply nonparametric tests to analyze the influence of each variable identified on the outsourcing decision as described by Smith et al. (1998) as well as Hall et al. (2005) and control for multivariate effects of our variables using a logistic panel regression model Hall et al. (2005):

$$h\left(\frac{m_{i,t}}{1-m_{i,t}}\right) = b_0 + b_1 \cdot SIZE_{i,t-1} + b_2 \cdot GROWTH_{i,t-1} + b_3 \cdot ROA_{i,t-1} + b_4 \cdot CIR_{i,t-1} + b_5 \cdot COSTASS_{i,t-1} + b_6 \cdot EMPLCOST_{i,t-1} + b_7 \cdot DIV_{i,t-1} + b_8 \cdot SPARKASSE_{i,t-1} + e_{i,t}$$

where  $m_{i,t} = p(BPO_{i,t} = 1)$  BPO is one, if bank i has sourced out a business process in year t, and zero otherwise. The independent variables are described in Table 2. The measure of diversification is taken from Elsas, Hackethal and Holzhäuser (2006).

## 4. THE DATA

The information on outsourced business processes was retrieved from a survey, which was sent out in May 2005 among the 200 largest banks in Germany. Responses from 126 banks were received resulting in a response rate of 63%. Twelve responses were anonymous and therefore had to be excluded. To obtain the accounting data we used Fitch IBCA Bankscope. Due to limited availability of accounting data before the year 1997 we had to restrict our study on outsourcing deals that occurred between 1998 and 2005, as we are interested in the accounting data the year before the outsourcing. We included all banks in our sample where at least one year of accounting data in the range between 1997 and 2004 were available. In addition, we excluded all banks that had any process sourced out before 1998 or where the accounting data in the year before the BPO were not available. This selection process reduces our sample to 101 banks for which we obtained 743 years of accounting data over the years between 1997 and 2004.

In this sample we find 41 BPO events. Three banks sourced out two processes in the same year, which we counted as one outsourcing event in the respective year, which leaves us with a total of 38 outsourcing events for our observed time frame (Table 1).

## 5. STATISTICAL ANALYSIS

### 5.1 Non Parametric Analysis

Starting with the results of the median difference test (Table 4) we observe the univariate influence of the variables on the decision to outsource business processes. A positive value in the median difference column indicates a positive effect of the variable on outsourcing, while a negative value indicates that the variable has a negative effect on the outsourcing decision.

The variable SIZE is positively correlated to outsourcing and the Wilcoxon test shows significance at the 1% level, indicating that larger bank tend to source out business processes more likely than smaller banks. The median difference for GROWTH is slightly positive but not significant. The same applies for ROA

Table 1. Sample

Year	Number of banks with BPO event	Number of banks in control group	Total
1998	2	76	78
1999	1	90	91
2000	1	91	92
2001	5	89	94
2002	5	90	95
2003	4	94	98
2004	6	92	98
2005	14	85	99
Total	38	707	745

Table 2. Definition of variables

Variable	Description	Definition
SIZE	Size	Logarithm of total assets of the bank
GROWTH	Annual growth of total assets	Total assets divided by total assets of previous year
ROA	Return over assets	Net income divided by total assets of the bank
CIR	Cost-to-income ratio	Total operating costs divided by total operating income of the bank
COSTASS	Total operating cost/total assets	Total operating costs divided by total assets of the bank
EMPCOST	Cost per employee	Wages and salaries plus social security contributions plus pension contributions divided by number of employees
DIV	Diversification	$DIV = 1 - \left( \left( \frac{INT}{TOR} \right)^2 + \left( \frac{COM}{TOR} \right)^2 + \left( \frac{OTI}{TOR} \right)^2 \right)$ INT =interest revenue; COM =net commission revenue, OTI =all other net revenue; TOR=sum of the absolute values of INT, COM, and OTI. DIV increases in the degree of revenue diversification. By definition DIV can take on values between 0 (the bank is fully specialized on one revenue source) and 0.75 (the bank generates a fully balanced revenue mix from all four revenue sources).
SPARKASSE	Dummy for Sparkasse	Binary dummy variable: 1 for state owned, 0 for privately owned

Table 3. Characteristics of independent variables

Variable	N	Mean	Median	Std. Dev.	Min.	Max.
SIZE	745	9.0809	8.5767	1.3885	6.0154	13.1690
GROWTH	644	1.0663	1.0405	0.2528	0.6237	6.7580
ROA	744	0.2118	0.1900	0.3657	-6.0300	4.3500
CIR	744	64.6929	65.1750	14.8277	18.3300	177.0300
COSTASS	744	0.0168	0.0185	0.0088	0.0005	0.1076
EMPCOST	742	0.0557	0.0478	0.0239	0.0145	0.3393
DIV	744	0.1790	0.1741	0.1004	0.0011	0.6026
SPARKASSE	745				0	1

Table 4. Median difference test

Variable	Wilcoxon signed rank test		
	Median Difference	Z-statistic	p-value
SIZE	0.775	2.632 ***	0.009
GROWTH	0.046	0.049	0.961
ROA	0.163	-0.341	0.733
CIR	4.530	1.994 **	0.046
COSTASS	0.002	1.835 *	0.067
EMPCOST	0.014	2.748 ***	0.006
DIV	0.059	3.009 ***	0.003

\*=significant at the 10% level, \*\*=significant at the 5% level, \*\*\*=significant at the 1% level

which measures the return over assets and is our proxy for the performance of the banks. The variables that measure cost efficiency are higher for the banks with BPO than the median of the peer group at a significance level of 5% (CIR) and 10% (COSTASS). Hence we conclude, that banks with a high costs and a low cost efficiency tend to source out business processes. The same applies for the wage level (EMPCOST) which is higher for the outsourcing banks at a significance

level of 1%. Finally, a higher diversification can be observed for banks that have sourced out than for the industry control group (at a 1% significance level).

## 5.2 Logistic Regression Analysis

We tested several models in our logistic regression analysis. Correlation among the independent variables does not allow including all variables in one model. The

results from the regression mainly support the findings of the univariate median difference test. Only the variable for return over assets (ROA), which was not significant in the median difference test, is significantly positive related to outsourcing in our regression analysis. All other variables show the same influence on business process outsourcing in both the univariate and the multivariate analysis. The dummy variable SPARKASSE, controlling for the firm being a German savings bank does not show significant influence on outsourcing in any model.

Table 5. Regression results

No	N	χ <sup>2</sup>	Cons. (z-value)	Independent variables										
				SIZE (z-value)	GROWTH (z-value)	ROA (z-value)	CIR (z-value)	COSTASS (z-value)	EMPCOST (z-value)	DIV (z-value)	SPARKASSE (z-value)			
1	644	1.71	-4.401 *** (-3.47)	0.149 (1.29)	0.156 (0.29)									
2	742	15.70 ***	-5.844 *** (-6.34)		1.152 *** (3.00)	0.030 *** (2.64)			10.919 ** (2.16)					
3	742	13.11 ***	-4.448 *** (-8.26)		0.749 ** (2.21)			35.805 ** (2.05)	12.258 ** (2.41)					
4	744	11.72 ***	-4.056 *** (-8.72)									4.786 *** (3.41)	0.283 (0.79)	
5	744	19.75 ***	-6.903 *** (-5.22)	0.194 * (1.76)		0.958 ** (2.25)	0.020 (1.48)					3.229 ** (2.19)		
6	744	11.83 ***	-4.388 *** (-5.5)				0.006 (0.52)					4.595 *** (3.14)	0.275 (0.77)	
7	742	20.85 ***	-5.802 *** (-6.13)			0.872 ** (2.16)	0.022 * (1.75)			10.380 ** (2.02)		2.927 ** (2.09)		
8	742	13.11 ***	-4.448 *** (-8.26)			0.749 ** (2.21)		35.805 ** (2.05)	12.258 ** (2.41)					

\*=significant at the 10% level, \*\*=significant at the 5% level, \*\*\*=significant at the 1% level

5.3 Discussion

Our first hypothesis is partly supported by our findings. We can provide evidence that firm size is positively related to BPO. Research provides findings on ‘diseconomies of scale’ where coordination and control costs exceed cost savings retrieved from the utilization of economies of scales (Graves and Langowitz (1993); Zanger (1994)). If this is the case, firms tend to focus on core competencies (Prahalad and Hamel (1990); Cross (1995); McFarlan and Nolan (1995)) and outsource non-core activities. Our results contradict prior research findings (e.g. Ang et al. (1998)) as this tradeoff (economies vs. diseconomies of scale) entails that large firms engage in outsourcing activities more often than small firms. We conclude that the processes analyzed here do not belong to bank’s core. Thus large banks are not willing to bear high coordination and control costs for those activities which do not provide any value for the firm, if they are internally produced. On the other hand, we did not find a significant influence of growth rates on BPO. Thus, we presume that BPO is not perceived as short-term instrument to improve profitability.

Our second hypothesis is contradicted by our findings: the more profitable a bank operates, the more likely it will engage in BPO activities. To our knowledge, this relation has not been shown in prior outsourcing studies. Firms are only able to invest in new business opportunities, if profit increases. Thus, our data provide evidence that BPO is not only perceived as cost reduction instrument but also as strategic instrument through leveraging the capabilities of the service provider. This finding is in line with outsourcing research where outsourcers gain or sustain competitive advantage through the use of vendor’s resources (Lacity and Willcocks (1998); Quinn (1999); Goles (2003); Lammers (2004)).

Nevertheless, BPO seems to be part of cost cutting strategies as our third hypothesis is fully supported by our data. Thus, poor cost efficiency entails BPO. In particular, banks with high wages levels tend to outsource more often than banks with lower wage levels. In the case of high wage levels, it is believed to be easier for the insourcer to provide the services at lower cost as the difference of personnel expenses between the outsourcer and insourcer is larger.

Finally, our data support our fourth hypothesis that the degree of diversification is positively related to BPO. Thus, banks try to streamline their operations and thereby reduce operating costs while still benefiting from diversified revenue. This finding supports prior findings in outsourcing research and transfers them to BPO context (Prahalad et al. (1990); Cross (1995); McFarlan et al. (1995)).

Our control variable for ‘Sparkasse’ does not show any significance. Thus, we are allowed to count each ‘Sparkasse’ separately.

5.4 Limitations

As our findings provide for interesting insights on BPO decisions, several limitations have to be considered. First, we rely on those data which are publicly available and cannot account for internal matters. For example, if the bank sourced out to improve process quality, we will not be able to reproduce this parameter as there is no quality measure available. Second, due to limited availability of older accounting data, we only use data from one year prior to outsourcing. Although this is a valid approach used in other research studies (e.g. Smith et al. (1998)), more data would be appropriate to strengthen our results.

6. CONCLUSIONS

This paper empirically addresses the factors that influence BPO decisions. As BPO is considered as strategic instrument through leverage of vendor’s capabilities, we advocate a firm-level instead of a process-level analysis. In addition, we aim to overcome respondent’s biases from case studies and survey data and therefore rely on publicly available data.

Our findings are somewhat contradictory to current outsourcing research and emphasize the strategic value of BPO. As large banks with high performance tend to outsource more activities, we conclude that BPO is seen as strategic instrument to sustain or further gain competitive advantage. Since especially diversified banks are not able to generate these advantages with internal resources, they are interested in accessing vendor’s more specialized resources to complement their resource portfolio. Nevertheless, potential cost savings seem to be a relevant motive for BPO as especially high wages could be reduced significantly (similar findings in Gewald (2006)).

From our data, we were not able to identify whether potential process improvements is the reason why firms outsource their business processes. However, as this has been shown as important factor influencing the outsourcing decision (e.g. Gewald (2006)), further research might analyze the importance of quality from the firm-level perspective. In addition, since our research focus on decision criteria prior to outsourcing, it would be interesting to see if these 'predictions' hold for the future. Thus, publicly available data should be used *after* outsourcing to analyze *achieved* benefits from BPO.

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