The Impact of Business Process Outsourcing on Firm Performance and the Influence of Governance

A Long Term Study in the German Banking Industry

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Abstract

Does BPO pay off at the firm-level? Although there are several studies which analyze the potential benefits of BPO, there is a virtual absence of research papers on BPO outcomes. Based on an analysis of 137 Business process outsourcing (BPO) ventures at 254 German banks in a period between 1994 and 2005, we found that the outsourcer's financial performance in terms of profitability and cost efficiency was increased significantly compared to industry peers without BPO. The increase stems not from workforce reductions but rather from increased employee productivity. Further, we show how BPO governance ensures BPO success: individually negotiated outsourcing contracts help to improve cost efficiency and profitability measures. Relational governance based on trust has only positive effects on profitability.

Keywords: Business Process Outsourcing, firm performance, firm characteristics, banking, German banks, governance

JEL Classification: G21, L14, L21, L24

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INTRODUCTION

In today's dynamic environment, characterized by growing business and technological uncertainties, corporations are faced with various new challenges. The organization of market places has shifted from pure hierarchy- and market-based modes to hybrid arrangements involving significant vendor participation. Triggered by these emerging new market structures Business Process Outsourcing (BPO) is gaining importance among new forms of business to business exchanges. Hence academic research has started to focus on BPO and postulates that BPO bears unique potential (DiRomualdo and Gurbaxani, 1998; Gottfredson, Puryear, and Phillips, 2005; Willcocks *et al.*, 2004) that, however, is accompanied by severe risks (Aron, Clemons, and Reddi, 2005; Gewald, Wüllenweber, and Weitzel, 2006). Willcocks *et al.* (2004) stress the knowledge potential of BPO as the processes are often close to the outsourcer's core business. Thus by leveraging the core capabilities of both the outsourcer and the vendor, BPO can even be a source of competitive advantage (DiRomualdo *et al.*, 1998). On the other hand, BPO has also been shown to reduce costs and achieve efficiency rents. But do these expectations match reality? Does BPO fulfill the expectation that it will accomplish both efficiency improvements and provide a source of competitive advantage? Taking a firm-level view, we therefore aim to answer our first research question:

RQ1: What is the impact of BPO on firm performance?

As BPO offers unique potentials that are accompanied by distinctive risks, organizations are unprepared for their governance (Aron *et al.*, 2005; Mani, Barua, and Whinston, 2006). When BPO benefits depend heavily on leveraging capabilities by aligning structures and resources between exchange parties, intensive cooperation is necessary ensure that they are attained. In the BPO context, a great degree of embeddedness is critical from a governance perspective. However, relational governance has not been seen as a substitute for contractual governance

in embedded relationships (Heide, 1994; Sobrero and Schrader, 1998). Contractual mechanisms legally define obligations and therefore complement relational governance. As governance can even comprise institutional arrangements that are close to hierarchy based governance, the degree of integrative governance (quasi-integration or equity holding) might provide organizations with additional safeguards. But will these governance elements ensure the success of BPO? Will they even control for the effects of BPO on the outsourcer's performance? Taking a firm-level view, we therefore aim to answer our second research question:

> *RQ2: What is the impact of relational, contractual, and integrative BPO governance on*
> *the achievement of firm-level BPO success?*

By addressing these two research question, we contribute to research on outsourcing outcomes that has been demanded in outsourcing literature reviews (e.g. Dibbern *et al.*, 2004). In order to control for industry and cultural context, we analyzed BPO arrangements in the banking sector within a single country to address the two research questions (Chiasson and Davidson, 2005). The financial services sector was a logical choice to focus on, as it represents the second largest buyer of outsourcing services (Gartner, 2004).

To answer our research questions, we analyze 137 BPO ventures at 254 German banks in a period between 1994 and 2005 and employ median difference tests to compare the performance of outsourcing banks with that of their peers, as well as panel regressions based on 2,642 bank-year observations. Based on this analysis, we are able to make four contributions: first, the outsourcers' financial performance in terms of profitability and cost efficiency was increased significantly in a three year period following the outsourcing event compared with industry peers without BPO. The increase stems not from a reduction in workforce or overall cost savings but rather from increased employee productivity. Second, contractual and relational governance ensure an increase in profitability from BPO, but only

contractual governance enables the achievement of an increase in cost efficiency. Integrative governance approaches based on equity holding deals do not affect performance. Third, governance efforts have a negative effect on profitability but positively influence cost efficiency. Fourth, contract duration has a positive impact on cost efficiency.

Our contribution to the academic literature is twofold. Firstly, to the best of our knowledge, this is the first empirical work addressing the long term effects of BPO on firm performance and one of the first studies on the economic outcomes of outsourcing at all. By combining survey techniques with the use of archival data we avoid a potential common method bias inherent in several empirical studies on the performance implications of IT-outsourcing. Secondly, we show how the economic outcomes of BPO can be achieved by contractual, relational, and integrative governance instruments.

The remainder of this paper is organized as follows. In section 0 we review the existing empirical literature on the effects of outsourcing and different levels of vertical integration on firm performance. In section 3 we develop hypotheses on the effects of BPO on firm performance and the influence of BPO governance. Section 4 provides an explanation of how we constructed our sample and presents the descriptive statistics. Section 5 gives an overview of the methodology applied. Finally, in section 6 we present and discuss the results and try to break down the main drivers for performance gains in the target banks. We conclude the paper in section 7.

LITERATURE REVIEW

A large body of empirical literature addresses the interrelations between outsourcing and firm characteristics or firm performance before the outsourcing takes place to evaluate the rationale for outsourcing decisions. Most of the studies are focused on IT outsourcing in the manufacturing industry. Finding that low overhead costs, low cash reserves, high dept, and

declining growth rates determine outsourcing decisions, Smith, Mitra, and Narasimhan (1998) conclude that the main motives for outsourcing are cost reduction and cash generation. Hall and Liedtka (2005) present a similar result, showing that IT outsourcing is determined by poor performance, poor cost control, and short term cash needs. Focusing on the US banking industry Ang and Straub (1998) find that IT-outsourcing is best explained by high production costs and the large size of the banks when looking at firm characteristics. All findings point in the direction that firms in weak positions struggling with high costs and poor performance tend to outsource IT-operations to regain a better position in the market. Fritsch and Wüllenweber (2007), analyzing determinants of business process outsourcing in the German banking market, draw a different conclusion based on their findings. They are able to show that while BPO is still an element of cost cutting strategies it is also pursued by well-performing banks with a high revenue diversification. Thus they conclude that BPO is used as a strategic element in market differentiation strategies to gain further competitive advantage.

Empirical studies on the outcome of outsourcing, especially its effects on firm performance are scarce. The research can be divided into two major strains. On the one hand authors measure outsourcing indirectly by using different proxies for the vertical integration of firms and thus determine the correlation of vertical integration and firm performance without referring to any outsourcing event. On the other hand, researchers use survey techniques or press cuttings to gather data on outsourcing and compare the performance of firms that have outsourced business functions with that of non-outsourcing firms. However, only one study analyzes the direct effects on firm performance within one year after the outsourcing event, while other research does not take into account the date of the outsourcing event. An overview of empirical studies and their findings is given in Table 1.

[Insert Table 1 about here]

In an early study, D'Aveni and Ravenscraft (1994) analyze the influence of vertical integration on the costs and profitability of 3185 manufacturing lines of 466 large US companies between 1975 and 1977. They compare the hypothesis that vertical integration results in economies against the alternative hypothesis that vertical integration leads to higher bureaucracy costs. Vertical integration is measured by the value of inter-company transfers between different units over sales and cost of sales. While they find evidence for both hypotheses, they demonstrate that the benefits of vertical integration outweigh its costs and thus conclude that a high level of vertical integration is favorable for manufacturing firms. Görzig and Stephan (2002) analyze the impact of outsourcing on the firm level performance of German manufacturing firms in the period between 1992 and 2000 using a large dataset of 43,000 firm-year observations. They use three proxies to capture the degree of outsourcing of the firms: material inputs over labor cost, representing the "make or buy"-type of outsourcing, external contract work over labor costs as proxy for the outsourcing of production functions, and external services over labor costs. They can show that all three types of outsourcing lead to better performance in terms of return per employee. On the other hand, only increased material input has a positive influence on overall firm performance measured as return over sales while services outsourcing has a negative effect.

Examining vertical integration and its impact on profitability and shareholder value in the global banking industry, Gellrich and Holzhäuser (2005) analyze a sample of 906 banks from 9 Anglo-Saxon and European countries covering the timeframe from 1995 to 2002. Measuring the degree of outsourcing by value added over sales they find that banks benefit from either very high or low vertical integration, while banks which have no clear cut strategy regarding their level of vertical integration, and thus are "stuck in the middle", perform worse.

Görg and Hanley (2004) analyze the effects of outsourcing, measured by total bought inputs over value add in the plant, on the profitability of 215 plants in the Irish electronics industry between 1990 and 1995. Distinguishing service outsourcing and material outsourcing, they find that only large plants profit from material outsourcing while they can derive no clear-cut results for service outsourcing.

Girma and Görg (2004) study the determinants for outsourcing as well as the impact of outsourcing on firm productivity using panel data from UK firms in the manufacturing industry between 1980 and 1992. They use the value of industrial services received over total labor costs of the firms as a proxy for outsourcing intensity. They find that outsourcing intensity is positively related to labor productivity and total factor productivity only in the chemical and engineering sector, while it has no influence on the firms in the electronics sector.

To our knowledge the first empirical analysis using survey techniques was conducted by Kotabe, Murray, and Javalgi (1998). They study the influence of service strategies on the market performance of US Fortune 500 service firms. Based on 100 returned usable questionnaires they find that the internal sourcing of supplementary services is negatively related to market performance. Thus they draw the conclusion that service firms should concentrate on core services while supplementary services should be sourced out to independent suppliers.

Gilley and Rasheed (2000) analyze the influence of the outsourcing of core and peripherical functions on firm performance considering the moderating effects of firm strategy and environmental dynamism. They collected subjective data on firm performance relative to peers and outsourcing intensity from 94 manufacturing firms. The results of this study show no direct impact of outsourcing on firm performance. However, outsourcing is positively related to the performance of firms which pursue cost leadership and innovation

differentiation strategies. In stable environments outsourcing increases, while in dynamic environments outsourcing decreases, firm performance.

Benson and Littler (2002) compare the effects of outsourcing of core and support functions to other restructuring measures of large Australian organizations using a survey among 4500 firms in 1998. Of the 1222 respondents, 649 firms reported recent workforce reductions. The authors find that the most important reason for outsourcing was a change in the business strategy, whereas this was not the trigger for other restructuring measures. The main objective of outsourcing was the reduction of labor costs and an increase in labor productivity, which was indeed achieved by outsourcing according to the responding managers. On the other hand, firms that reduced workforce for other reasons than outsourcing reported similar objectives and achievements. The authors conclude that outsourcing cannot deliver labour cost reductions in excess of those produced by other forms of restructuring.

Jiang, Frazier, and Prater (2006) study the effects of outsourcing on the firm level performance measures of 51 large US firms based on audited accounting data in a period from 1990-2002. To our knowledge this is the only empirical work that directly measures the effects of outsourcing after the actual transactions were completed. They derived the exact dates of the outsourcing events by searching the press for outsourcing announcements and measured the cost efficiency, productivity, and profitability of the firms involved within one year after the outsourcing, based on quarterly accounting data. Observing the absolute change of the performance measures and the development relative to a control group without outsourcing they find improved cost efficiency but no change in the productivity and profitability of the outsourcing firms. The authors conclude that the firms invest freed resources to further improve core competencies. Firms additionally utilize the cost savings to lower prices at the cost of higher profits to gain competitiveness in the market.

From the studies described above no clear conclusions on the impact of outsourcing or vertical integration on firm performance can be drawn, as some results are in favor of a high level of vertical integration while others are in favor of outsourcing. One reason for the contradictory results might be the various differing measurements of vertical integration as well as the different industries and time frames of the studies. On the other hand, some authors even find different results within their studies depending on the measurement of performance, the type of outsourcing, and industry sector. These findings tend to suggest that there is no strict relationship between vertical integration and performance, but that the impact of outsourcing on firm performance is influenced by various other factors. Studies using survey techniques to evaluate the degree of outsourcing of their sample firms overcome the potential flaws of the various measures for vertical integration. This approach also ensures that the firms observed have actually outsourced business functions, while an observed change in vertical integration (e.g. measured by bought in services over labor costs) may also stem from rising labor costs without any change in the value chain of the firm. However this approach comes at the cost of far smaller samples and possibly subjective biased data provided by the respondents.

By focusing on one industry in only one country and combining survey techniques for the evaluation of the precise outsourcing date with archival data to measure the financial performance of the outsourcer we try to overcome the potential flaws and biases of former research discussed above.

THEORY AND HYPOTHESES

Outsourcing objectives and success

As research on objectives and success of BPO is scarce, we first review literature from an IT outsourcing context. Major intents and objectives for outsourcing IT have been identified as

financial, business, technological, strategic, and political benefits (Grover and Cheon, 1996; Lee and Kim, 1999). The most common benefits sought are financial, focusing on cost reduction and efficiency, improving cost control and transparency, as well as leveraging economies of scale, scope, and skill (Kern and Blois, 2002). Business and political intents have focused on enhanced business performance, process reengineering, and diminishing political debates about new IT projects (McLellan, Marcolin, and Beamish, 1995). Strategic objectives address the outsourcer's ability to leverage the vendor's capabilities to achieve strategic advantages (Lacity and Willcocks, 2001). Technological intents refer to access to technological expertise, improved and innovative services, i.e. the bank's ability to exploit modern IT technologies and achieve IT continuity (Lacity *et al.*, 2001).

Although outsourcing motives might be multi-dimensional and should be considered cumulative rather than mutually exclusive, several studies indicate that there is a trade-off between achieving efficiency (cost and quality related) and strategic advantages (outlining strategic and transactional style) (DiRomualdo *et al.*, 1998; Kogut and Zander, 1992; McLellan *et al.*, 1995; Miranda and Kavan, 2005; Murillo-Zamorano, 2004; Priem, 2001; Weill and Broadbent, 1998). As outlined by Miranda and Kavan (2005), efficiency objectives are closely related to value capture (allocative efficiency) and strategic objectives are related to value creation (adaptive efficiency). However, there is a trade-off between value creation and capture: achieving value capture makes the organizational environment more secure and efficient, but hinders innovative, knowledge-creation processes. For example, vendors that are contracted to minimize costs will hardly suggest innovative systems or processes as this will not be rewarded by the client (DiRomualdo *et al.*, 1998).

For the BPO context, Wüllenweber et al. (2006) found a focus on core competencies, quality improvements and – only as a third priority – cost savings to be the most prevailing outsourcing objectives) (Wüllenweber *et al.*, 2006)). Similarly, Willcocks et al. (2004)

stressed the knowledge potential of BPO as even more promising in terms of leveraging knowledge gains compared to IT operations, since business processes are seldom community processes and closer to outsourcer's core business. By leveraging the vendor's and the outsourcer's customer and social knowledge capabilities, the new services and products can be created in order to provide added-value.

Overall, we conclude that BPO is often – but not necessarily – associated with strategic objectives. However, there is a virtual absence of literature addressing the achievement of different outsourcing objectives in a BPO setting.

BPO and firm performance

To measure the impact of BPO on the firms and consequently the "success" of the outsourcing arrangement, we use financial metrics since financial accounting data is publicly available. Relying on publicly available audited data has the advantage of providing a more objective evaluation of a firm's performance and characteristics 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).

Previous studies analyzing either firm level determinants or financial impact of outsourcing employ several measures for profitability (D'Aveni *et al.*, 1994; Görg *et al.*, 2004; Görzig *et al.*, 2002; Hall *et al.*, 2005; Jiang *et al.*, 2006; Smith *et al.*, 1998), cost efficiency (D'Aveni *et al.*, 1994; Hall *et al.*, 2005; Jiang *et al.*, 2006; Smith *et al.*, 1998), and factor or labour productivity (Girma *et al.*, 2004; Görzig *et al.*, 2002; Jiang *et al.*, 2006). Some authors also use different financial measures like financial slack, free cash flow or growth rates to explain the firm level consequences of outsourcing. In our study we will focus on the profitability and cost efficiency of the outsourcing banks, as these two instruments are commonly used to define financial targets in banking. We will, however, use other different financial metrics to try to decompose the effects of outsourcing on profitability and cost efficiency as, from an

accounting point of view, an increase in profitability, for example, can either stem from a reduction in costs, an increase in revenue, or both. Thus we also analyze the change in overall costs and labor productivity. As an important objective for outsourcing has been found to be workforce reduction (Benson *et al.*, 2002), we also analyze whether BPO has an impact on the size of the banks' workforce .

An increase in cost efficiency or cost reduction is still one of the major objectives of outsourcing. In a nutshell, the decision to outsource can be regarded a special form of the "make-or-buy" decision (Görg *et al.*, 2004), where firms would prefer to "buy" as opposed to "making" certain services as long as the cost of outsourcing is lower than in-house production. As outsourcing vendors typically provide services to many clients they can achieve cost advantages over single firms' productions costs as they benefit from economies of scale and centralization of expertise (Heshmati, 2003; Jiang *et al.*, 2006; Roodhooft and Warlop, 1999). Additional cost savings can stem from lower wage levels of the service provider (Abraham and Taylor, 1996). If vendors pass on their production advantages via lower costs to their clients, the outsourcing firms will benefit from this transaction in terms of higher cost efficiency by producing the same output at lower costs.

As we analyze the BPO of highly standardized back office processes which are provided by a small number of service providers to a large number of banks, we can assume that these theoretical considerations can be applied to our research settings. Thus we propose that the outsourcing banks will improve their overall cost efficiency by BPO.

Hypothesis 1A: *BPO leads to improved cost efficiency of the banks.*

Firms can maximize returns on internal resources by concentrating investments and energies on core competencies (Quinn and Hilmer, 1994). Outsourcing will enable firms to transfer

resources from non-value added staff functions to value-added core functions (Hayes, Hunton, and Reck, 2000).

The outsourcing firms can also utilize the superior knowhow of the service provider to enhance their own production capabilities, which enables them to offer higher value and thus higher margin bearing products to their customers (Quinn *et al.*, 1994).

On the other hand, prior research also stresses the downside risks of a negative impact on firm performance if firms choose to outsource major components (Murray, Kotabe, and Wildt, 1995). Murray and Kotabe (1999) define those components as elements that differentiate a firm's product from those of its competitors but within the domain of a firm's core competency. As BPO takes place closer to the outsourcer's core compared to IT outsourcing or the outsourcing of supplementary services, one could argue that BPO will have a negative impact on profitability. However banks can hardly be distinguished in the eyes of their customers by the back office processes we focus on in this study,. Thus we conclude that the opportunities provided by BPO will outweigh the risks, and banks will benefit from BPO in terms of profitability.

Hypothesis 1B: *BPO leads to improved profitability of the banks.*

Outsourcing governance

As research on BPO governance is scarce, we first review literature findings from the IT context. In the IT discipline, governance has been defined as 'specifying the decision rights and accountability framework to encourage desirable behavior in the use of IT' (Weill, 2004, p.8). As a strategy though, we consider governance not just in terms of pre-specified frameworks, but also those frameworks that emerge in interactions between client and provider (Mintzberg, 1978). Three *forms* of governance that corporations can choose when considering make-or-buy decisions are widely recognized: 1) the hierarchy is an

institutionally derived, authority-based form where all operations are performed in-house; 2) the market is an institutionally derived and transaction-based governance form where all operations are 'purchased' from external providers; 3) the network (or hybrid) is a socially-derived informal form where operations are performed partly in-house and partly externally (Shapiro, 1987; Williamson, 1994). These forms differ with respect to governance *structures*: research on inter-organizational relationships, and, more recently, on IT outsourcing, has recognized the existence of arm's length vs. embedded governance structures in inter-organizational relationships (e.g. Jarillo, 1988; Kaufmann, Kraay, and Mastruzzi, 2005; Lee, Miranda, and Kim, 2004). Arm's length relationships are those that are exclusively economic and rely solely on formal means of governance, i.e. contract governance. Embedded relationships are those in which the economic and social content of the relationship overlap and the social relationship as relational governance is tapped in order to regulate the relationship. Both governance structures can be used in all three governance forms, but differ in importance and granularity (see (Lee *et al.*, 2004) for a detailed discussion).

Business Process Outsourcing (BPO) has been said to have unique potentials (DiRomualdo *et al.*, 1998; Gottfredson *et al.*, 2005; Willcocks *et al.*, 2004) that are accompanied by distinctive risks (Aron *et al.*, 2005; Mani *et al.*, 2006). When BPO benefits depend heavily on leveraging capabilities by aligning structures and resources between exchange parties, extremely close cooperation is necessary to attain them. Thus, in the BPO context, a high level of embeddedness is critical from a governance perspective. Relational norms and attributes have to enable mechanisms of clan control and trust based management. Nevertheless, relational governance has not been seen as substitute for contractual governance in embedded relationships (Heide, 1994; Sobrero *et al.*, 1998). Contractual mechanisms legally define obligations and provide exchange parties with an instrument of control and escalation even if there is a great extent of risks.

We conclude that BPO is a network governance form that is structured using both relational and contractual governance mechanisms. As outlined by Dyer (1997), this governance approach can be complemented by quasi-integration (that he calls 'hostages arrangements') where the outsourcer holds equity ownership. Equity holding deals can be seen as a sub-form of hybrid governance. They include long-term contractual relations with different degrees of autonomy: the more the equity held by the outsourcer, the less the autonomy preserved for the vendor (Hewitt-Dundas, 2001). In particular, there is distinct threshold of equity ownership that differentiates between equity ventures deterring opportunistic behavior (above threshold) and ventures that allow opportunistic behavior (below threshold) (Gulati, 1995). More generally, outsourcers expect a greater degree of control with higher degrees of equity holding. As equity holdings are a form of quasi-integration, the corresponding governance approaches are hereafter called 'integrative governance'.

Within this paper, our conceptualization of BPO governance comprises the three governance elements described above: relational governance, contractual governance, and integrative governance (quasi-integration). As each of these governance elements can be measured using different constructs, Table 2 provides the constructs used for these governance elements in this study and the literature where these constructs are taken from.

[Insert Table 2 about here]

Several studies have shown that trust leads to outsourcing success (e.g. Kern and Willcocks, 2000; Lee *et al.*, 2004; Poppo and Zenger, 2002; Sabherwal, 1999). Competence-based trust substitutes the necessity of previous business relations that would allow client and vendor to get a better understanding of what type of agreement is being entered into (scope) and what the specific expectations of both parties about that agreement are (Sargent, 2006). It relies on an impled guarantee that the vendor will bring in their expertise to achieve mutual gains and

is not willing to imperil their market reputation by underperformance. We therefore hypothesize:

Hypothesis 2A: *Relational governance positively impacts on BPO success.*

Individually negotiated contracts (as proxy for contractual governance) allow one to set tight service level objectives and negotiate fixed prices to ensure desired quality levels and cost savings. Individually negotiated contracts can even help to achieve quality improvements or to create an appropriate environment to stipulate innovations (DiRomualdo *et al.*, 1998; Miranda *et al.*, 2005). In particular, annual renegotiation of service levels, requested volume of service and a bonus system can make the contract flexible enough to improve operations (DiRomualdo *et al.*, 1998). The contract can even incorporate clauses on agreed service objectives including innovation chapters (DiRomualdo *et al.*, 1998). We therefore hypothesize:

Hypothesis 2B: *Contractual governance positively impacts on BPO success.*

We expect that higher degrees of integrative governance will lead to BPO success. Equity holdings are intentionally chosen when relational (e.g. opportunistic behavior) and/or performance risks are high (Hewitt-Dundas, 2001). In other words, integrative governance complements relational governance to overcome the problem of incomplete contracts (Hart, 1998). We therefore hypothesize:

Hypothesis 2C: *Integrative governance positively impacts on BPO success.*

To test the above derived hypotheses on governance and BPO success we analyse the effect of the different constructs for governance on the gains in profitability and cost efficiency of the banks in a three year period after the BPO.

Transaction costs

Contractual relationships are associated with transaction costs which can stem from negotiating and writing contracts, monitoring contractual performance, enforcing contractual promises, or breaches of contractual promises (Joskow, 1985). Thus, analyzing the financial impact of BPO on firms, we also have to control for transaction costs which are related to the outsourcing arrangement. However, we are not able to observe those transaction costs directly as most firms do not quantify the costs of vendor selection or contract negotiations separately from other overhead costs and, if even those figures were available, it is unlikely that these costs would be revealed in a survey. We therefore observe contract duration and monitoring effort of the outsourcing contracts as proxies for transaction costs for (repeated) contract negotiations and for the enforcement of contractual performance and promises. As we could not find clear cut scenarios on the effects of contract duration and monitoring effort on firm performance in the theoretical literature, and empirical evidence is scarce, we will not formulate hypotheses on the direction of these effects on the financial performance of the outsourcer.

Vendor performance is influenced by the monitoring effort of the outsourcer (Ngwenyama and Bryson, 1999). Diligent monitoring will force the vendor to meet the promised performance levels and avoid costs associated with breaches of contractual promises. On the other hand, increased monitoring effort will increase the costs for the additional resources necessary to control the vendor.

As contract (re-)negotiations or even the evaluation of new suppliers are associated with transaction costs, shorter contract durations should influence the financial performance of a firm negatively. On the other hand Lacity and Willcocks (1998) find that most firms only sign outsourcing contracts for a period where the environment and requirements can be assumed to remain stable. Subsequently they can show that a change in environmental factors

was the main reason for outsourcing arrangements not realising the expected cost savings. They conclude that shorter outsourcing contracts are favourable for the outsourcing firms, as contracts can be adjusted to current external conditions (e.g. market price, technical standards) when they are re-negotiated more frequently. The processing of securities and payments is highly regulated and also highly standardized at least for plain vanilla products. Thus we can regard the environment for these back office services as being stable over a long period, which might be in favour of longer contract duration.

DATA

Sample selection

The sample was drawn from the pool of 2,344 banks that were registered to conduct business in Germany in 2005. From this pool, the 500 largest banks were chosen based on total reported assets. The cumulative assets of these banks account for more than 90 per cent of the total assets in the German banking industry (based on (Bundesbank, 2006) and (Karsch, 2006)).

As the unit of analysis is an outsourced business process, we identified the BPO of two banking processes for investigation: *settlement of securities* and *domestic payment*. These processes are ideal candidates for BPO as they are digitally enabled and target areas for outsourcing as they do not represent core competencies, which banks typically do not outsource (Lamberti and Pöhler, 2004).

In 2006, our questionnaire was sent to managers responsible for one of the back-office business processes in Germany's top 500 banks. To ensure that the questionnaire was targeted to the most informed respondent, all banks were contacted by phone to identify the managers responsible for each of the two business processes. As not all processes in each bank are outsourced, the questionnaire first asked managers to indicate if the business process

is outsourced or not. The managers who indicated that it was outsourced were requested to complete the rest of the questionnaire, while the others were requested to inform us by e-mail that the process was not outsourced. Overall, we received information that 499 processes were outsourced and 372 were not. In total, 220 usable questionnaires were returned. Considering 499 outsourced processes, this implies a response rate of 44.1%.

Non-respondents primarily did not participate due to lack of time or interest. To further test non-response bias, the difference between the demographics of the respondent group versus the non-respondent group was examined. For this analysis, bank size was used for a χ^2 analysis. It turned out that no differences existed between the distribution of participants and the distribution of the original sample ($\chi^2 = 5.61$, $\rho < 0.5$). Thus, in terms of bank size, our sample is not systematically biased.

We only included banks in our sample were we could obtain information on the outsourcing status of both securities and payments processing. Omitting banks with incomplete information from our sample has the disadvantage of losing observations; however this approach ensures that we can construct unbiased sub-samples of banks that have outsourced processes and such banks without any BPO activities. At the very least we needed the information whether the process has been outsourced and the year the outsourcing took place. In total we received this information from 254 banks, of which 140 had not outsourced any of these processes. 15 banks had the securities processing process outsourced before 1991 (one bank as early as 1969). As our analysis covers the period from 1994 to 2005 and we are mainly interested in the effects of BPO on Bank performance in a three year period after the BPO takes place we include those banks in our control group as being without BPO events. Thus our control group consists of 155 banks in total. 32 banks report having only outsourced their securities operations, 29 banks report having outsourced only their payments processing,

and 38 banks have outsourced both processes. Thus, in total we find 99 banks and 137 BPO events in our sample in the timeframe between 1992 and 2006. An overview of the historical distribution of the BPO events is given in Table 3, Panel A. The majority of the banks started to outsource their processes after the year 2000 with a maximum of 25 BPO events in the years 2001 and 2004.

[Insert Table 3 about here]

Accounting data are taken from the Fitch IBCA Bankscope database for a period from 1994 to 2005. However we did not find accounting data for each bank in every year as BankScope contains more observations for recent years. Thus we can observe a different number of banks in each year with a maximum of 250 banks in 2004 (unbalanced panel). The full sample consists of 2642 bank-year observations for 254 banks over 12 years (Table 4). The number of employees was obtained from annual reports if it was not provided by Bankscope, however we were only able to find this figure for about three quarters of our sample.

[Insert Table 4 about here]

To perform the median difference tests of the change in bank performance in a three year period after the BPO event and to subsequently derive factors for successful outsourcing settings and the influence of governance on the outcome of BPO, we have to further reduce our sample as we can only include banks where we could obtain accounting data for the full period beginning from the year of the BPO until three years later, which automatically excludes all BPO events after 2002. These restrictions reduce our sample to 66 BPO observations. An overview of the reduced sample is given in Table 3, Panel B. Six banks out sourced both securities processing and payments processing in the same year, which we count as one event, which leaves us with 61 BPO events for the median difference tests. As we collected separate questionnaires for each process that was outsourced, we use all 66 BPOs in

our regressions to evaluate the impact of governance. We use the calculated change in the performance of the banks that outsourced both processes in the same year as the value of the dependent variable for both processes and control for simultaneous outsourcing in the regressions.

Variables

To measure cost efficiency we use the cost-income-ratio (CIR) defined as operating income over total operating costs of the banks. Profitability is measured by the operating return over assets (ROA) which does not include extraordinary income from value adjustments to securities etc.. The change in total costs is measured by total operating costs normalized by total assets (cost-to-asset ratio). Due to the limited availability of data we are not able to observe the number of employees directly, thus we have to use personnel expenses as proxy for the size of the banks' workforce. The change in size of the workforce is measured by personnel expenses over total assets, labor productivity is measured by operating income over personnel expenses. An overview of the performance measures as well as the control variables used in the panel regressions is given in Table 5.

[Insert Table 5 about here]

The variables used in the cross sectional regressions on outsourcing success are derived from the questionnaires. While the variables EQUITY_STAKE and INDIVUDUAL_CONTRACT are dummy variables, the variable measuring the perceived service provider process know-how is based on a seven score Likert scale (1=strongly disagree; 7=totally agree). Monitoring effort is measured by the annual effort in man-days reported by the respondents over number of employees of the respective bank. Contract duration is measured in years. If the responding manager indicated that the contract duration is unlimited we set the value to 20 years. We also used lower (15 years) higher values (up to 30 years) for unlimited contract duration which did not alter the results. We also include a dummy variable for banks that

outsourced both processes in the same year to control for the effects of a simultaneous outsourcing of two processes. The descriptive statistics of the variables used in these regressions are given in Table 8.

METHODOLOGY

The goal of our analysis is to measure the direct effects of BPO on firm performance in the years after the actual outsourcing was completed. As this kind of analysis is scarce in the outsourcing literature we draw on the research on mergers and acquisitions (M&A) where effects of takeovers or mergers on firm performance following the transactions are frequently analyzed.

To disentangle the effects of BPO from other economic or industry effects we compare the characteristics of banks after a BPO event to non-outsourcing banks in the same period. We focus our analysis on a three year period after the BPO. In our view the one year period proposed by Jiang *et al.* (2006) is too short to capture the full effects of BPO as the bank might face transitional costs which will lover the performance in the year after the outsourcing. Looking at a longer period than three years we can be less sure that other effects than the BPO events influence our results. Additionally, using a longer period would further reduce our sample. In the control group we include all banks from our survey that have not outsourced a business process. In the Bank M&A literature a similar approach of industry peer adjusted measurement of post merger performance is employed (e.g. Knapp, Gart, and Becher, 2005; Pilloff, 1996). Jiang *et al.* (2006) also compare outsourcing firms to non-outsourcing firms to evaluate the effects of outsourcing events.

We employ univariate median difference tests and multivariate panel regressions to evaluate the effects of BPO on firm performance. To perform the median difference tests we compare the change in the performance metrics of the BPO-banks to the change of the same metrics of

the control group in the same period. As many studies found different pre-event

characteristics of outsourcing firms (e.g. Ang *et al.*, 1998; Hall *et al.*, 2005; Smith *et al.*,

1998), we do not look at the absolute values of the performance metrics three years after the

event but rather at the change of these metrics over a three year period after the BPO to

ensure that the observed effect stems from BPO. To test for the significance of the difference

between the two groups we use a parametric t-test and the non-parametric Wilcoxon signed

rank test.

$$
(1) \qquad Z_i^{Difference} = \left[Z_i^{T+3} - Z_i^T \right] - \left[\mathrm{Median}(Z_{ControlGroup}^{T+3}) - \mathrm{Median}(Z_{ControlGroup}^T) \right]
$$

where Z is any performance metric (cost efficiency, profitability), *i* denotes the values for

bank *i*, *T* is the year of the BPO and *T+3* is three years after the outsourcing.

Following Focarelli and Panetta (2003) who analyze effects after bank mergers, we also

perform panel regressions on the performance measures using a set of control variables and

dummy variables for the years after the BPO event.

$$
(2) \qquad \begin{aligned} Z_{i,t} = {} & \alpha + \beta_0 \cdot preBPO_{i,t} + \beta_1 \cdot BPO_{i,t}^{T+1} + \beta_2 \cdot BPO_{i,t}^{T+2} + \beta_3 \cdot BPO_{i,t}^{T+3} + \beta_4 \cdot BPO_{i,t}^{T>3} \\ & + \boldsymbol{\gamma} \cdot \mathbf{BANK}_{i,t} + \boldsymbol{\delta} \cdot \mathbf{Env}_t + \varepsilon_{i,t} \end{aligned}
$$

where $Z_{i,t}$ is any performance metric (cost efficiency, profitability) for bank i in year t, α is

the intercept, $BANK_{i,t}$ is a vector of bank-specific time-varying control variables, Env_t is an

environmental variable and ε the error term. A definition of the control variables is given in

Table 5. preBPO is a dummy variable which controls for the performance of the BPO banks

before the outsourcing takes place to ensure that the measured performance difference

actually is related to the outsourcing event. Otherwise we could not be sure whether the BPO

only performed better or worse after the BPO or already had a different level of performance

before the BPO and the measured difference can not be related to the BPO-event. Thus this

dummy variable takes the value of 1 for all banks that have outsourced a business process in

the years before the outsourcing and 0 otherwise. $BPO_{i,t}^{T+1}$, $BPO_{i,t}^{T+2}$ and $BPO_{i,t}^{T+3}$ are

dummies for one two and three years after the BPO. Finally $BPO_{i,t}^{T>3}$ takes the value of 1 for

the banks four and more years after the BPO and 0 otherwise. For all banks in our sample

with no BPO event at all, all these dummies are zero.

Some banks in our sample outsourced two processes at different times during our observation

period. This has to be reflected in the BPO dummies. The first BPO of those banks is treated

equally to banks which outsourced only one process. After the second BPO the BPO

dummies reflect the second outsourcing. For example, if a bank outsourced the second

process two years after the first BPO, in year three after the first BPO the $BPO_{i,t}^{T+1}$ dummy is

set to one instead of the $BPO_{i,t}^{T+3}$ dummy, , reflecting the second BPO. As we expect the

effects to increase over time this is a rather conservative approach which will underestimate

the results.

In a second step we want to analyze the influence of BPO governance on the success of BPO.

For this purpose we test whether the variables reflecting the constructs for BPO governance

explain the different development of the target banks compared to the control group

employing OLS regressions. As endogenous variable we use the industry-adjusted gains in

profitability (measured by ROA) and cost efficiency (measured by CIR) derived from

equation (1). For each of the two endogenous variables we run multivariate cross sectional

OLS regressions to estimate the effect of the influence factors discussed above, assuming a

linear relationship between the dependent and independent variables. We also include a

dummy for banks that outsourced both processes at the same time to control for larger effects

which might be observed if both processes are outsourced jointly.

$$(3) \qquad Z^{Difference} = \alpha + \sum_{m=1}^{n} \beta_m \cdot F_m + \mu \cdot SIMULTANEOUS\_BPO + \varepsilon$$

with Z either ROA or CIR difference, β_0 = regression constant, F_m = independent variable m, β_m = coefficient of independent variable m, n = number of independent variables, and ε = error term.

RESULTS

BPO and firm performance

Starting with the results of the median difference tests (Table 6), we observe an absolute increase in profitability, measured by ROA, in the three year period after the BPO of 0.06% while the ROA of the control group declined in the same period. The difference between BPO banks and control group is highly significant at a one percent level for the t-test as well as for the Wilcoxon test. While an absolute increase of 0.06% does not seem to be a large increase in profitability at first sight one has to keep in mind that the average ROA of the banks at the time of the BPO was 0.19%. Thus the observed change in ROA means a relative improvement in profitability of over 30 percent while the profitability of the control group decreased. Looking at the median difference test of the cost efficiency the results are not so clear. The cost-to-income ratio of both the BPO banks and the control group decreased after the BPO events, which is equivalent to an improvement in cost efficiency for both groups. The CIR of the BPO banks decreased by twice the value of the control group but the t-test is not significant. Only the nonparametric Wilcoxon test shows a significance of the difference at a 10% level. Thus, from our univariate analysis we can derive the results that both the profitability and the cost efficiency of the banks are improved following BPO with the limitation of a low significance for the cost efficiency.

[Insert Table 6 about here]

We now turn to the other metrics to better understand the effects that lead to the observed improvements after BPO. The cost-to-to asset ratio, the proxy for overall cost changes, also

decreased for both groups. Again the BPO banks were able lower their overall costs to a greater extent, but the difference is not significant at all. Interestingly we can not observe a workforce reduction, measured by personnel expenses over total assets for either of the two groups. Finally, the variable measuring employee productivity increased significantly more for the BPO banks than for the control group. Both the t-test and the Wilcoxon test are significant at a 5% level.

The results of the panel regressions depicted in Table 7 confirm the findings of the univariate analysis and, making use of the larger, full sample of outsourcing banks, are even more robust. The regression on ROA (R^2=0.22, p-value=0.00) shows that the ROA of banks prior to the outsourcing is lower than the average bank in our sample. The preBPO dummy is significantly negative. In years one and two after the BPO the ROA is not significantly different from the other banks, which is still an improvement. Only after three years and later is the ROA of those banks that outsourced business processes significantly better than the average banks. Thus we can show that banks were able to improve their profitability constantly after BPO and coming from a below-average-level were able to gain and maintain a profitability level above the industry average three years after the outsourcing was completed. The regression on the cost-to-income ratio (R^2=0.22, p-value=0.00) shows more robust results than the median difference tests. While there is no difference in cost efficiency before BPO compared to the industry average, the banks making use of outsourcing can improve the cost efficiency (lover the CIR) constantly over the next three years after BPO raising the efficiency above industry level. The effects even hold in the time after three years but the CIR again rises slightly.

[Insert Table 7 about here]

The BPO-dummies in the cost-asset ratio regression (R^2=0.76, p-value=0.00) show no effect after BPO at all. Only the preBPO dummy is positive and significant, indicating that the

banks engaging in outsourcing had higher costs before the BPO event than their peers. After BPO they were able to lower their costs to the industry level. The workforce regression (R^2=0.78, p-value=0.00) shows no impact of BPO on the number of employees, measured by personnel expenses over total assets. Thus we can conclude that BPO was not used to reduce the workforce of the banks. On the other hand we can show that the employee productivity, the revenue per employee, increased after BPO. While we see no difference in employee productivity to the control group before BPO the productivity increased afterwards (R^2=0.78, p-value=0.00 of the regression).

Our analysis clearly shows that banks are able to increase profitability and cost efficiency by BPO. Contrary to what one might have expected, BPO does not lead to a reduction in workforce. While the overall costs are slightly lowered to the level of the industry average, the main effect of performance improvement stems from increasing revenue. This additional revenue is generated by the same workforce, which is equivalent to an increase in employee productivity.

The increase in workforce productivity might stem from the relocation of back office resources to revenue generating tasks. Especially in the smaller and medium sized banks in our sample, employees are responsible for sales tasks as well as for all related paperwork, entering transactions in IT-systems, etc.. Making use of the more sophisticated processes and systems of the service provider and being freed from non revenue generating administrative tasks, employees can spend more time with customers and thus increase the sales effort of the bank. In larger banks the same effect can be achieved by transferring the back office staff to the vendor and hiring sales staff at the same time.

The observed increase in revenue may also stem from an advanced product portfolio the bank is able to offer utilizing the specialized know-how of the service provider. Banks can now sell

more complex products which they could not have processed while the back office tasks were still performed in-house.

The influence of BPO governance

We now look at the results of the influence of outsourcing governance on BPO success measured by gains in performance and cost efficiency (Table 10). To better understand the results of this analysis we should point out that negative coefficients in the cost-to-income regression imply a positive influence of the corresponding variable on cost efficiency. The control variable for the simultaneous outsourcing of both processes is not significant in both regressions, which shows that the simultaneous outsourcing of two processes at the same time does not lead to a better performance than the outsourcing of only one process. On the other hand that means that it is favorable for banks to outsource processes one at a time to increase the benefits.

[Insert Table 10 about here]

Partly confirming hypothesis 2A, relational governance has a strong positive influence on the profitability of the outsourcing bank. As the perceived process knowhow of the service provider leads to increased revenue for the outsourcing bank, we can conclude that the management of the outsourcing bank makes use of the enhanced processing capabilities of the service provider and enriches the product portfolio offered to the customers. This finding provides additional evidence that BPO enables the banks to sell more complex, higher margin bearing products which they could not have offered when the back office processing was still performed in-house.

On the other hand, the process know-how of the service provider does not seem to influence the cost efficiency of the banks. If indeed the banks do make use of the additional capabilities of the service provider and sell more sophisticated products, this might explain the higher

costs of the back office services. While this will increase the overall profitability, as these products generate more revenue, the cost efficiency is not improved.

Contractual governance has a positive influence on both profitability and cost efficiency, which confirms hypothesis 2B. Banks benefit from individual contracts as the services provided by the vendor are tailored to the specific needs of the banks.

The variable EQUITY_STAKE, the proxy for integrative governance, is not significant in either regression. Thus we can deduce that integrative governance has no influence on outsourcing success. It does not make any difference whether the firm providing the outsourcing services is (partially) owned by the outsourcing bank. Thus hypothesis 2C is not supported by our results.

The monitoring effort required to control the service provider has a different effect on the two metrics of bank performance. High monitoring effort leads to lower profitability as it ties up resources in controlling activities which can not be used in an efficient way to generate more revenue. As we have seen in the breakdown of the effects of BPO on profitability, banks seem to shift resources from back office functions to more customer-related functions. The more resources there are involved in the monitoring process, the less effort can be focused on sales related functions. On the other hand diligent monitoring of the BPO arrangement can improve the cost efficiency as we can see from the cost-to-income regression. Tight control mechanisms will force the service provider to meet the targets and service level agreements agreed upon.

Contract duration only has an effect on cost efficiency while profitability is not affected. The longer the contract duration, the higher the operational cost savings achieved by BPO. We can conclude that long term contracts do not have the disadvantage of locking in terms and conditions which become unfavorable for the banks over time. Long term contracts seem to

encourage both parties to invest more in the relationship and to put more emphasis on ongoing process improvements, which has positive effects on the cost efficiency of the outsourcer.

Limitations

Our findings provide interesting insights into the way BPO affects firm performance. However, several limitations have to be considered. First, we have no insight into firm strategy. We imply that at least one target of BPO was an improvement in firm performance. We can not control for other strategic factors which might have an effect on firm performance, e.g. there might have been a strategic realignment preceding the BPO decision resulting in a stronger performance orientation of the banks. Second, we can not directly observe the mechanisms of the way BPO affects firm performance. Our explanations are based on indirect measures and hypotheses derived from the theoretical literature on outsourcing. For example we have no direct evidence that employees are redeployed to more value-generating tasks after BPO.

CONCLUSION

This paper tries to answer two research questions: what is the impact of BPO on firm performance and how is the outsourcing success influenced by BPO governance?

Based on an analysis of 137 BPO ventures at 254 German banks in a period between 1994 and 2005 we find that the outsourcer's financial performance in terms of profitability and cost efficiency was increased significantly compared to industry peers without BPO in a three year period following the outsourcing event. We employ median difference tests to compare the performance of outsourcing banks to their peers as well as panel regressions based on 2,642 bank-year observations. Breaking the impact of BPO down further, we find that the main effects stem from increased revenue which is generated with an unchanged level of

resources. Thus, we do not observe a reduction in workforce, but rather increased employee productivity, i.e. the banks are able to generate more revenue per employee. We conclude that the increase in workforce productivity stems from the relocation of back office resources to revenue generating tasks. Making use of the more sophisticated processes and systems of the service provider and being free of non revenue generating administrative tasks, employees can spend more time with customers and thus increase the sales effort of the bank. In lager banks the same effect can be achieved by transferring the back office staff to the vendor and hiring sales staff at the same time. The observed increase in revenue may also stem from the advanced product portfolio the bank is able to offer utilizing the specialized know-how of the service provider. Banks can now sell more complex products which they could not have processed while the back office tasks were still performed in-house.

In a second step using the excess performance of outsourcing banks as endogenous variables, we can show that BPO governance influences outsourcing success in terms of financial performance. Individually negotiated outsourcing contracts help to improve the cost efficiency as well as the profitability of the banks. Using a construct of competence-based trust, we also find that relational governance has a positive influence on profitability after BPO. We conclude that the management of the outsourcing banks make use of the enhanced processing capabilities of the service provider and enrich their product portfolio if they have a high level of confidence in the know-how of the service provider.

Our contribution to the academic literature is twofold. Firstly, to the best of our knowledge, this is the first empirical work addressing the long term effects of BPO on firm performance and one of the first studies on the economic outcomes of outsourcing at all. By combining survey techniques with the use of archival data we avoid a potential common method bias inherent in several empirical studies on performance implications of IT-outsourcing.

Secondly, we show how the economic outcomes of BPO can be achieved by contractual, relational, and integrative governance instruments.

This paper sheds light on the long term implications of BPO on firm performance and the influence of BPO governance from a bird's eye view. Further research based on long term case studies of single outsourcing ventures could provide more evidence from an inside view of how exactly the organization is affected by BPO and by what mechanisms the achievements impact overall firm performance.

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Table 1: Empirical research on vertical integration and outsourcing

Article	Industry focus	Time period	Outsourcing Measurement	Findings
Studies on vertical integration				
(D'Aveni et al., 1994)	US manufacturing	1975-1977	Value of inter-company transfers between different units over sales and cost of sales	High vertical integration has positive influence on performance
(Görzig et al., 2002)	German manufacturing	1992-2000	• Material input over labor cost • External contract work over labor costs • External services over labor costs	• Better performance in terms of return per employee for all types of outsourcing • Increased material input: positive influence on return over sales • Services outsourcing: negative effect on return over sales
(Gellrich et al., 2005)	Anglo-Saxon and European Banks	1995–2002	Value add over sales	Banks benefit from either a very high or a low vertical integration
(Görg et al., 2004)	Irish electronics	1990-1995	Total bought inputs over value add	• Large plants profit from material outsourcing • No clear cut results from service outsourcing
(Girma et al., 2004)	UK manufacturing	1980-1992	Industrial services received over total labor costs	Positive effects only in some sectors
Studies on outsourcing				
(Kotabe et al., 1998)	US service firms	Not dis-closed	Survey	Outsourcing of supplemtary services positive influence
(Gilley et al., 2000)	Manufacturing	Not dis-closed	Survey	No direct impact of outsourcing on firm performance Outsourcing effects depend on firm strategy
(Benson et al., 2002)	Australian cross industry	1998	Survey	Reduction of labor costs but reduction through outsourcing does not exceed reduction through other forms of restructuring
(Jiang et al., 2006)	Cross industry	1990-2002	Search for outsourcing deals in news clippings	• Outsourcing improves cost efficiency • No improvement of productivity and profitability

Table 2: Governance constructs

Governance	Construct	Definition	Informing literature
Relational	Competence based trust	Expectation of technically competent role performance: using supplier's experience and expertise as self-enforcing mechanism.	(Barber, 1983; Hewitt-Dundas, 2001; Mayer, Davis, and Schoorman, 1995; Woolthuis, Hillebrand, and Nooteboom, 2005; Zaheer and Venkatram, 1995)
Contractual	Adopting a standard or individual contract	<u>Standard contract:</u> off-the-shelf, externally provided contract that is not adjusted to outsourcer's specific needs. <u>Individual contract:</u> individually negotiated contract clauses.	(Lacity and Hirschheim, 1993; Lee *et al.*, 2004; Woolthuis *et al.*, 2005; Zaheer *et al.*, 1995) (Hewitt-Dundas, 2001)
Integrative	Level of quasi-integration	Extent to which the outsourcer holds equity in the vendor	(Blois, 1972; Hewitt-Dundas, 2001; Zaheer *et al.*, 1995)

Table 3: Historical distribution of BPO events

	Panel A: Full sample			Panel B: Reduced sample		
Year	Securities Processing	Payments Processing	Total	Securities Processing	Payments Processing	Total
1992	1	0	1			
1993	1	2	3			
1994	4	0	4	3	0	3
1995	2	0	2	1	0	1
1996	1	0	1	0	0	0
1997	2	1	3	2	1	3
1998	5	1	6	3	1	5
1999	4	3	7	4	2	6
2000	12	4	16	11	3	14
2001	6	19	25	6	16	22
2002	7	8	15	7	6	13
2003	5	8	13			
2004	13	12	25			
2005	4	6	10			
2006	3	3	6			
Total	**70**	**67**	**137**	**37**	**29**	**66**

Panel A includes all observed BPO events

Panael B includes only those BPO events where accounting data in a period from the year of the BPO until three years later are available

Table 4: Panel data, bank – year observations

Year	No. of Banks	Percent
1994	126	4.77
1995	186	7.04
1996	187	7.08
1997	197	7.46
1998	239	9.05
1999	241	9.12
2000	243	9.2
2001	245	9.27
2002	246	9.31
2003	249	9.42
2004	250	9.46
2005	233	8.82
Total	**2,642**	**100**

Table 5: Definition of variables

Variable	Definition
Performance measures	
ROA	Operating return over total assets (%)
CIR	Cost-to-income ratio (%)
COST/ASSET	Total operating costs over total assets (%)
EMPL/ASSET	Total personnel expense over total assets
EMPL/PROD	Employee productivity; Total operating return over total personnel expense (%)
Control variables panel regression	
SIZE	Log of total assets
LOANS/DEPOSITS	Total loans over deposits (%)
OTHEROPERATINGINC/ASSETS	Other operating income (excluding interestincome) over total assets (%)
PERSONNELEXPENSE/OVERHEADS	Total personnelexpense divided by total overhead costs (%)
REVENUEDIVERSIFICATION	Revenue diversification; Adjusted herfindahl index based on interest income, fee income, and other income
OFFBALANCESHEET/ASSETS	Off balance sheet items over total assets (%)
LOANSLOSSPROV/NETINTREV	Loans loss provisions divided by net interest revenue (%)
EQUITYTOTALASSETS	Equity over total assets (%)
NETINTERESTMARGIN	Net inerest margin (%)
GDPGROWTH	Annual growth of the Gross domestic product in Germany (%) Source: United Nations Statitics Division
SAVINGS	Dummy variable for savings banks
COOPERATIVE	Dummy variable for co-operative banks
MORTGAGE	Dummy variable for mortgage banks
Endogenous variables: Cross sectional regression; Influence of BPO governance	
SIMULTANEOUS_OUTSOURCING	Dummy variable, takes the value of 1 if the bank sourced out both processes in the same year
SUP_PROCESS_KNOW_HOW	Perceived process know-how of the service provider; Likert scale ranges from 1=strongly disagree to 7=totally agree
INDIVUDUAL_CONTRACT	Dummy variable; 1 for individual contracts, 0 for standard contracts
EQUITY_STAKE	Dummy variable; 1 if the service provider is (partly) owned by the outsourcer
MONITORING_EFFORT	Annual effort to control the BPO venture in man-days reported by the respondents over number of employees
CONTRACT_DURATION	Contract duration in years. The variable is set to 30 for unlimited contracts

Table 6: Median difference tests

Variable	N	BPO	Control Group	Difference	t-Test t-Statistic	p-Value	Wilcoxon z-Statistic	p-Value
ROA	61	0.06	-0.01	0.07	3.25 ***	0.00	3.15 ***	0.00
CIR	61	-3.15	-1.58	-1.57	-1.63	0.11	-1.68 *	0.09
Cost/Asset	61	-0.09	-0.01	-0.08	-0.84	0.41	-0.02	0.99
Personn/Asset	61	0.00	0.00	0.00	0.22	0.83	0.63	0.53
Pers.-Product.	61	16.91	1.25	15.66	2.20 **	0.03	2.13 **	0.03

*** p<0.01, ** p<0.05, * p<0.1

Table 7: Panel regressions

Control-Variables	ROA	CIR	Cost/Asset	Personn/Asset	Pers.-Product
SIZE	0.0452 *	-4.664 ***	-0.2317 ***	-0.108 ***	34.339 ***
	(1.93)	(-6.45)	(-7.25)	(-6.86)	(4.55)
LOANS/DEPOSITS	-0.0002 *	-0.0173 **	-0.0000	-0.0002 ***	-0.0755
	(-1.93)	(-2.48)	(-0.18)	(-2.83)	(-0.71)
OTHEROPERATINGINC/ASSETS	0.214 ***	-3.8893 ***	0.4088 ***	0.2321 ***	21.0343 ***
	(2.87)	(-4.41)	(7.57)	(6.72)	(3.05)
PERSONNELEXPENSE/OVERHEADS	0.0055 ***	-0.6240 ***	-0.0185 ***	0.009 ***	-5.0328 ***
	(3.37)	(-11.8)	(-8.63)	(10.1)	(-8.99)
REVENUEDIVERSIFICATION	-0.6523 *	12.1235	0.7546 ***	0.2635 *	-91.5654
	(-1.88)	(1.49)	(2.72)	(1.72)	(-1.54)
OFFBALANCESHEET/ASSETS	0.0003	-0.0046	-0.0001	0.0000	0.0381 **
	(1.56)	(-0.99)	(-0.32)	(0.42)	(2.07)
LOANSLOSSPROV/NETINTREV	-0.0025 ***	-0.0309 ***	-0.0015 ***	-0.0008 ***	0.1705 *
	(-4.75)	(-2.62)	(-3.58)	(-4.78)	(1.89)
EQUITYTOTALASSETS	0.0099	1.1823 ***	0.0357 ***	0.0196 ***	-2.9842 **
	(0.69)	(3.97)	(3.32)	(3.40)	(-2.01)
NETINTERESTMARGIN	0.0582 ***	-6.3712 ***	0.2744 ***	0.1472 ***	42.0317 ***
	(2.70)	(-10.6)	(10.9)	(10.9)	(5.28)
GDPGROWTH	0.0176 ***	-0.4609 ***	-0.0077	-0.0051 *	1.2971
	(3.64)	(-3.09)	(-1.52)	(-1.94)	(0.98)
Institutional Dummies					
SAVINGS	-0.0150	4.8779 *	0.0794	0.0954	-49.3674 **
	(-0.22)	(1.87)	(0.73)	(1.60)	(-2.40)
COOPERATIVE	-0.0092	2.7993	-0.0125	0.0702	-32.4428
	(-0.13)	(0.95)	(-0.10)	(1.08)	(-1.43)
MORTGAGE	0.0598	-15.032 ***	-0.2631 **	-0.0186	236.1535 ***
	(0.68)	(-2.70)	(-1.99)	(-0.29)	(2.79)
BPO-Dummies					
PRE-BPO	-0.0386 **	0.8401	0.0384 **	0.0160	-2.6662
	(-2.05)	(1.16)	(2.02)	(1.55)	(-0.60)
BPO t+1	-0.0095	-2.3246 *	-0.0180	-0.0037	18.6399 *
	(-0.25)	(-1.80)	(-0.62)	(-0.24)	(1.84)
BPO t+2	0.0067	-2.4141 **	-0.0263	-0.0204	16.553 *
	(0.33)	(-2.38)	(-0.95)	(-1.29)	(1.85)
BPO t+3	0.0429 *	-3.3533 ***	-0.0388	-0.0148	21.5814 **
	(1.95)	(-2.72)	(-1.23)	(-0.81)	(2.20)
BPO t>3	0.0509 *	-2.3809 **	-0.0041	0.0009	17.5173 **
	(1.84)	(-2.54)	(-0.16)	(0.057)	(2.26)
Constant	-0.5899 **	148.848 ***	3.6209 ***	0.7654 ***	244.1565 **
	(-1.99)	(17.0)	(8.80)	(3.84)	(2.47)
Number of Observations	2575	2573	2575	2575	2575
Number of Banks	253	253	253	253	253
R²	0.22	0.14	0.76	0.78	0.37
χ²	113.8	496.0	1590	2173	205.4
p-value	0.00	0.00	0.00	0.00	0.00

z statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

All regressions are controlled for multi-collinearity using variance inflation factors. We

employ White-corrected estimators to control for heteroscedasticity.

Table 8: Descriptive statistics; Influence of BPO governance

Variable	N	Mean	Median	Std. Dev.	Min	Max
ROA Median Difference	66	0.085	0.034	0.188	-0.226	0.648
CIR Median Difference	66	-1.908	-2.070	7.909	-25.665	16.515
SIMULTANEOUS_OUTSOURCING	66	0.179			0.000	1.000
SUP_PROCESS_KNOW_HOW	66	6.015	6.000	1.493	1.000	7.000
INDIVUDUAL_CONTRACT	66	0.119			0.000	1.000
EQUITY_STAKE	66	0.612			0.000	1.000
MONITORING_EFFORT	66	0.063	0.028	0.103	0.000	0.732
CONTRACT_DURATION	66	15.894	20.000	7.194	1.000	20.000

Table 9: Correlations; Influence of BPO governance

	SIMULTANEOUS _OUTSOURCING	SUP_PROCESS _KNOW_HOW	INDIVUDUAL _CONTRACT	EQUITY_STAKE	MONITORING _EFFORT	CONTRACT _DURATION
SIMULTANEOUS_OUTSOURCING	1.00					
SUP_PROCESS_KNOW_HOW	0.15	1.00				
INDIVUDUAL_CONTRACT	0.07	-0.47	1.00			
EQUITY_STAKE	0.05	-0.01	-0.27	1.00		
MONITORING_EFFORT	-0.10	0.08	-0.12	-0.03	1.00	
CONTRACT_DURATION	0.11	0.16	-0.15	0.02	-0.03	1.00

Table 10: Cross sectional regression; Influence of BPO governance

Variables	Endogenous Variables	
	ROA Median Difference	CIR Median Difference
SIMULTANEOUS_OUTSOURCING	0.1093	-3.4459
	(1.63)	(-1.42)
SUP_PROCESS_KNOW_HOW	0.0319 **	-0.1632
	(2.02)	(-0.23)
INDIVUDUAL_CONTRACT	0.1873 **	-7.0713 **
	(2.46)	(-2.09)
EQUITY_STAKE	0.0023	2.3686
	(0.058)	(1.21)
MONITORING_EFFORT	-0.5028 ***	-17.9881 *
	(-4.24)	(-2.01)
CONTRACT_DURATION	0.0018	-0.2737 **
	(0.73)	(-2.12)
Constant	-0.1452	4.5444
	(-1.24)	(0.87)
Number of Observations	66	66
Adj. R²	0.20	0.16
F	4.504	3.059
p-value	0.00	0.01

t statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

All regressions are controlled for multi-collinearity using variance inflation factors. We employ White-corrected estimators in the ROA-regression to control for heteroscedasticity.