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# Nordic Journal of Business

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# Editor's Letter

The current issue of the *Nordic Journal of Business* includes three articles. The first article by Maria Ihamuotila, Eva Liljebloom and Benjamin Maury focuses on the role of experience for acquiring firms when conducting acquisitions of high-tech target firms. In the second article, Tuomas Honkamäki, Markus Mättö and Hannu Ojala examine how the choice between fair value and cost-based accounting models influences the quality of financial reporting. Finally, the third article by Priyanka Shrivastava, Mirjami Ikonen, Taina Savolainen and Enkh-Otgon Dorjgotov investigates the lifecycle of organizational transformations and how it influences the development and sustenance of trust within employees.

I hope you enjoy reading the interesting articles included in this issue of the *Nordic Journal of Business*.

**Sami Vähämaa**

Editor

Nordic Journal of Business

# High-Tech Acquisitions by Low-Tech Firms: Does Acquirer Experience Count?

Maria Ihamuotila, Eva Liljebloom and Benjamin Maury

We study whether experience matters for acquirers in nontech sectors when conducting acquisitions of high-tech targets. The topic is motivated by the rapid development of advanced and digital technologies that have fueled tech-related M&A volumes, where companies seek high-tech targets to substitute or complement their own R&D and to stay competitive. Studying 1146 tech-oriented deals announced by European acquirers during the period of 2006-2019, we find acquirer investors to be clearly optimistic about such takeovers with positive and significant two-day cumulative abnormal returns of 0.82%. We also find that industrial acquirers seem to gain substantially. Finally, one-time buyers were found to experience significantly higher cumulative abnormal returns than frequent buyers, and frequent buyers exhibited a weak declining return pattern in subsequent deals. This implies that companies are rewarded for acquiring digital technology, especially in their first initiative to digitalize their business.

## Keywords:

High-tech, M&As, Experience

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## 1. Introduction

The digital revolution has advanced technological solutions in various fields, and digital technology brings important competitive capabilities to firms in all sectors. The role of digital technology is developing from enabling and supporting to influencing and even guiding the overall strategic direction of corporations (Ivang et al., 2009; Porter & Heppelmann, 2014). In addition, the recent economic boom has fueled firms' desire to grow, and Mergermarket (2018) reports a steadily rising number of M&A deals for approximately a decade now. The share of transactions involving a high-tech target has been growing faster than the overall M&A market, and the growth is increasingly characterized by firms operating in nontechnological sectors buying high-tech companies.<sup>1</sup> However, technology acquisitions are often seen as costly and challenging to acquirers. High-technology targets are typically characterized by high valuation multiples, and it is far from an easy task to integrate an innovative high-tech target into a large, traditional company. Nevertheless, some empirical studies, e.g., Kohers & Kohers (2000) and Lusyana & Sherif (2016), find that the market tends to exhibit excess enthusiasm about the potential benefits of many high-tech acquisitions and that this optimism has increased over time.

Several studies report evidence on the importance of general acquisition experience, or target familiarity in some form, either for acquisition probability (Duarte and García-Canal, 2004; Collins et al., 2009), performance/value creation in M&As (Beckman and Haunschild, 2002; Halebian and Finkelstein, 1999; Porrini, 2004; Benou and Madura, 2005; Meschi and Metais, 2006; Yoon & Lee, 2016; Castellaneta and Conti, 2017) or the form of the acquisition, such as a full or a partial acquisition (Elango et al., 2013). Our study focuses on whether experience matters for acquirers in nontech sectors when conducting acquisitions of high-tech targets. First, in line with the results from most prior studies on the role of experience in M&As, acquirers more familiar with technology acquisitions could be expected to make more profitable deals through target selection or merger implementation. We call this the *experience gain* hypothesis. Second, a learning curve effect might support the idea that the first-tech transaction brings the largest benefits for a nontech firm. We call this the *declining benefits* hypothesis. We contribute to the prior literature in which technological acquisitions have rarely been analyzed specifically from the perspective of nontechnological acquirers – at most, these acquirers have been included as a separate subsample in some studies (Kohers & Kohers, 2000; Kallunki et al., 2009).

Studying 1146 tech-oriented deals announced by European acquirers during the period of 2006-2019, we find positive and significant two-day cumulative abnormal returns for the acquirers. In particular, industrial acquirers seem to gain substantially. Contrary to typical studies on the role of experience in M&As, we find that one-time buyers obtain significantly higher cumulative abnormal returns than frequent buyers, and frequent buyers exhibit a weak declining return pattern in subsequent deals.<sup>2</sup> Our results are therefore in line with the *declined benefits* hypothesis rather than the more classical view that suggests benefits from the experience. We contribute to prior literature by being the first to test the effects of tech acquisition experience on market reactions from acquiring high-tech targets.

<sup>1</sup> According to BCG (2017), technology deals accounted for approximately 30% of the total value of completed M&A transactions in 2016, of which approximately 70% involved a buyer from outside the technology sector.

<sup>2</sup> Our results are in line with the only prior study on the topic that we have found, the report by Boston Consulting Group (2017). The report concluded that the market has, counterintuitively, rewarded one-time technology acquirers instead of frequent acquirers. Nevertheless, over the medium term, frequent acquirers have performed better compared to the market.

The remainder of the paper is structured as follows. In section 2, we review prior literature and present our hypotheses. In section 3, the data and methodology are presented. Section 4 presents our results, and section 5 concludes the paper.

## 2. Literature review and hypothesis development

Motivations for mergers into the high-tech sector may, for example, be cost synergies, as outdated or manual processes are being replaced by newer solutions such as artificial intelligence and robotics (Arnold, 2002; Berk & DeMarzo, 2014); or a strategic motive, as it may be less costly to integrate acquired technology than to develop the same know-how or technology in-house (Higgins & Rodriguez, 2006; Arnold, 2002). Mergers involving high-tech can be either vertical, horizontal or even concentric mergers, where the takeover target could bring added value into the acquirer's product lines, market participation, or technologies (Cartwright and Cooper, 1992).

Generally, in studies of acquisitions, acquirer returns to acquisition announcements are often found to be insignificantly different from zero as competition for the target may increase prices so that the target gains most of the merger benefits and because of potential acquirer overconfidence (Roll, 1986). Especially in the case of high-tech acquisitions, such hubris has been found to play a role in decision making (Kohers & Kohers, 2001). Valuation in the high-tech sector is also regarded as more subjective due to a lack of historical financials and because a great proportion of the targets are privately held, making the hubris hypothesis highly relevant for the field (Kohers & Kohers, 2001; Rau & Vermaelen, 1998). It is hard to form expectations of how such potential hubris might influence our results as it may both lead to acquirers paying too much (in which case the announcement return on an efficient market would be poorer) or the market suffering from hubris, in which case announcement returns would exhibit excess optimism.

Overall, our study is linked to papers studying whether the announcement returns to acquirers are dependent on some form of prior acquirer experience. Prior studies have found some form of experience to matter for premiums paid, acquisition likelihood, or form. Beckman and Haunschild (2002) studied premiums paid on targets by acquirers. They found no significance for learning in the form of the number of prior acquisitions, but they report that firms in networks with heterogeneous partner experience pay lower premiums than those in networks with homogeneous partner experience. Collins et al. (2009) study M&As among the S&P 500 and find that firms' prior domestic and international acquisitions influence the likelihood of acquisitions in foreign markets by U.S.-based firms. In a study of Spanish firms, Duante et al. (2004) also find support for a positive link between acquisition experience and future acquisition probability. Studying cross-border high-tech acquisitions undertaken by firms from 36 countries, Elango et al. (2013) find that prior experience increases the likelihood of choosing a full rather than partial acquisition.

Studies of the relationship between experience and acquisition performance typically study the announcement return for the acquirer. Kohers and Kohers (2001) report that acquirers familiar with emerging technologies enjoy stronger investor confidence in high-tech takeovers. Drawing from learning theory in psychology, Haleblan and Finkelstein (1999) found support for a U-shaped relationship between organizational acquisition experience and abnormal announcement day returns for the acquirer using U.S. data. Porrini (2004) studied the effects of alliance and acquisition experience on high-tech and low-tech acquirers' announcement returns and found somewhat different results for the two groups. For high-tech

acquirers, the results indicate a significant positive effect for alliance experience (but not for acquisition experience); and when linearity was studied, support for a U-shaped relationship for alliance experience was obtained. However, Meschi and Metais (2006) studied acquirer announcement returns for French acquisitions into the U.S. and found support for the opposite, i.e., an inverted U-shaped relationship. Studying U.S. acquirers of high-tech targets, Benou and Madura (2005) found that bidder shareholders are generally more optimistic when an experienced acquirer is involved. Kallunki et al. (2009) studied technology mergers by low- and high-tech firms and reported that the acquirer's stock price response to R&D investments increased substantially but only for technology acquirers. These acquirers also show stronger future post takeover profitability.<sup>3</sup> Their results indicate that nontech acquirers may lack some capabilities to successfully utilize the acquired technology and potentially be more subject to managerial hubris. Finally, a different performance measure (Internal Rate of Return, IRR) was studied by Castellaneta and Conti (2017) who investigated the relationship between experience (prior completed buyouts) and acquisition performance in U.S. private equity buyouts around a change in the regulatory environment. They report significantly positive relationships for experience but a significant negative effect for experience when interacting with transparency. They conclude that the positive IIRs seem to come more from target selection ability (when information is less transparent) than from restructuring ability as the more experienced firms perform worse when the information environment becomes more transparent.

In line with typical findings from prior research, we formulate an *experience benefit* hypothesis where we expect that for low-tech firms, prior experience (number of past transactions) positively influences acquisition performance (announcement returns for the acquirer). Behind the positive reaction can either be expectations of better target selection, better restructuring ability, or both.<sup>4</sup> When experience is accumulating, one might expect an increasingly positive effect from stronger experience, which is in line with the positive part of the U-shaped relationship found in several studies.

**Hypothesis 1:** There is a positive relationship between announcement returns for the acquirer and the acquirer's past experience from high-tech acquisitions.

**Hypothesis 2a:** The positive relationship between announcement returns for the acquirer and the acquirer's past experience is linear, i.e., stronger experience is associated with more positive returns.

However, prior literature is not completely uniform regarding the theory or empirical returns around past experience, especially concerning the accumulated experience. Both U-shaped and inversely U-shaped relationships have been found. Moreover, Aktas et al. (2009) and Al Rahahleh & Wei (2010) discuss the relevance of the hubris hypothesis for the case of frequent acquirers. The hypothesis suggests managerial overconfidence to be reinforced after an initial

<sup>3</sup> In contrast, Kohers and Kohers (2001) report no significant difference between the long-term performance of bidders from outside or inside the technology sector.

<sup>4</sup> A study reporting results contrary to the *experience benefit* hypothesis is the BCG (2017) study. They find that the market rewards first time tech acquirers more than experienced dealmakers. They suggest that this short-term price reaction may be due to the market interpreting the tech acquisition as a sign of the company understanding the need to transform, due to them finding a "once-in-a-lifetime opportunity", or due to a shift of the business model towards more innovative products or services. However, BCG (2017) also finds that the long-run (1 yr) performance is better (as compared to a market index) in the group of serial acquirers, suggesting that experience counts in the longer run for total performance.



successful deal, leading to a declining value-creation pattern in subsequent deals of serial acquirers. Apart from the hubris hypothesis, other typical explanations for the declining pattern have been suggested – for example, a diminishing number of valuable targets or increasing manager aggressiveness to acquire as they learn to identify synergies more efficiently (Klasa & Stegemoller, 2007; Aktas et al., 2009). Additionally, the learning curve effect as applied to production (see, e.g., Argote and Epple, 1990) suggests reduced rather than linear (or exponential) benefits after the implementation stages of new technology. We thus form an alternative *declining benefits* hypothesis as follows:

**Hypothesis 2b:** The positive relationship between announcement returns on the acquirer and the acquirer’s past experience declines as experience accumulates.

### 3. Data and method

#### 3.1 Data

This paper is focused on acquiring firms and their announcement returns in the case of high-tech acquisitions. All data is retrieved from the FactSet database. We require that the acquirer is a publicly listed nontech firm and that the target is a high-tech firm that is not necessarily listed. FactSet divides all acquisition transactions into the categories *financial buyer* or *strategic buyer* based on whether the acquisition was made for investment purposes or strategic business purposes. Only transactions involving an acquirer classified as a *strategic buyer* are included in our study.

Our sample selection process includes several steps. In step one, we restrict our selection to transactions involving *tech targets* classified as firms within one of the two-digit Standard Industrial Classification (SIC) codes defined in Kallunki et al. (2009) as the most technology-intensive industries.<sup>5</sup> Likewise, in step one, the sample was restricted to *nontech acquirers* defined as firms with any sector classification other than the two-digit SIC codes previously defined. Next, in step two, to identify high-tech and digitalization-oriented transactions from the sample even more accurately, the target companies’ business descriptions were screened for 24 relevant high-tech keywords (see Appendix A1). This is a screening similar to that in BCG (2017). Our final sample includes, besides the transactions identified in the screening test, all remaining targets with “technology services”, “electronic technology” or “health technology” as their primary FactSet sector. This was done in order to avoid putting too much emphasis on the keywords and accidentally excluding deals driven by less well-known technologies. The five largest target firm industries (primary FactSet industry) in the final sample were miscellaneous commercial services, packaged software, internet software/services, information technology services and industrial machinery. The classifications of the obtained sample were also well

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<sup>5</sup> The optimal two-digit SIC codes for high-tech firms used by Kallunki et al. (2009) are the following: [28] chemicals and allied products; [36] electronic and other electrical equipment and components, except computer equipment; [35] industrial and commercial machinery and computer equipment; [37] transportation equipment; [38] measuring, analyzing, and controlling instruments; photographic, medical and optical goods; watches and clocks; [48] communications; [73] business services; and [87] engineering, accounting, research, management, and related services.

in line with a slightly more conservative high-tech classification by Kile and Phillips (2009).<sup>6</sup>

*Geographical restrictions* were also included. Recent digitalization reports, including PwC & ‘Strategy&’ (2018), find that Europe lags behind in digital transformation in regard to building ecosystems in customer solutions, operations, technology and people – particularly when compared to Asia-Pacific, which has clearly stronger levels of digital maturity. Fortunately, several Central European (e.g., Belgium, Germany, and the Netherlands) and Nordic countries are constantly strengthening their digital capabilities with companies already having digitalized more than 25% of their systems (Financial Times, 2018). To further examine the emerging technological adaptation in Europe, the acquirers were restricted to European acquirer companies (the country distribution is displayed in Appendix A2). For targets, no geographical restrictions were applied as the technology trend is strongly global – this would only limit the number of interesting transactions, especially as countries in the Americas and APAC are dominating in the supply of new, cutting-edge technology.

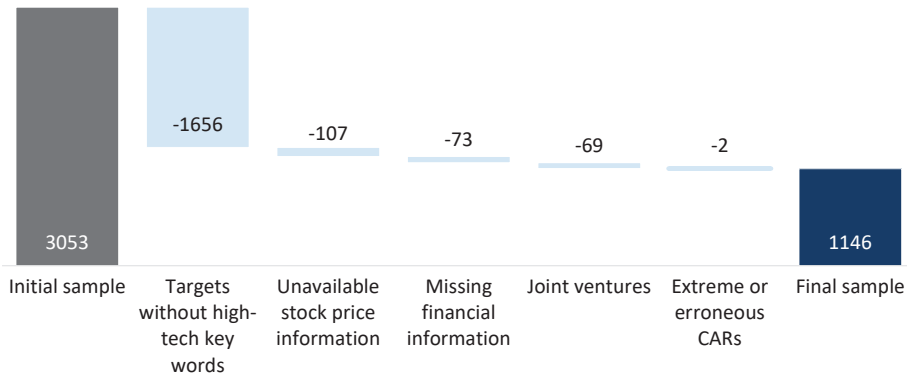
Regarding the *time frame* for the research, it was crucial to prioritize as recent data as possible. The decision was based on the newness of the digitalization-oriented M&A trend. For example, transactions made before the dot-com bubble would not have been fully comparable to these newer, technology-motivated takeovers. As technology is changing at a fast pace, the motivations to buy different technologies may differ from those present earlier, such as in Kallunki et al. (2009) with the study period ending in 2006. As previous research on high-tech takeovers lacks coverage of the most recent decade, the chosen time frame also forms an important part of the contribution of our paper. Accordingly, the period of January 1, 2006, to March 31, 2019, was chosen.

*Other restrictions* relevant to the study relate to transaction characteristics. First, a minimum deal size of €1 million was set to exclude the smallest transactions with indistinguishable public coverage. A higher minimum deal size would not have been optimal as the strong enthusiasm about high-tech deals may specifically arise from small and young startup acquisitions (Lusyana & Sherif, 2016). To prevent any problems arising from the small minimum deal size, a relative transaction size variable was included in the regression models. Second, in a similar manner to previous research, both pending and completed deals were included in the sample since only short-term reactions were studied. Finally, joint ventures and spinoffs were excluded similarly to BCG (2017).

The above restrictions (excl. the keyword screening) resulted in an initial sample of 3053 acquisitions. After screening the target business descriptions for high-tech keywords and making smaller adjustments required for the event study and regression model due to data availability, a final sample of 1146 high-tech oriented transactions was obtained. The selection process is illustrated in more detail in Figure 1.

<sup>6</sup> The optimal three-digit SIC codes by Kile and Phillips (2009) are the following: [283] drugs; [357] computer and office equipment; [366] communications equipment; [367] electronic components and accessories; [382] laboratory apparatus and analytical, optical, measuring, and controlling instruments; [384] surgical, medical, and dental instruments and supplies; [481] telephone communications; [482] telegraph and other message communications; [489] communications services, not elsewhere; [737] computer programming, data processing, and other computer related services; and [873] research, development, and testing services.

Figure 1. Sample collection process



A control group of takeover announcements with a nontech acquirer and a nontech target was constructed to test whether their takeover announcement cumulative abnormal returns (CARs) differ from those in the high-tech-oriented sample. For the control sample, the selection criteria were the same as for the main sample (e.g., study period, minimum deal size, acquirer and target ownership, and location) except for the target industry classification – all transactions with an acquirer or target firm classified within one of the two-digit SIC codes by Kallunki et al. (2009) as technology-intensive industries were excluded. As a final touch, the acquirer and target business descriptions in the control sample were also screened for the 24 high-tech keywords, and the identified deals were excluded. The final control sample consisted of 2551 nontech acquisitions (see Appendix A3 for descriptive statistics including deal size and announcement returns).

### 3.2. Variables

#### 3.2.1. Returns

This study uses CARs measured over two days, five days, and eleven days. The two-day event window [0, +1] is the main benchmark window in line with previous windows (Kohers & Kohers, 2000; Benou & Madura, 2005). Longer event windows [-2, +2] and [-5, +5] are also reported to show the possible impact of the window length. The formula for calculating the abnormal returns is:

$$AR_{it} = R_{it} - E(R_{it}),$$

where  $AR_{it}$  = abnormal return for firm  $i$  at time  $t$ ,  $R_{it}$  = actual return for firm  $i$  at time  $t$ , and  $E(R_{it})$  = expected return for firm  $i$  at time  $t$ .

The actual returns are calculated as each acquirer’s daily stock returns around the time of the takeover announcement. Due to statistical preferences, the returns are transformed into logarithmic form:

$$R_{it} = \ln \frac{P_{(t)}}{P_{(t-1)}}$$

where  $P_{(t)}$  = closing stock price for firm  $i$  at time  $t$ , and  $P_{(t-1)}$  = closing stock price one business day before time  $t$ .

The expected returns are calculated using the standard market model (MacKinlay, 1997). The market model uses OLS regressions to estimate the relationship of individual bidder stock returns and a proxy for market returns ( $R_{mt}$ ) during a chosen estimation period prior to the takeover:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt}$$

where  $\alpha_i$  measures the individual firm intercept and  $\beta_i$  measures the sensitivity of the firm's stock price to the market index movements. Country-specific stock market indices have been chosen as a proxy for market returns ( $R_{mt}$ ), which enables accounting for country-specific variations in the expected returns. An estimation period of [-200, -51] has been chosen, which is similar to, e.g., Kohers & Kohers (2000). The CARs used in the regressions are then defined as:

$$CAR_i = \sum AR_{it}$$

Next, the average daily abnormal returns (AARs) are calculated for the entire sample, after which the cumulative average abnormal returns (referred to as CAAR) can be obtained by adding up all the average abnormal returns within the event window:

$$AAR_t = \frac{\sum_{t=1}^n AR_{it}}{n}$$

$$CAAR [p, q] = \sum_{t=p}^q AAR_t$$

### 3.2.2. Variables of M&A characteristics

In order to study the effects of acquirer experience and learning behavior, variables for acquirer frequency and deal order are created (for a discussion, see Laamanen and Keil, 2008). The variable frequent acquirer (FREQUENT ACQUIRER) is defined as firms that announced two or more technology-oriented deals during the studied time horizon. Similar definitions are used by BCG (2017) and Al Rahahleh & Wei (2010). Frequent acquirer takes a value of one in the case of a frequent acquirer deal whereas deals by acquirers with only one announcement are assigned a value of zero.

The variable deal order is employed to explore the value impact of frequent acquisitions in line with Al Rahahleh & Wei (2010). Deal order (DEAL ORDER) ranges from one to the maximum number of serial acquisitions in the sample. As the sample includes both one-time and frequent acquirers, deal order is measured as an interaction variable taking the deal order value only if the acquirer is classified as a frequent acquirer and the value of 0 otherwise. A positive coefficient for the order on CARs could reflect managerial learning behavior and shareholder appreciation of experience while a negative coefficient could indicate that the ac-

quirer’s management is affected by managerial hubris and overstate the potential value of tech targets in subsequent deals.

To explore the role of industry and digitalization characteristics, we create four dummy variables. The industrial acquirer variable (INDUSTRIAL ACQUIRER) takes the value of one for acquirer firms with SIC codes 20-39 (Manufacturing) or 15-17 (Construction) and zero otherwise. The services acquirer variable (SERVICES ACQUIRER) takes the value of one if the acquirer is classified within the two-digit SIC codes 70-89 and the value of zero otherwise. Following BCG (2017) and Grossman (2016), these broad sectors were chosen to highlight the two strong but different technology trends in the service and industrial sectors.

To measure the roles of various digitalization-related transaction characteristics, we construct dummy variables for digital deals and software deals. Digital deals (DIGITAL TARGET) and software deals (SOFTWARE TARGET) take the value of 1 for takeover announcements where the target business description contains the corresponding keyword and zero otherwise. These variables are used to explore the influence of specific technologies on the acquisition of high-tech targets. While the word digital is a rather self-explanatory proxy for digitalization, the word software was chosen because of the popularity of software-related targets, which is due to their favorable economics, including scalable products, low deployment costs, and high profit margins (BCG, 2017). These two keywords also appear to be relevant for most industries experiencing digital transformation (see also Appendix A1). For comparison, Benou & Madura (2005) explored the role of the internet and biotechnology & healthcare sectors.

Building on previous research on tech-related or frequent acquisitions, we include a comprehensive set of control variables in all regression models. Benou & Madura (2005) and Al Rahahleh & Wei (2010) show that the performance of large and small transactions tends to differ. Relatedly, BCG (2017) finds that the majority of high-tech acquisitions are worth \$100 million or less while a smaller group of large-cap deals is worth more than \$500 million. Furthermore, the largest deals seemed to yield clearly more negative returns than the smaller deals. We measure deal size (DEAL SIZE) as the natural logarithm of transaction value, measured in € m. In addition, since Kohers & Kohers (2000) and Goergen & Renneboog (2004) argue that large targets relative to their acquirers contribute to greater synergies and that deals with larger relative size attract more investor attention and publicity and consequently a stronger price impact (Benou & Madura, 2005), we include relative deal size (RELATIVE DEAL SIZE) as a control variable. Relative size is measured relative to the acquirer market value eleven days prior to the event and defined as:

$$Relative\ size = \frac{Transaction\ value}{Transaction\ value + Acquirer\ market\ capitalization_{t-11}}$$

Kohers & Kohers (2000) suggest that strong acquirer performance could also be connected to more successful takeovers. To examine acquirer performance, we use return on assets (referred to as BIDDER ROA) calculated as net income divided by total assets. In addition, *stock-only payment* (STOCK) was chosen as a control variable based on Higgins & Rodriguez (2006) and Kohers & Kohers (2000) who claim that stock financing could offer increased flexibility and may even be the preferable option in technology-oriented takeovers. Private target (PRIVATE TARGET) was chosen to depict the ownership status and the growth stage of the target since more mature firms tend to be listed while younger targets are often privately held. Private

targets also tend to be more subject to valuation errors. Cross-border deal (CROSS BORDER) controls for the geographical scope of the takeover and is set equal to one for cross-border acquisitions. For technology-related takeovers, the cross-border nature has been found to have positive wealth effects (Kohli & Mann, 2012). However, the case of nontech acquirers buying tech targets has been studied very little. It is seen as relevant for the study as the sample consists of European acquirers that buy tech targets from all over the world.

As tech-oriented bidders may acquire either smaller or larger stakes in their targets according to their technological needs, it is important to control for the percentage of shares acquired (STAKE). BCG (2017) finds the most successful tech acquirers to be flexible and willing to pursue alternative deal structures, such as minority investments. A larger stake could receive a more positive interpretation from the shareholders as it enables broader control over the target and better exploitation of technological synergies.

Lusyana & Sherif (2016) and Kohers & Kohers (2000) find that investor enthusiasm in high-tech takeovers increases over time. Hence, we include a variable equal to one for *takeovers announced in the year 2012 or later*. The year 2012 was chosen since it periodically divides the sample roughly in half. Moreover, BCG (2017) reports a steady growth pattern (CAGR 2012-2016 of 27%) in global technology M&A volumes starting in the year 2012. Naturally, a positive variable coefficient would be expected, indicating more recently announced transactions to yield higher CARs.

We note that indicator variables for hostile takeovers and competing bids, often used as control variables both in general and tech-related M&A studies, were excluded. The decision was logical as more than 95% of the acquisitions in the sample consisted of friendly takeovers and takeovers with only one bidder.

### 3.3 Methodology

The regression models take the following form:

*Model (1) for industry digitalization characteristics:*

$$Y_i = \alpha + \beta * X_i + \gamma_1 * DIGITAL\ TARGET_i + \gamma_2 * SOFTWARE\ TARGET_i + \gamma_3 * SERVICES\ ACQUIRER_i + \gamma_4 * INDUSTRIAL\ ACQUIRER_i + \epsilon_i \tag{1}$$

*Model (2) for acquirer experience:*

$$Y_i = \alpha + \beta * X_i + \gamma * FREQUENT\ ACQUIRER_i + \epsilon_i \tag{2}$$

*Model (3) for learning behavior:*

$$Y_i = \alpha + \beta * X_i + \gamma * DEAL\ ORDER_i + \epsilon_i \tag{3}$$

The model variables are as follows:

$Y_i$ : Acquirer 2-day/5-day/11-day CAR at takeover announcement;

$\alpha$ : Constant;

$\beta$ : Vector of parameters for control variables;

$X_i$ : control variables that typically have explanatory power on takeover CARs: DEAL SIZE, RELATIVE DEAL SIZE, BIDDER ROA, STOCK, PRIVATE TARGET, CROSS BORDER, STAKE, and AFTER2012; and

$\gamma, \gamma_1-\gamma_4$ : Parameters for the main variables.

*DIGITAL TARGET<sub>i</sub>* & *SOFTWARE TARGET<sub>i</sub>*: indicator variables taking the value of 1 for takeover announcements where the target business description contains the corresponding keyword and 0 otherwise,  
*SERVICES ACQUIRER<sub>i</sub>* & *INDUSTRIAL ACQUIRER<sub>i</sub>*: indicator variables taking the value of 1 for takeover announcements where the acquirer has the defined two-digit SIC industry classification and 0 otherwise,  
*FREQUENT ACQUIRER<sub>i</sub>*: indicator variable taking the value of 1 if the takeover is announced by a frequent acquirer (acquirers with two or more announced deals) and 0 otherwise,  
*DEAL ORDER<sub>i</sub>*: takes the value deal order number for firms with 2 or more announced deals, and  
 $\epsilon_i$ : Disturbance term.

## 4. Findings

### 4.1 Univariate tests

Table 1 reports the CAAR percentage for each event window and the significance levels.<sup>7</sup> Panel A shows that the CAAR is positive and statistically significant for all event windows. The highest CAAR is obtained in the five-day event window, amounting to 0.92%; and the CAAR is highly statistically significant. We note that the statistical significance of the results slightly decreases as the window progresses, which indicates that the information content of the returns decreases as we move further away from the announcement day.

<sup>7</sup> Explanations of the significance tests are available from the authors.

**Table 1.** Univariate tests

The sample covers 1146 tech-oriented deals announced by European acquirers during 2006-2019. The control sample includes 2551 nontech takeovers. The test results are for individual t-tests, F-tests for variances and two-sample t-tests. All p-values are calculated assuming two-tailed tests. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 % levels, respectively.

PANEL A. WINDOW LENGTH			
EVENT WINDOW	CAAR	P-VALUE	OBSERVATIONS
[0,+1]	0.82 %***	0.00	1146
[-1,+1]	0.76 %***	0.00	1146
[-2,+2]	0.92 %***	0.00	1146
[-5,+5]	0.59 %**	0.03	1146
[0,+10]	0.57 %**	0.05	1146

PANEL B. TYPE			
	CAAR [0, +1]	P-VALUE	OBSERVATIONS
Main group	0.82 %***	0.00	1146
Control group	1.13 %***	0.00	2551
One-time acquirers	1.43 %***	0.00	397
Frequent acquirers	0.49 %**	0.01	749
1st deal	1.15 %***	0.01	231
2nd-3rd deal	0.28 %	0.30	347
3rd+ deal	0.49 %*	0.06	287

PANEL C. F-TEST FOR VARIANCES, TWO SAMPLES, CAAR [0, +1]			
	F-VALUE	P-VALUE	VARIANCES
Main vs. control group	0.935	0.18	Equal
One-time vs. frequent	1.206**	0.03	Unequal
1st vs. 2nd-3rd deal	1.637***	0.00	Unequal
1st vs. 3rd+ deal	2.183***	0.00	Unequal

D. T-TEST, TWO SAMPLES, CAAR [0, +1]			
	T-STATISTIC	P-VALUE	CONCLUSION
Main vs. control group	-1.54	0.12	No difference
One-time vs. frequent	2.68***	0.01	Difference
1st vs. 2nd-3rd deal	1.78*	0.08	Difference
1st vs. 3rd+ deal	1.37	0.17	No difference

With the event study results, we ask whether acquisitions of high-tech targets by nontech firms are perceived to create strategic value for the acquirer shareholders. We find that this is the case, but we note that the positive reaction is quite small (two- and five-day CAARs of approximately 1%), which is in line with the common fact that acquirers only receive small or moderate gains in takeover announcements, if any (e.g., Koller et al., 2010). Relatedly, the technology takeover report by BCG (2017) documented a seven-day CAAR of 0.47% for nontech buyers during 1997-2016.

The individual t-test results (Panel B of Table 1) show that both the main sample and the



constructed control group of nontech takeover announcements experience positive and significant two-day CAARs during the study period. Although the CAARs are slightly higher for the control group, the obtained results are very similar and in line with previous findings on acquirer takeover gains. In the experience-based subsamples, both one-time and frequent acquirers receive positive and significant two-day CAARs, although those of frequent acquirers are lower (1.43% vs. 0.49%). The most interesting results are obtained when comparing the subsamples of 1st deal, 2nd-3rd deals and 3rd+ deals of frequent acquirers: the CAARs decrease in subsequent deals. Furthermore, the statistical significance of the CAARs is lower in later deals: while the CAAR of the first announced deal is significant at the 1% level, the second- and third-deal CAARs do not statistically differ from zero. The CAARs of third or later deals are significant at the 10% level ( $p=0.056$ ).

Prior to the two-sample t-tests, F-tests for sample variances were conducted for each sample pair (Panel C of Table 1). The null hypothesis of equal sample variances was rejected for all sample pairs except for the first pair (“main vs. control group”), which means that the other pairs were next tested with a two-sample t-test assuming unequal variances. For the first sample pair, a two-sample t-test assuming equal variances was conducted.

Panel D of Table 1 presents the results from the two-sample t-tests. As the two-tailed p-values show, the null hypothesis of no difference between the sample means was rejected for “one-time vs. frequent” (significant at the 1% level), indicating that one-time acquirers of technology firms experience significantly higher two-day CAARs at takeover announcements. In addition, there seems to be a significant (10% level) difference between the first deal and second and third deals of frequent acquirers, indicating that there is a somewhat decreasing return pattern in the subsequent deals. Finally, the CAARs in the main and control samples did not seem to materially differ from each other.

The results in Table 1 give us initial tools to examine the research hypotheses on value creation, experience, and learning behavior. Based on the two-sample t-test between the main sample and the control group, there seems to be no material difference in the stock price response to buying a high-technology firm and a traditional firm. However, the reactions are significantly positive, also for tech-oriented takeovers, which gives support to our research hypothesis one. Furthermore, the “one-time vs. frequent” results support the idea that one-time acquirers experience higher shareholder returns than frequent acquirers in tech-oriented takeovers – shareholders appreciate their first initiative to adopt new technology. Finally, the test results from the “1st vs. 2nd-3rd deal” somewhat support the argument that frequent acquirers exhibit managerial hubris in subsequent deals with a declining pattern in the stock price response.

#### 4.2. Regression results

The regression results using CARs in Panel A of Table 2 show that the acquirer sector matters for the success of digital acquisitions. Industrial firms (INDUSTRIAL ACQUIRER) experience significantly higher CARs than other nonindustrial acquirer sectors taken as a whole. However, the industrial sector dummy is only significant in the shortest window. The technological orientation of the target such as digital or software (DIGITAL TARGET or SOFTWARE TARGET) does not significantly affect the returns to high-tech acquisitions. Table 2 also shows that the relative size variable (RELATIVE DEAL SIZE) is positive and statistically highly significant in all models, which implies that the returns increase as the size of the acquisition in relation to the acquirer increases. The returns to private targets (PRIVATE TARGET) are significantly lower than those for public targets.

**Table 2. Regressions**

The sample covers 1146 tech-oriented deals announced by European acquirers during 2006-2019. Panel A is the sector effects for targets and acquirers. Panel B is on the acquirer frequency, and Panel C is on the deal order. The coefficients for different CAR event windows are displayed. Dummy variables are marked by (D). *t*-statistics are in parentheses below the coefficient estimates. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 % levels, respectively.

	PANEL A. SECTOR EFFECTS			PANEL B. ACQUIRER FREQUENCY			PANEL C. DEAL ORDER		
	[0, +1]	[-2, +2]	[-5, +5]	[0, +1]	[-2, +2]	[-5, +5]	[0, +1]	[-2, +2]	[-5, +5]
Intercept	-0.003 (-0.471)	-0.005 (-0.659)	0.003 (0.300)	0.005 (0.889)	-0.002 (-0.266)	0.006 (0.610)	0.003 (0.589)	-0.002 (-0.254)	0.002 (0.262)
DIGITAL TARGET (D)	0.010 (1.381)	0.012 (1.403)	0.013 (1.294)						
SOFTWARE TARGET (D)	-0.002 (-0.528)	-0.009 (-1.551)	-0.006 (-0.855)						
SERVICES ACQUIRER (D)	0.004 (0.892)	0.003 (0.558)	-0.005 (-0.655)						
INDUSTRIAL ACQUIRER (D)	0.010 (2.048) **	0.007 (1.025)	-0.006 (-0.668)						
FREQUENT ACQUIRER (D)				-0.005 (-1.528)	-0.001 (-0.274)	-0.009 (-1.549)			
DEAL ORDER							-0.001 (-1.935) *	-0.001 (-1.147)	-0.002 (-1.316)
DEAL SIZE (€ ln)	-0.002 (-2.182) **	-0.002 (-1.350)	-0.003 (-1.895) *	-0.001 (-1.719) *	-0.001 (-1.201)	-0.003 (-1.698) *	-0.001 (-1.633)	-0.001 (-1.051)	-0.003 (1.665) *
RELATIVE DEAL SIZE (%)	0.093 (3.731) ***	0.084 (2.702) ***	0.114 (2.254) **	0.091 (3.568) ***	0.086 (2.730) ***	0.108 (2.171) **	0.090 (3.541) ***	0.083 (2.633) ***	0.109 (2.146) **
BIDDER ROA (%)	-0.012 (-0.582)	0.005 (0.155)	-0.070 (-1.438)	-0.013 (-0.616)	0.004 (0.131)	-0.070 (-1.450)	-0.013 (-0.652)	0.004 (0.116)	-0.072 (-1.465)
STOCK (D)	0.004 (0.326)	0.016 (1.089)	-0.010 (0.544)	0.004 (0.227)	0.016 (1.077)	-0.012 (-0.648)	0.004 (0.270)	0.015 (1.052)	-0.012 (-0.637)
PRIVATE TARGET (D)	-0.007 (-1.863) *	-0.009 (-2.077) **	-0.012 (-1.867) *	-0.007 (-1.897) *	-0.009 (-2.096) **	-0.012 (-1.818) *	-0.007 (-1.949) *	-0.010 (-2.131) **	-0.012 (-1.852) *
CROSS BORDER (D)	0.003 (0.949)	0.004 (0.873)	0.017 (2.565) **	0.004 (1.251)	0.005 (1.058)	0.016 (2.483) **	0.004 (1.187)	0.005 (0.997)	0.016 (2.436) **
STAKE (%)	0.000 (1.010)	0.000 (1.327)	0.000 (0.685)	0.000 (1.027)	0.000 (1.321)	0.000 (0.532)	0.000 (1.089)	0.000 (1.358)	0.000 (0.578)
AFTER 2012 (D)	0.004 (1.095)	0.007 (1.438)	0.009 (1.537)	0.003 (0.976)	0.007 (1.505)	0.010 (1.745) *	0.004 (1.278)	0.007 (1.714) *	0.011 (1.995) **
<i>Normality (Chi-Sq.)</i>	1493.13***	2543.79***	1173.24***	1511.83***	2567.98***	1150.20***	1540.5***	2567.96***	1159.2***
<i>Heteroscedasticity</i>	180.72***	102.51***	453.30***	133.39***	80.76***	380.42***	129.71***	66.63**	389.4***
<i>Adj. R-squared</i>	0.04	0.02	0.03	0.04	0.02	0.03	0.04	0.02	0.03
<i>F-stat.</i>	2.67***	2.38***	1.60*	2.92***	2.42***	2.19**	3.00***	2.55***	2.20**
<i>Observations</i>	1146	1146	1146	1146	1146	1146	1146	1146	1146

Panel B of Table 2 shows that the coefficient for the frequent acquirer variable (FREQUENT ACQUIRER) is negative although not statistically significant. Hence, support for Hypothesis 1 is not obtained. Panel C of Table 2 further shows whether there is a significant learning behavior coming from the number of acquisitions in which the firm is involved. The coefficient for DEAL ORDER is negative and statistically significant in the short-term window but negative and statistically insignificant for the longer event windows. Some evidence is thus obtained for Hypothesis 2b (rather than H2a), stating that the positive announcement CARs decline when experience accumulates. More generally, the results imply that there are reduced benefits after the implementation stages of new high-tech technology. An alternative interpretation, in line with the BCG(2017) result of a smaller initial return for serial acquirers, may be that the market is more positively surprised in the case of first-time acquirers and interprets the first tech acquisition as a signal that the company, e.g., understands the need to transform and hence changes its business model.<sup>8</sup>

The results in Panel B of Table 2 showing a declining return to multiple tech M&As by non-tech acquirers give some support to related research strands such as (1) the hubris hypothesis suggesting that managerial overconfidence is reinforced after an initial successful deal (Aktas et al., 2009; Al Rahahleh & Wei, 2010); (2) the idea of a diminishing number of valuable targets or increasing manager aggressiveness (Klasa & Stegemoller, 2007; Aktas et al., 2009); and (3) the learning curve effect as applied to production (see, e.g., Argote and Epple, 1990), which suggests reduced benefits after the implementation stages of new technology. We can describe our results with the general hypothesis of declining benefits to multiple technology M&As. The results imply that the first tech acquisition brings the largest benefits to nontech buyers.

In line with Lusyana & Sherif (2016), Kohers & Kohers (2000), and BCG (2017) who report the increases in investor enthusiasm in high-tech takeovers to increase over time, we find a positive coefficient for the dummy variable indicating the time period after 2012, indicating that more recently announced transactions are associated with higher CARs. The positive sign is as expected, but the variable is statistically significant only in some specifications in Table 2.

## 5. Conclusions

This study explores whether acquirer shareholders in traditional, nontechnological sectors perceive the strategic decision to buy a high-technology target as value-enhancing. The motivation of the research focus is that digitalization-increasing M&As have received limited attention in the literature.

This paper uses a sample of 1146 high-tech oriented M&A deals announced by European acquirers during the period from 2006-2019. High-tech keywords were used to identify digital takeovers. Acquirers in the industrial sector – compared with services, transportation, financial, retail and other – gain the most from adding high-tech to their firm portfolios. The study finds that one-time acquirers experience significantly higher cumulative abnormal returns than frequent acquirers. Moreover, there are slightly decreasing returns for subsequent deals, which suggests that there are reduced benefits after the implementation stages of new high-tech technology or that the first tech acquisition signals something beyond the deal itself, such as a new strategic orientation rewarded by the market.

The findings imply that European acquirer shareholders perceive acquiring advanced and digital technologies as an equally important strategic decision as traditional acquisitions, de-

<sup>8</sup> For serial acquirers, there may already be an expectation of more value enhancing tech acquisitions built into their stock prices.

spite having different synergistic goals. Moreover, the role of tech-oriented acquisitions seems to be increasingly important over time, reflecting the evolving digital maturity, especially in Europe. When separately examining identified software and digital targets, within-industry differences were not found to have an impact on the valuations of tech-oriented acquisitions. However, industrial acquirer companies were found to earn higher two-day cumulative abnormal returns than other sectors. The positive investor perception could be a consequence of newly evolving needs in industrial technology, including embedded intelligence, IoT, advanced analytics and machine learning, having direct and measurable impacts on process efficiency, competitiveness and supply chain cooperation.

As noted in BCG (2017), the share of transactions involving a high-tech target has been growing faster than the overall M&A market, and what is particularly intriguing is that this part of the market is increasingly characterized by firms operating in nontechnological sectors buying high-tech companies. These firms strive to gain access to vital new technologies that are disrupting their industries and aim to close innovation gaps by substituting or complementing their in-house R&D.

This study gives support to the idea that M&As are a credible part of the digitalization process (from a shareholder perspective), providing insights into situations where tech M&As appear to be particularly beneficial. One should note that the new digital forces will continue to emerge and that it will be vital for business leaders to understand the different stages and options along the digital journey and their impacts on firm value.

Future research could compare the short- and long-term performance of tech-focused takeovers. Other dimensions in takeovers that deserve more analysis include sectoral variation (e.g., B2B vs. B2C and digitally immature vs. mature sectors), different technologies (e.g., fintech, big data, and cloud technology) and different acquirer and target characteristics. Finally, as digitalization-driven acquisitions are only one way to adopt new technology and a single tool to support a comprehensive digital strategy, future research could consider other options such as digitalization-motivated strategic alliances (see also, Lee & Lim, 2006).

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### Appendix A1. High-tech keywords

The table reports the high-tech keywords used in the sample selection process (with the number of hits in target business descriptions in parentheses).

#### KEYWORDS FOR HIGH-TECH BASED ON BCG (2017)

Analytics (31)	Fintech (1)
Big data (2)	Intelligence (19)
Blockchain (1)	Intelligent (13)
Business Intelligence (5)	Internet (56)
Cloud (26)	Mobile (115)
Data (133)	Mobility (7)
Data analysis (3)	Online (148)
Data center (7)	Platform (89)
Digital (116)	SaaS (4)
e-Commerce (11)	Smart (20)
e-Learning (2)	Software (177)
Electronic (99)	Tech (423)

### Appendix A2. Deal and acquirer statistics by acquirer country

The table reports the deal volume, frequent deals, average deal size and average relative market value of the target as a fraction of the acquirer.

ACQUIRER COUNTRY	DEAL VOLUME	FREQUENT DEALS	DEAL SIZE (€ M)	RELATIVE DEAL SIZE
United Kingdom	491	353	113.3	9.7 %
Sweden	112	63	88.6	6.1 %
France	101	74	368.6	6.7 %
Germany	93	58	779.4	7.1 %
Italy	50	31	18.4	8.3 %
Netherlands	45	33	220.9	7.7 %
Norway	36	19	46.2	5.7 %
Spain	31	16	139.7	6.2 %
Finland	30	15	66.8	7.8 %
Ireland	29	23	209.1	3.5 %
Poland	28	14	35.7	7.2 %
Switzerland	22	9	444.3	10.8 %
Malta	13	13	22.2	3.5 %
Belgium	11	7	696.3	7.0 %
Austria	9	4	99.4	7.0 %
Denmark	9	4	41.2	4.3 %
Russia	8	2	19.1	1.8 %
Luxembourg	7	6	96.4	5.2 %
Portugal	5	0	152.2	9.7 %
Turkey	4	0	212.4	16.8 %
Cyprus	4	3	4.5	3.8 %
Greece	3	0	20.2	14.7 %
Gibraltar	2	2	53.4	14.7 %
Kazakhstan	1	0	1.0	0.3 %
Iceland	1	0	1.5	0.2 %
Bulgaria	1	0	2.0	1.6 %
Total	1146	749	194.4	8.0 %



### Appendix A3: Descriptive statistics of the control sample

The table reports the descriptive statistics for the control sample of 2551 nontech takeovers.

	DEAL SIZE (€ M)	CAR [0, +1]	CAR [-2, +2]	CAR [-5, +5]
Mean	331.8	1.1 %	1.2 %	1.0 %
Minimum	1.0	-53.0 %	-60.8 %	-153.5 %
Maximum	74 734.7	59.3 %	70.8 %	85.3 %
Median	32.0	0.6 %	0.8 %	0.9 %
Mode	20.0	0.6 %	0.8 %	0.8 %
Std. Dev.	2 130.9	5.7 %	7.1 %	10.1 %
Skewness	24.6	1.2	0.6	-1.9
Kurtosis	762.5	17.7	13.9	36.2

# *Does the Fair Value Model Enhance Earnings Quality Compared to the Cost Model? - Evidence from the Investment Property Industry*

Tuomas Honkamäki, Markus Mättö and Hannu Ojala

## **Abstract**

This study addresses one of the most fundamental accounting questions: Should the valuation of financial statements be based on the fair value or cost model? We address this question in the investment property industry wherein the fair value model can be applied under the IFRS standards but not under the US GAAP. Following Krishnan and Zhang (2019), we test earnings quality with earnings predictability, persistence, value relevance, discretionary accruals, and conditional conservatism measures using 2014–2019 data obtained from archival databases. Our empirical findings suggest that the cost model yields better earnings quality than the fair value model in two out of six tests: higher discretionary accruals quality, and not overstated asset in (price-level) value-relevance tests. The other four tests do not provide statistically significant differences. We propose three contributions to the prior literature.

## **Keywords:**

investment properties, fair value, historical cost, quality of financial statement, earnings management, conservatism, US GAAP, IFRS

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## 1. Introduction

This study examines whether there are differences in earnings quality under the fair value model compared to the cost model in the investment property industry. The prior literature argues that the choice between fair value and cost is a central topic in the current debate on accounting (Quagli & Avallone, 2010). Cross-industry studies suggest that fair value accounting provides some benefits, whereas the cost model can provide others (Watts, 2003; Francis, 2004; Qiang, 2007). Francis et al. (2004) argue that the fair value model is more value-relevant and provides more predictable and timely earnings numbers because of its future orientation. On the other hand, the cost model is better from the contractual perspective because it reduces agency costs and improves stewardship functioning (Watts, 2003; Qiang, 2007).

Dietrich et al. (2001) find that increased managerial discretion in reporting fair values of investment properties (in the disclosures of financial statements) improves the accuracy of selling prices and finds indications of earnings management using fair values of investment properties. Using investment property sector data, Owusu-Ansah & Yeoh (2006) find that the value relevance of recognising unrealized gains in the income statement is not superior to or significantly different from recognising unrealized gains in revaluation reserve. Overall, there is mixed evidence on how recognising unrealized gains and losses of the investment property industry affect earnings quality. Also, the prior evidence does not incorporate the current reporting environment where extensive adoption of IFRS standards took place in 2005 and afterwards. The data in the most closely related studies have been collected before 2005, or the data represent the U.S. only (Francis 2004; Owusu-Ansah & Yeoh, 2006) or data are collected from one country (Krishnan and Zhang, 2019).

Using the regulatory difference between the U.S. (applying the US GAAP) compared to other British legal origin countries, which all apply IFRS with the fair value model as their primary valuation approach in the investment property industry, we examine how the inclusion of fair value changes in the income statement (under the IFRS but not under the US GAAP) affects earnings quality. We use data from the U.S. and countries applying the IFRS standards (Australia, Canada, Great Britain, Hong Kong, Ireland, Singapore, South Africa, and New Zealand). Our sample consists of companies in countries with a British legal origin to alleviate comparability problems with varying institutional quality. Using a subset of countries with a similar legal system and the use of IFRS standards one can cut down measurement noise (cf. Burgstahler et al., 2006).

To the best of our knowledge, no prior study has addressed our research question: *Does the use of the fair value model of the investment properties under IAS 40 improve the quality of the earnings compared to the cost model under ASC 360.* We adopt the earnings quality measures from Krishnan and Zhang (2019): earnings predictability, persistence, value relevance, discretionary accruals, and conditional conservatism tests. However, we use them using a larger set of countries and longer time period, years 2014–2019, obtained from archival databases.

Our empirical findings suggest that the cost model's valuation yields better earnings quality in two of our six tests measures compared to the fair value model: (i) accruals have higher quality, and (ii) asset values are non-inflated according to the price-level value-relevance tests. Other measures show insignificant differences between the two reporting models.

Our first contribution relates to Francis et al. (2004) study. They argue that fair value accounting is more value relevant and provides more predictable and timely earnings numbers because of its future orientation. However, unlike Francis et al. (2004) (with data period ending in 2001, using only U.S. data), who used the operation cycle as a control variable, we focus

on just one business model (investment property sector) to obtain more accurate information on the effects of fair value accounting on earnings quality in the investment property sector. We find that, in our context, the cost model is superior to the fair value model in two of the measures that we use, while other measures provide statistically insignificant differences.

Second, we contribute to Krishnan and Zhang (2019) study on the earnings quality between IFRS and Canadian GAAP that is similar to US GAAP. Their results using data from the year 2011 support the notion that higher earnings quality is associated with CGAAP. Different to Krishnan and Zhang (2019), we use observations from many countries applying IFRS (including Canada), from years 2014–2019. We focus on the use of fair value in the investment property sector only. Compared to Krishnan and Zhang (2019) our findings do not support higher earnings quality of the Canadian GAAP type of cost model (that was abandoned by Canadian listed firms in 2011) to the same extent as in their study.

Third, we contribute to Dietrich et al. (2011), who collected the fair value estimates from the annual reports' footnotes that enabled to study the role that fair value estimates as additional information to the financial statements. Using U.K. listed investment properties companies from the years 1988–1996, Dietrich et al. (2000) found indications of earnings management. In our sample, the IFRS subsample's fair values affect net income directly, and thereby earnings per share. We find that earnings management (and managerial opportunism) is present in the IFRS sample because investors predict approximately 15% lower values for the long-term assets than what the firm management reporting is in their financial statements.

The rest of the paper is organized as follows. Section 2 provides a brief description of the contexts (the investment property industry) for the study. It also reviews the regulations relating to the accounting for investment properties under the fair value model (IFRS) and the cost model (US GAAP). We provide a literature review and develop the research question in Section 3. In Section 4, we discuss the data and our empirical models. We describe our empirical findings in Section 5 and draw our conclusions in Section 6.

## 2. Investment property reporting under the IFRS and US GAAP

Addressing financial reporting of investment properties is relevant due to the large size and specific reporting requirements of the industry, as defined in the IAS 40 *Investment Properties* under the IFRS. In Europe alone, the fair value of investment properties in a listed real estate investment trust (REIT) in Q3/2019 is estimated to be €453 billion, with a total market cap of USD216 billion (EPRA June 2019). In the investment property sector, the investment properties stand for an average of 80% of the company's total assets (Sangchan et al., 2020). The commercial real estate value in the global markets covered by the FTSE EPRA Nareit is estimated at USD30.2 trillion, with the total listed real estate sector valued at USD3.6 trillion (12.0% of CRE). The full index market cap is USD 2.4 trillion, representing 65.2% of the listed real estate sector's total market cap across the globe (EPRA 9/2019).

IFRS in IAS 40 *Investment Properties* favors the fair value accounting of investment properties (Cairns et al., 2011). It does so because presenting fair values is mandatory, while there is an option to either present fair values only in the disclosures or in the balance sheet. If the fair values of investment properties are recognized in the balance sheet assets, the change in fair value (unrealized gain or loss) must be allocated into the income statement (IAS 40.35).

Not permitting the inclusion of unrealized gains of investment properties in net income is consistent with the more conservative philosophy of the US GAAP. Under US GAAP, the historical acquisition price less depreciation constitutes the balance sheet's asset value, and the

fair value model is not allowed (ARB 43, CH 98.1), and thereby the cost model will be used (ASC 360). Thus, different reporting models of investment properties under the IFRS and US GAAP provide a setting where earnings quality reflects the outcome of the two financial reporting models: cost and fair value.

### 3. Development of the research question

The current study focuses on the intersection of a separately regulated (investment property) industry and the earnings quality outcomes of recognizing unrealized gains or losses in the income statement. According to Dietrich et al. (2000), appraisers rarely observe contemporaneous transactions for an identical property, and appraisers rely on subjective assumptions and exercise considerable judgment. Slavko (2015) suggests that unobservable markets allow managers to manipulate the results using the estimation values, leading to lower quality of reported earnings.

Valuations based on cash flow projections provide helpful information to investors even though they require management estimations (Kolev, 2019). Fair value measurement also enables the prediction of future accounting earnings (Evans et al., 2014). One can also argue that the fair value model fulfills the need for more decision-useful financial information given the increasing complexity of a globalized and innovation-based economy (Barth, 2006; Ball, 2006; Zyla, 2012; Marra, 2016). A precise, fair valuation can provide investors inside information about the management's expectations regarding the investment properties (Danbolt & Rees, 2008), and accurate information about the expected cash flows in the future (Liang & Riedl, 2014). In contrast to the above, some scholars see the use of fair values on the balance sheet as controversial because fair values require estimates using management's expectations and projections as inputs (Penman, 2007; Hughes & Tett, 2008; McCreevy, 2008; Ball, 2016; Marra, 2016). Some even characterize fair value accounting as unreliable (Penman, 2007; Benton, 2008; McCreevy, 2008), and others argue that fair values do not contain information about future earnings (Dichec & Tang, 2008; Bezold, 2008). Maybe negative views about management estimates can be explained by findings of prior studies suggesting that management can impact valuation models' choices (Shalev et al., 2013) and influence the valuation process's outcome (Singleton & Green, 2007). Singleton and Green (2007) point out that fair value accounting is costly, and its outcomes are volatile and unpredictable (So & Smith, 2009).

Our interest in *earnings quality* is related to the consequences of the cost and fair value models on the financial statement information and share market measures provided by the firms in the investment property industry. Dechow et al. (2010, p. 344) define "earnings quality" as follows: "higher quality earnings provide more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision-maker."

Following Dechow et al. (2010), we recognize the three features of earnings quality: (i) earnings quality is conditional on the decision-relevance of information, (ii) the quality of a reported earnings number depends on whether it provides sufficient information about a firm's financial performance, and (iii) earnings quality is jointly determined by the relevance of the underlying financial performance to the decision and by the ability of the accounting system to measure performance.

Prior studies use various measures for earnings quality. A detailed description of how earnings quality constructs can be derived from the relations among income, accruals, and cash is provided by Schipper and Vincent (2003). Some use the time-series properties of earnings,

including earnings persistence<sup>1</sup> (Francis et al., 2004; Atwood et al., 2011; Chen & Wu 2013; Yao, 2013; Kamarudin & Ismail, 2014), predictability (Doyle, Lundholm, & Soliman, 2003; Francis et al., 2004; Barragato & Markelevich, 2008; Dichev & Tang, 2008; Hussainey, 2009; Kamarudin & Ismail, 2014), and timeliness (Francis et al., 2004; Abdullah, 2006; Kamarudin & Ismail, 2014). Earnings quality is also measured by using volatility concerning accruals to future cash flows (Francis et al. 2004; Kamarudin, 2014) in which earnings are associated with share market metrics, such as share prices (Richardson et al., 2005) and returns, and the level of discretionary accruals (McInnis & Collins, 2011; Kamarudin & Ismail, 2014; Darjezi, 2015).

Earnings quality and audit quality have been linked in different studies (Becker et al., 1998; Reynolds and Francis, 2000; Balsam et al., 2003). There is empirical evidence that audit quality improves the investor's ability to anticipate future earnings (Hussainey, 2009). Krishnan and Zhang (2019) use the following measures - predictability of earnings for future cash flows, earnings persistence, value-relevance of earnings, discretionary accruals, and the asymmetric timeliness of earnings - when comparing the IFRS-earnings and the Canadian GAAP (a close substitute to the US GAAP) of all listed Canadian firms in the year when the listed Canadian companies started to use IFRS. They report that the Canadian GAAP outperformed the IFRS in earnings quality. Moreover, the IFRS numbers of Canadian firms were less value-relevant and less persistent.

*Firms' contracts* are determinants of earnings quality (Dechow et al., 2010). Contracts, such as compensation contracts and debt contracts, affect financial statements' reporting (Scott, 2015). Conservatism is one of the critical earnings quality measures that are affected by contracts. Basu (1997, p. 7) describes the traditional conservatism rule, "anticipate no profits but anticipate all losses," as denoting accountants' tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses. If the conservatism is news dependent, it is called "conditional conservatism," and if it is not news dependent, it is called "unconditional conservatism" (Beaver & Ryan, 2005). A frequently used example of conditional conservatism is the expensing rule of inventories: lower of cost or market value (Hartfield, 1909; Esquerre, 1914; Basu, 2005; Krishnan & Zhang, 2019). According to Bever and Ryan (2005, p. 269), unconditional conservatism is "an average understatement of the book value of net assets relative to their market value." The essence of unconditional conservatism means that asset decrease (or liability increase) is presented without an economic loss event.

Conditional conservatism is vital for lenders (Ball et al., 2008). Investors demand conditional conservatism to restrict managers' ability to exploit unverifiable accounting estimates based on opportunistic motives. If market prices are unavailable, the fair value estimation process is susceptible to managerial discretion (Black et al., 2018).

According to Healy and Wahlen (1999, p. 368), *earnings management* "occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers." Lo (2008, p. 350) summarises the above idea of earnings management by stating that, "someone is doing something that harms someone else." Earnings management and earnings quality have joint properties, and highly managed earnings have a low quality (Lo, 2008). However, the lack of earnings management does not guarantee high-quality earnings. For example, a poor set of standards can generate low-quality financial reports (Lo, 2008). Prior studies dis-

<sup>1</sup> However arguably, the use of the cost model is likely to result higher predictability because of less variation in changes in depreciation compared to changes of fair value.

cuss alternative ways to manage earnings (Jackson & Liu 2010; Keung et al., 2010; Barton & Mercer, 2005; Christensen et al., 2012; Hsu & Lin, 2016).

According to agency theory assumptions, the managers pursue maximizing their compensation (cf. Healy, 1985). The latitude of IAS 40 seems to introduce managerial opportunism. Namely, Quagli and Avallone (2010) examine the drivers of choice for IAS 40 in the real estate industry and show that information asymmetry, contractual efficiency, and managerial opportunism could account for the fair value choice. Dietrich et al. (2000) find that appraisal estimates of investment properties understate actual selling prices and are considerably less biased and more accurate in selling prices than historical costs. These findings are perhaps not unsurprising as fair values intend to reflect exit prices of the assets. Pinto and Pais (2015) find evidence suggesting that some real estate managers react to market pressure to meet financial reporting objectives by smoothing book value returns. Using all Canadian listed firms, Krishnan and Zhang (2019) report that accrual quality is lower under the IFRS, suggesting greater earnings management. In contrast, Ball (2013) argues that earnings management is a myth and no real evidence to support this fact. Based on the above discussion, we set the following research question.

*Does the use of the fair value model of the investment properties under IAS 40 improve the quality of the earnings compared to the cost model under ASC 360?*

## **4. Empirical tests and data**

### **4.1 Data**

As our research question addresses companies in the investment property industry, we start the sample development by identifying all listed companies from the real estate industry corresponding to the SIC two-digit industry number 65 ("Real estate"). Our sample includes companies from the USA, Australia, Canada, Great Britain, Hong Kong, Ireland, Singapore, South Africa, and New Zealand. The number of observations by country is described in Table 1. The data covers years 2014-2019, and we require data from at least two successive years for variables of interest to satisfy the requirement of including a lagged variable in the cash flow predictability, earnings persistence, value relevance, and discretionary accruals tests. We use all firm-year observations with data available in databases that are needed for our tests, and winsorize the distributions of our variables in 1% and 99% to mitigate problems with outliers. From Table 1, we can see that our sample includes 399 companies (150 from the U.S. and 249 from the IFRS countries) and 2,394 (900 US and 1,494 IFRS) firm-year observations. The number of observations used in the actual tests is lower than the above when data on variables are not available from public sources identified in the study. The data availability by variable has been presented in the first and second columns of Table 2.

**Table 1.** The number of observations by country

COUNTRY	FIRMS	FIRM-YEARS	PERCENT
Australia	37	222	9.27
Canada	51	306	12.78
Great Britain	63	378	15.79
Hong Kong	41	246	10.28
Ireland	1	6	0.25
Singapore	43	258	10.78
South Africa	13	78	3.26
United States	150	900	37.59
Total	399	2,394	100.00

We use two sources of data. Our primary data source is Orbis (provided by Bureau van Dijk), from which we gather all financial statement and valuation information. The USGAAP cash flows are taken from the Compustat database. The variable definitions are presented in Appendix 1.

## 4.2 Models

To compare the earnings quality between the U.S. and IFRS companies, we recognize that “there is no measure of earnings quality that is superior for all decision models” (Dechow et al., 2010, 345). We follow Krishnan and Zhang (2019) and use five different attributes for earnings quality: (1) predictability of earnings, (2) earnings persistence, (3) value-relevance of earnings, (4) discretionary accruals, and (5) asymmetric timeliness of earnings.

### 4.2.1 Predictability of earnings

We use the model from Dechow et al. (1998) to measure the predictability of earnings. Here, the cash flow is predicted by the previous year’s earnings as follows:

$$CFO_t = \alpha + \beta_1 EPS_{t-1} + \varepsilon \tag{1}$$

where *CFO* is the cash flow from operations per share, and *EPS* is the earnings per share. A positive relationship between the cash flow and the previous year’s EPS is expected, indicating the predictability of earnings (Dechow et al., 1998).

### 4.2.2. Earnings persistence

The persistence of earnings is analyzed similarly to Krishnan and Zhang (2019):

$$EPS_t = \alpha + \beta_1 EPS_{t-1} + \varepsilon \tag{2}$$

where *EPS* is earnings per share. The quality of persistence is evaluated by comparing the coefficients of models with subsamples using Chi<sup>2</sup>-test statistic and by comparing the explanatory power (*R*<sup>2</sup>) of the models.



#### 4.2.3. Value-relevance of earnings

The third attribute of earnings quality is value-relevance, based on the share price predictability one month and three months after the fiscal year-end (Barth et al., 2008). These are respectively calculated as follows:

$$PRICE\_LAG1 = \alpha + \beta_1 BVS + \beta_2 EPS\_LOSS + \beta_3 EPS + \beta_4 EPS\_LOSS \times EPS + \epsilon, \quad (3)$$

$$PRICE\_LAG3 = \alpha + \beta_1 BVS + \beta_2 EPS\_LOSS + \beta_3 EPS + \beta_4 EPS\_LOSS \times EPS + \epsilon, \quad (4)$$

where  $PRICE\_LAG1$  and  $PRICE\_LAG3$  are the share prices one month and three months after the fiscal year-end, respectively. In addition,  $BVS$  is the book value of equity per share, and  $EPS$  is the earnings per share. Based on Ohlson (1995), we expect positive coefficients on  $BVS$  and  $EPS$ . Furthermore, to capture the piece-wise linearity of earnings (Basu, 1997), we add the loss dummy indicating negative EPS and the interaction term  $EPS\_LOSS \times EPS$  to control for negative earnings.

We use also a value-relevance model where earnings and the change of earnings are the predictors of share returns (Ghosh & Moon, 2005).

$$RETURN = \alpha + \beta_1 EPS + \beta_2 CHEPS + \epsilon \quad (5)$$

In equation (5),  $RETURN$  is a 12-month buy-and-hold share return starting nine months before the fiscal year-end and ending three months after the fiscal year-end.  $EPS$  is the earnings per share, and  $CHEPS$  is the annual change of EPS.

#### 4.2.4. Discretionary accruals

We follow Dechow and Dichev (2002) and calculate the total accruals as the dependent variable of equation (6). Scaled cash flow from one year before, in the current year, and one year after are the predictor variables in the equation.

$$ACCRUALS_t = \alpha + \beta_1 CFO\_SCALED_{t-1} + \beta_2 CFO\_SCALED_t + \beta_3 CFO\_SCALED_{t+1} + \epsilon \quad (6)$$

Total accruals ( $ACCRUALS$ ) are calculated as earnings +depreciation less operating cash flows, divided by market capitalization.  $CFO\_SCALED$  is an operational cash flow scaled by market capitalization.

#### 4.2.5. Asymmetric timeliness of earnings

Finally, we use the model proposed by Basu (1997) to evaluate the amount of conditional conservatism (the asymmetric timeliness of the recognition of gains and losses) of earnings.

$$EPS\_SCALED = \alpha + \beta_1 RET + \beta_2 RET\_NEG + \beta_3 RET\_NEG \times RET + \epsilon \quad (7)$$

In equation (7),  $EPS\_SCALED$  represents the earnings per share scaled by share price.  $RET$  is a 12-month buy-and-hold share return and  $RET\_NEG$  is a dummy capturing negative return. Regression coefficient  $\beta_1$  measures the conservatism for positive returns, whereas the sum of  $\beta_1$  and  $\beta_3$  measures the conservatism for the negative returns. A significant positive coefficient of  $\beta_3$  indicates the asymmetric timeliness of earnings.

## 5. Results

### 5.1. Descriptive statistics

The descriptive statistics for the variables used in our tests are shown in Table 2. In the table, we present the mean values and standard deviations separately based on the subsets of firms that apply the IFRS and those that apply the US GAAP. The table also reports the *p*-values from the mean tests between the subsamples. Table 2 shows that the share of negative earnings is higher in the U.S. sample. In the IFRS sample, the share of negative stock return and the absolute value of total accruals are higher.

**Table 2: Group statistics with t-test (IFRS compared the US GAAP)**

Mean values, differences, standard deviations, t-values, and p-values.

	N (IFRS)	N (US)	MEAN (IFRS)	MEAN(US)	DIFF.	SD(IFRS)	SD(US)	T-VALUE	P-VALUE
BIG4	990	414	.687	.314	.373	.464	.465	13.70	.000
CFO	1187	341	.478	2.173	-1.694	1.580	2.928	-14.05	.000
EPS	1250	473	.458	.673	-.215	1.560	2.285	-2.25	.026
EPS LOSS	1494	900	.170	.205	-.035	.376	.404	-2.20	.025
CHEPS	1182	414	-.011	.359	-.370	1.186	2.221	-4.25	.000
PRICE	1257	478	6.301	22.407	-16.107	17.098	26.165	-15.00	.000
PRICE LAG1	1229	427	6.512	24.067	-17.555	17.773	28.958	-14.70	.000
PRICE LAG3	1243	440	6.677	24.424	-17.747	18.616	30.682	-14.30	.000
BVS	1250	478	6.470	11.279	-4.809	15.140	12.929	-6.15	.000
RET	1164	368	-.008	.001	-.009	.348	.540	-.35	.721
RET NEG	1494	900	.360	.185	.174	.480	.389	9.25	.000
ACCRUALS	1494	900	.022	.005	.017	.206	.082	2.35	.020
CFO SCALED	1153	341	.029	.121	-.092	.546	.414	-2.89	.004
EPS SCALED	1212	456	.030	-.073	.103	.597	1.762	1.78	.074

*BIG4* is an indicator for BIG4-auditor; *CFO* cash flow from operations per share; *EPS* is earnings per share in a fiscal year; *EPS\_LOSS* is a dummy for negative EPS; *CHEPS* is an annual change in EPS; *PRICE\_LAG\_1* and *PRICE\_LAG\_3* are the stock prices one and three months after the fiscal year-end, respectively; *BVS* is book value per share; *RET* is a 12-month buy-and-hold stock return; *RET\_NEG* is a dummy for negative return; *ACCRUALS* is the total accruals; *CFO\_SCALED* is the cash flow scaled by market capital, and *EPS\_SCALED* is the EPS scaled by market capital. Variable definitions are presented in the Appendix.

When we hand-collected additional data from a total of 100 random companies from our sample, non-tabulated descriptive statistics show that the mean investment properties to total assets of IFRS companies was 81.3 percent and of US companies 78.4 percent (standard deviations 16.4 and 21.2 per cents, respectively).

### 5.2 Predictability of earnings

Table 3 Panel A presents the results of the earnings predictability. We run equation (1) for the full sample and separately for IFRS and US GAAP subsamples. A positive coefficient for the previous year's EPS is expected; that is,  $EPS_{t-1}$  should be positively correlated with future cash flows. In both subsamples, the coefficient of  $EPS_{t-1}$  is significant and positive. In U.S. firms, the coefficient (0.846) is higher than in IFRS companies (0.574). The difference is not statistically significant. We also observe a higher  $R^2$  for the US GAAP sample (0.409) than for the IFRS sample (0.363).

**Table 3 Panel A. Regression results**

The dependent variable is *CFO*. Coefficients, (std. errors), Chi2 and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI <sup>2</sup>
EPSt_1	0.574*** (0.149)	0.846*** (0.150)	0.692*** (0.123)	1.67 (0.197)
_cons	0.178** (0.088)	1.484*** (0.203)	0.431*** (0.088)	
Obs.	1131	300	1431	
R-squared	0.363	0.409	0.358	

Standard errors are in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* <0.1

*CFO* is cash flow from operations per share; *BIG4* is an indicator for BIG4-auditor; *EPS* is earnings per share. Variable definitions are presented in the Appendix.

**Table 3 Panel B. Predictability of earnings**

The dependent variable is *CFO*. Coefficients, (std. errors), Chi2 and (p-values)

	(1) IFRS	(2) US GAAP	(3) ALL	(4) CHI <sup>2</sup>
BIG4	0.313** (0.157)	0.291 (0.693)	0.170 (0.221)	0.00 (0.974)
EPSt_1	0.581*** (0.152)	0.954*** (0.242)	0.739*** (0.166)	1.76 (0.184)
BIG4xEPSt_1	-0.001 (0.062)	-0.267 (0.313)	-0.052 (0.083)	0.73 (0.392)
_cons	0.035 (0.057)	1.005 (0.649)	0.240* (0.134)	
Obs.	750	133	883	
R-squared	0.381	0.540	0.426	

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

*CFO* is cash flow from operations per share; Big4 is an indicator for Big4-auditor; *EPS* is earnings per share. Variable definitions are presented in the Appendix. *CFO* is cash flow from operations per share; *BIG4* is an indicator for BIG4-auditor; *EPS* is earnings per share. Variable definitions are presented in the Appendix.

The absolute value of the coefficient of EPS in the US sample is higher than that of the IFRS sample. However, the observed difference between standards is not statistically significant ( $p$ -value of the Chi<sup>2</sup>-test is 0.197). Therefore we conclude that there is no difference in earnings predictability between IFRS and US GAAP.

### 5.3 Earnings persistence

The results for the regression equation (2) are presented in Table 4 Panel A. Similarly Chalmers et al. (2011), our interpretation is that an increase in earnings predictability reflects better incorporation of underlying economic circumstances that have continuing effects on the future earnings. Therefore, we interpret a higher positive coefficient as an indication of higher earnings quality. However, from Table 4 Panel A, we observe the coefficients of US GAAP (coefficient is 0.795) and IFRS samples (coefficient is 0.774) are not statistically different from each other ( $p$ -value of Chi<sup>2</sup>-test is 0.873).

**Table 4 Panel A. Earnings persistence**

The dependent variable is EPS. Coefficients, (std. errors), Chi<sup>2</sup> and ( $p$ -values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI <sup>2</sup>
EPSt_1	0.774*** (0.069)	0.795*** (0.117)	0.784*** (0.063)	0.03 (0.873)
_cons	0.082*** (0.031)	0.255*** (0.063)	0.125*** (0.028)	
Obs.	1182	414	1596	
R-squared	0.615	0.571	0.596	

Standard errors are in parenthesis. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

CFO is cash flow from operations per share; *Big4* is an indicator for Big4-auditor; EPS is earnings per share. Variable definitions are presented in the Appendix.

**Table 4 Panel B. Earnings persistence**

The dependent variable is EPS. Coefficients, (std. errors), Chi<sup>2</sup> and ( $p$ -values)

	(1) IFRS	(2) US GAAP	(3) ALL	(4) CHI <sup>2</sup>
BIG4	0.029 (0.068)	-0.031 (0.152)	-0.019 (0.072)	0.13 (0.714)
EPSt_1	0.814*** (0.083)	0.841*** (0.163)	0.831*** (0.076)	0.02 (0.880)
BIG4xEPSt_1	0.003 (0.023)	0.018 (0.198)	-0.001 (0.024)	0.02 (0.939)
_cons	0.052 (0.035)	0.246** (0.120)	0.113** (0.047)	
Obs.	784	193	977	
R-squared	0.686	0.638	0.669	

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

CFO is cash flow from operations per share; *Big4* is an indicator for Big4-auditor; EPS is earnings per share. Variable definitions are presented in the Appendix.

The explanatory power ( $R^2$ ) in the models are 0.615 and 0.571 for the IFRS and the US GAAP subsamples, respectively.

### 5.4 Value-relevance

Tables 5–6 presents the results regarding equations (4) – (5). The difference of the coefficients between the U.S. and IFRS subsamples is analyzed using the Chi-square test. The dependent variables are *PRICE\_LAG\_3* (Table 5 Panel A) and *RETURN* (Table 6 Panel A). We control for negative EPS with the EPS loss dummy and let the latter interact with EPS. In Table 5 Panel A, the share price is lagged by three months. The coefficient of *BVS* is positive and statistically significant for both subsamples. For the IFRS firms (in Column 1), the coefficient is 0.846, suggesting that 84,6% of the reported book value is capitalized in the share value. This coefficient is lower than the theoretical value of 1 (Ohlson, 1995). It can be seen from the test  $\beta(BVS)=1$  because the regression coefficient of *BVS* of IFRS subsample differs from 1 ( $p$ -value is below 0.001). This is not true for the US GAAP sample where the  $p$ -value of the test  $\beta(BVS)=1$  is 0.883 suggesting that the coefficient of *BVS* (0.986) does not differ from 1. However, the  $R^2$  of the IFRS sample (0.764) is much higher than that of the USGAAP sample (0.374). We can also see that for the US firms the coefficients of *EPS\_LOSSxEPS* differs at the 10% confidence level between subsamples ( $p$ -value of  $\chi^2$  test is 0.089). Other coefficients are not statistically different between the subsamples. Untabulated results using a lag of one month instead of three months remain qualitatively the same.

**Table 5 Panel A. Value relevance**

The dependent variable is *PRICE\_LAG\_3*. Coefficients, (std. errors),  $\chi^2$  and ( $p$ -values)

	(1) IFRS	(2) US GAAP	(3) ALL	(4) $\chi^2$
BVS	0.846*** (0.178)	0.986*** (0.158)	0.891*** (0.133)	0.35 (0.556)
EPS_LOSS	2.661*** (0.949)	6.905* (3.820)	6.188*** (1.823)	1.18 (0.278)
EPS	2.434** (1.118)	4.657*** (1.733)	3.410** (1.347)	1.18 (0.277)
EPS_LOSSxEPS	-1.112* (0.655)	-0.001*** (0.000)	-0.001*** (0.000)	2.89* (0.089)
_cons	-0.951* (0.545)	7.191*** (2.634)	0.717 (0.627)	
Obs.	1347	458	1805	
R-squared	0.764	0.374	0.561	
$\beta(BVS)=1$ ( $p$ )	(0.000)	(0.883)		

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

*PRICE\_LAG\_3* is the stock price three months after the fiscal year-end, *BVS* is book value per share; *EPS* is earnings per share and *EPS\_LOSS* is a dummy for negative EPS. Variable definitions are presented in the Appendix.

**Table 5 Panel B. Value relevance**

The dependent variable is *PRICE\_LAG\_3*. Coefficients, (std. errors), Chi<sup>2</sup> and (p-values)

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI <sup>2</sup>
BVS	0.873*** (0.189)	0.978*** (0.177)	0.853*** (0.125)	0.17 (0.684)
EPS_LOSS	3.068** (1.369)	2.718 (2.855)	4.370*** (1.380)	0.01 (0.910)
EPS	2.363* (1.317)	4.564*** (0.889)	3.499*** (0.954)	1.96 (0.162)
EPS_LOSSxEPS	-0.784 (0.572)	-0.238*** (0.046)	-0.351** (0.171)	0.91 (0.339)
BIG4	-0.038 (1.054)	3.704 (2.658)	-0.329 (1.143)	1.78 (0.182)
_cons	-0.925 (0.841)	4.030 (3.137)	0.324 (1.084)	
Obs.	795	194	989	
R-squared	0.763	0.724	0.726	

Standard errors are in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*PRICE\_LAG\_3* is the stock price three months after the fiscal year-end, *BVS* is book value per share; *EPS* is earnings per share and *EPS\_LOSS* is a dummy for negative EPS. Variable definitions are presented in the Appendix.

**Table 6 Panel A. Value relevance**

The dependent variable is *RETURN*. Coefficients, (std. errors), Chi<sup>2</sup> and (p-values).

	(1) IFRS	(2) USGAAP	(3) ALL	(4) CHI <sup>2</sup>
EPS	0.029*** (0.007)	0.044** (0.019)	0.035*** (0.009)	0.53 (0.467)
CHEPS	0.005 (0.013)	-0.034 (0.022)	-0.014 (0.013)	2.28 (0.131)
_cons	-0.018 (0.012)	0.021 (0.033)	-0.010 (0.013)	
Obs.	1112	380	1492	
R-squared	0.021	0.038	0.024	

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

*RET* is a 12-month buy-and-hold stock return; *EPS* is earnings per share in a fiscal year; *CHEPS* is an annual change in *EPS*. Variable definitions are presented in the Appendix.

**Table 6 Panel B. Value relevance**

The dependent variable is *RETURN*. Coefficients, (std. errors), Chi<sup>2</sup> and (p-values).

	(1)	(2)	(3)	(4)
	IFRS	USGAAP	ALL	CHI <sup>2</sup>
EPS	0.023*** (0.005)	0.020* (0.011)	0.024*** (0.005)	0.07 (0.787)
CHEPS	-0.006 (0.006)	0.018 (0.014)	0.003 (0.006)	2.51 (0.113)
BIG4	0.023 (0.032)	0.046 (0.084)	0.022 (0.033)	0.07 (0.797)
_cons	-0.134*** (0.030)	-0.116 (0.089)	-0.128*** (0.032)	
Obs.	737	165	902	
R-squared	0.018	0.031	0.021	

Standard errors are in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*RET* is a 12-month buy-and-hold stock return; *EPS* is earnings per share in a fiscal year; *CHEPS* is an annual change in *EPS*. Variable definitions are presented in the Appendix.

In Table 6 Panel A, the dependent variable is a 12-month buy-and-hold share return. For both subsamples, the only significant coefficient is the positive coefficient of *EPS*. The coefficient of 0.044 for US GAAP firms is higher than 0.029 for IFRS firms. The difference, however, is not statistically significant (the p-value of the Chi<sup>2</sup> test is 0.467).

### 5.5 Discretionary accruals

The results regarding equation (6) for discretionary accruals are presented in Table 7 Panel A. The starting point in Dechow and Dichev (2002) model is that the current year accruals can be estimated using the cash flows from the previous year, the current year, and the following year. First, from Table 2 (Group statistics with t-tests), we can see that the total accruals' mean value is greater in the IFRS subsample (0.022) than in the US GAAP subsample (0.005). The higher R<sup>2</sup> of the US GAAP sample of 0.328 than 0.135 of the IFRS sample suggests that the variation of accruals can be explained better with the cash flows in the US GAAP sample.

**Table 7 Panel A. Discretionary accruals**

The dependent variable is *ACCRUALS*. Coefficients, (std. errors), Chi<sup>2</sup> and (p-values).

	(1)	(2)	(3)	(4)
	IFRS	USGAAP	ALL	CHI <sup>2</sup>
CFO_SCALEDt-1	0.156*** (0.023)	-0.201*** (0.072)	-0.036 (0.069)	22.86 (0.000)
CFO_SCALED	-0.247** (0.111)	-0.323** (0.128)	-0.158* (0.089)	0.20 (0.651)
CFO_SCALEDt+1	-0.026 (0.062)	0.234** (0.101)	0.064 (0.076)	4.93 (0.026)
_cons	0.012 (0.014)	-0.111*** (0.023)	-0.012 (0.013)	
Obs.	1008	220	1228	
R-squared	0.135	0.328	0.086	

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

*ACCRUALS* is the total accruals; *CFO\_SCALED* is the cash flow scaled by market capitalization. Variable definitions are presented in the Appendix.

**Table 7 Panel B. Discretionary accruals**

The dependent variable is *ACCRUALS*. Coefficients, (std. errors), Chi<sup>2</sup> and (p-values).

	(1)	(2)	(3)	(4)
	IFRS	USGAAP	ALL	CHI <sup>2</sup>
CFO_SCALEDt_1	0.069*** (0.015)	0.233*** (0.070)	0.077*** (0.017)	5.65** (0.018)
CFO_SCALED	-0.181* (0.093)	-0.496*** (0.079)	-0.197** (0.097)	6.93*** (0.009)
CFO_SCALEDt1	0.021 (0.081)	0.209*** (0.071)	0.044 (0.089)	3.13* (0.077)
BIG4	0.029 (0.031)	-0.104 (0.081)	0.001 (0.031)	2.47 (0.116)
_cons	0.023 (0.028)	0.134 (0.083)	0.049* (0.028)	
Obs.	573	102	675	
R-squared	0.143	0.408	0.144	

Standard errors are in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*ACCRUALS* is the total accruals; *CFO\_SCALED* is the cash flow scaled by market capitalization. Variable definitions are presented in the Appendix.

### 5.6 Asymmetric timeliness of earnings

Finally, we run the conditional conservatism tests (Equation 7). From Table 8 Panel A, we can see that similarly to Basu (1997) the coefficients for *RET\_NEGxRET* are significant and positive, indicating the asymmetric timeliness of earnings (0.665 and 0.406 for IFRS and US GAAP samples, respectively). However, there are no significant differences between the IFRS and U.S. sub-



samples. Thus, we can only conclude that conservatism can be observed both in the U.S. and IFRS firms.

**Table 8 Panel A. Asymmetric timeliness of earnings**

The dependent variable is *EPS\_SCALED*. Coefficients, (std. errors), Chi<sup>2</sup> and (p-values).

	(1)	(2)	(3)	(4)
	IFRS	USGAAP	ALL	CHI <sup>2</sup>
RET	-0.155 (0.103)	-0.573 (0.487)	-0.236 (0.163)	0.71 (0.398)
RET_NEG	-0.004 (0.036)	-0.362 (0.355)	-0.111 (0.104)	1.03 (0.311)
RET_NEGxRET	0.665*** (0.218)	0.406** (0.195)	0.406*** (0.146)	0.79 (0.375)
_cons	0.116*** (0.030)	0.226 (0.169)	0.129*** (0.045)	
Obs.	1111	354	1465	
R-squared	0.049	0.009	0.011	

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

*EPS\_SCALED* is the EPS scaled by market capital; *RET* is a 12-month buy-and-hold stock return; *RET\_NEG* is a dummy for a negative return. Variable definitions are presented in the Appendix.

**Table 8 Panel B. Asymmetric timeliness of earnings**

The dependent variable is *EPS\_SCALED*. Coefficients, (std. errors), Chi<sup>2</sup> and (p-values).

	(1)	(2)	(3)	(4)
	IFRS	USGAAP	ALL	CHI <sup>2</sup>
RET	0.072 (0.134)	-0.337* (0.195)	0.021 (0.141)	3.08* (0.079)
RET_NEG	0.105** (0.051)	-0.106 (0.066)	0.064 (0.048)	6.71*** (0.010)
RET_NEGxRET	0.545* (0.281)	0.702*** (0.231)	0.506*** (0.171)	0.19 (0.662)
BIG4	0.270*** (0.102)	-0.141* (0.076)	0.174** (0.080)	10.59*** (0.001)
_cons	-0.151 (0.112)	0.282*** (0.099)	-0.053 (0.098)	
Obs.	739	166	905	
R-squared	0.088	0.380	0.098	

Standard errors are in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

*EPS\_SCALED* is the EPS scaled by market capital; *RET* is a 12-month buy-and-hold stock return; *RET\_NEG* is a dummy for a negative return. Variable definitions are presented in the Appendix.

### 5.7 Sensitivity tests

From prior literature, we know that larger audit firms provide a higher quality of audits (DeAngelo, 1981; Becker et al., 1998; Francis & Yu, 2009), and high-quality audits are related to higher earnings quality (e.g. Becker et al. 1998). Therefore, we test the sensitivity of all our empirical tests for the effect of higher earnings quality provided by BIG4 audits (Panel B of tables 3-8). Overall, the inclusion of the Big4 indicator variable does not qualitatively affect our findings. When we compare Panel A and B in Tables 3,4,5,6 and 8, our conclusion regarding the research question does not change. However, in the discretionary accrual test (Table 7), the inclusion of the Big4 indicator variable has a clear impact on the coefficient CFO\_SCALED<sub>t-1</sub> in the US GAAP sample, a finding that is challenging for us to interpret.

## 6 Discussion and conclusions

In the current study, we addressed a fundamental question in financial accounting: whether to use a fair value or cost model. We did so by examining how the incorporation of fair values into main financial statements affects earnings quality instead of using a cost model where fair value changes are not recognized in income statements. Due to the requirement of the IAS 40 to include the changes in investment properties' fair values into the income statement, we can perform our analysis in an industry sector where management opportunism is arguably accentuated. The potential magnitude of the effects of management opportunism is economical of interest because the proportion of real estate assets to total assets in the investment property sector is often material.

Our empirical findings suggest that the cost model yields better earnings quality in two out of six tests: (i) value-relevance tests suggest that under the cost model (applied in the U.S.) asset values are not under- or overvalued while under the fair value model (applied under the IFRS) asset values appear to be overvalued, and (ii) cash flows are better predictors of discretionary accruals using the cost model. In the other four earnings quality tests, fair value and cost models do not differ from each other. We perform sensitivity tests regarding high-quality audits (using Big 4 as a proxy) and find that the results remain qualitatively the same.

Our first contribution relates to Francis et al. (2004), who find (using all industries) that the fair value model is more value relevant than the cost model and offers more predictability and timely earnings numbers because of its future orientation. From Schipper and Vincent (2003), we know that there are idiosyncratic elements in earnings predictability and reporting entity's business model, economic factors, and reporting choices that affect earnings quality measures. That is why we take a different approach to Francis et al. (2004) and focus on one specific business model (investment properties) instead of including a cross-section of all industries. We expect that this decision improves the accuracy of our empirical findings regarding reporting choices in the investment property sector. We find that in the investment property sector the cost model yields better value relevance. In contrast to Francis et al. (2004), we find that in the real estate sector the cost model yields better cash flows predictability.

As our second contribution, we examine a longer time period and more extensive set of countries than Krishnan and Zhang (2019), comparing IFRS and Canadian GAAP (that is similar to US GAAP) using one-year data from 2011. Their results support the notion that higher earnings quality is associated with CGAAP. Different to Krishnan and Zhang (2019), we use observations from many countries applying IFRS (including Canada), from years 2014-2019. Our findings from the investment property sector do not support the Canadian GAAP type of cost model as extensively as was the case in the research design of Krishnan and Zhang (2019).

Third, we extend Dietrich et al. (2011), who found indications of earnings management. In our research design with more countries and years included in the tests, we find that earnings management (and managerial opportunism) is present in the IFRS sample because investors predict approximately 15% lower values for the long-term assets than what the firm management reporting in their financial statements.

We recognize as a limitation of our study that fair values are likely to contain more variation than the depreciation of the cost model. This difference limits the comparability of the two valuation models. However, the measures that we use are those that are widely used to assess earnings quality.

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## Appendix. Variable definitions

VAR	DEFINITION
BIG4	0/1 Indicator for BIG4-auditor
CFO	Operating cash flow per share. IFRS cash flow from Orbis database and US GAAP cash flow from Compustat.
EPS	Earnings (Net income) per share from Orbis database
EPS LOSS	0/1 Indicator for negative EPS
CHEPS	Annual change in EPS
PRICE	Stock price at the end of the fiscal year from Orbis database
PRICE_LAG_1	Stock price one month after fiscal year-end from Orbis database
PRICE_LAG_3	Stock price three months after fiscal year-end from Orbis database
BVS	Book value of equity per share from Orbis database
RET	The 12-month buy and hold stock return, from nine months prior to the fiscal year-end through three months after the fiscal year-end. Stock return is from Orbis database.
RET NEG	0/1 Indicator for negative stock return.
ACCRUALS	Total accruals. Calculated as (earnings + depreciation – operating cash flow) / market capitalization
CFO SCALED	Operating cash flow / market capitalization
EPS SCALED	EPS / market capitalization
US_D	Binary: Company reporting 1 = USGAAP; 0 = IFRS



# *Developing and Sustaining Trust within Human Capital during Organisational Transformation*

Priyanka Shrivastava, Mirjami Ikonen, Taina Savolainen and Enkh-Otgon Dorjgotov

## **Abstract**

This paper investigates the lifecycle of organisations' transformation and how it influences the development and sustenance of trust within human capital (employees). The data for this qualitative study has been gathered through interviews and narratives from multinational organisations based in Finland. The findings reveal the unique relationship of trust sustenance and development during organisational transformation. Results report positive and negative influences on trust. This study augments the limited literature on qualitative research of trust sustenance and its development during organisational transformation by introducing a conceptual framework.

## **Keywords:**

developing trust, human capital, organisational transformation, sustaining trust

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## 1. Introduction

Organisational transformations are critical events, and the disclosure about transformation influences the trust between the workplace actors (Korsgaard et al., 2002; Lines et al., 2005; Sverdrup and Stensaker, 2018). The purpose of the paper is to shed light on trust, how it is sustained and developed within human capital (employees) in the different stages of organisational transformation. In the organisational transformation process, trust acts as a facilitator that positively moderates the association between human capital management, and the change process (Kanter, 1977; Lane and Bachman, 1998; Burt, 2001). Organisations face constant challenges in sustaining and developing trust (Saunders and Thornhill, 2003; Lines et al., 2005; Neves and Caetano, 2009) within human capital during transformations. Sustaining trust in this study is considered to strengthen the trust whatever and whichever level it is when the transformation is announced.

In recent years, organisational transformations have tended to absorb greater complexity (Dervitsiotis, 2003), resulting in human capital (employees) to overcome the change. Human capital, as defined by Becker (2002), is “...Knowledge, information, ideas, skills and health of individuals” (Becker, 2002, p. 1). Managing human capital in an organisation undergoing transformation can be administered precisely by developing and sustaining trust within an employee’s workplace (Tzafirir et al., 2004).

This study focuses only on the planned transformations or changes (Bamford and Forrester, 2003) in an organisation. Change management or transformations as defined by Moran and Brightman (2001, p. 111), is “the process of continually renewing an organisation’s direction, structure, and capabilities to serve the ever-changing needs of external and internal customers.” Lewin’s (1947) change model is observed as the ‘fundamental’ or ‘classic’ approach to, or classic ‘paradigm’ for managing change (Waddell, 2007; Robbins and Judge, 2009; Sonenshein, 2010) and is considered as the elementary studies in change management.

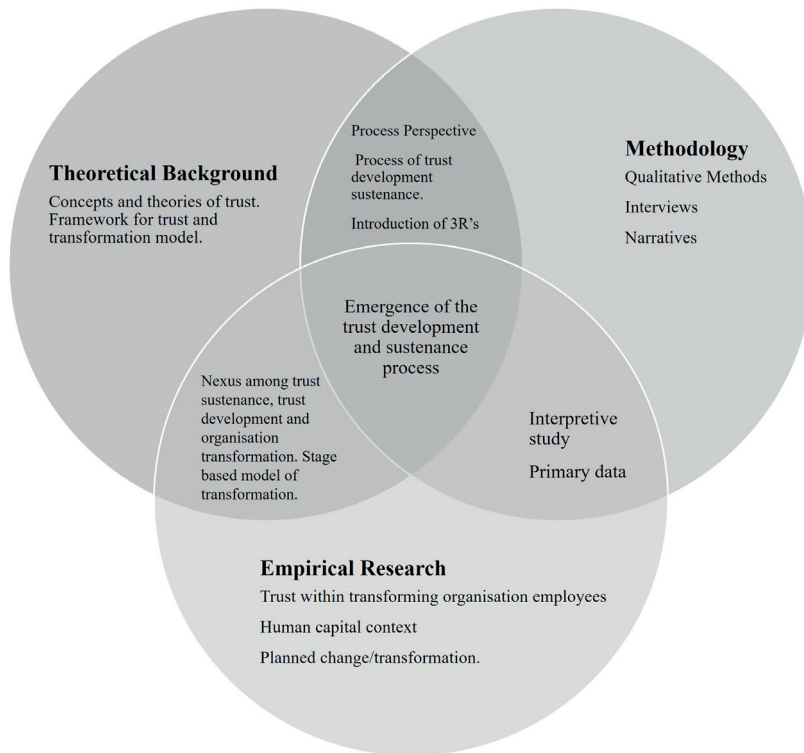
This paper suggests a framework by illustrating the stages of transformation encompassing trust sustenance and trust development and integrating the process model of change (Lewin, 1947) and key concepts from Lines et al., (2005) enabling to study the crucial stages in the change implementation process. Findings from Morgan and Zeffane (2003) and Lines et al., (2005) supports this study in the regard that organisational change represents critical events where trust is developed or destroyed (Sverdrup and Stensaker, 2018) depending on the structure of the change process.

Both management researchers and practitioners are becoming increasingly aware of the importance of organisational transformations for amplifying organisational competency, institutionalisation, and workplace management. Transformations in organisations are recognised as a core for building organisational competence (Neves and Caetano, 2009). Transformations are often unpredictable and triggered in organisations due to social or external economic change (Kanter et al., 1992; Dawson, 1994; Luecke, 2003; Burnes, 2004; Savolainen, 2013). Initiations of transformations whether planned or unplanned, short-term, or long-term, continuous, or discontinuous, temporary, or permanent (Pettigrew, 1990a, 1990b; Kanter et al., 1992; Wilson, 1992; Dawson, 1994; Gilmore et al., 1997; Luecke, 2003; Burnes, 2004), pose challenges both to the management and to the employees.

The current literature landscape has limited coverage that has attempted to investigate trust development, sustenance, and organisational transformation together as Lines et al., (2005) research as a point of departure. Therefore, this study investigates the following research questions:

1. How is trust sustained within human capital during the pre-transformations and transformation stages?
2. How is trust influenced within human capital at different stages of organisational transformations?

The subsequent section presents an examination of the literature on trust and factors studied concerning trust in past studies. The section is focused on a theoretical integration of perception used for transforming organisations with trust concepts. The authors have adopted an explorative, qualitative approach to the empirical study of trust development and dynamics.



**Figure 1:** Framework for studying the emergence of trust development and sustenance process (Partially adapted from Savolainen and Ikonen 2016)

This qualitative study aims to advance the understanding of actors' perceptions in their own, real-life contexts. This approach pursues descriptions of the phenomena studied and sought to understand the perceptions of individuals regarding trust development and sustenance, working in a transforming organisation. The study utilises the interviews and narrative as the methods for data collection and analysis to discover and describe both the nuances of the phenomenon and the core features.

## **2. Theoretical Discussion**

### **2.1 Concepts of trust**

Trust plays multiple roles in organisations (Möllering et al., 2004; Fulmer and Gelfand, 2012; Ozyilmaz et al., 2018) and studied on multidisciplinary levels by researchers (Horton and Reid, 1991; Mayer et al., 1995; Kramer and Tyler, 1996; Rousseau et al., 1998; Costa et al., 2018; Karhapää and Savolainen, 2018; Villena et al., 2019). Each trust-related study has been linked and has contributed to specific issues associated with employees' various workplace settings (Boss, 1978; O'Neill and Lenn, 1995; Lewicki and Bunker, 1996; Robinson, 1996; Mossholder et al., 2000; Lines et al., 2005; Nugent and Abolafia, 2006; Neves and Caetano, 2009; Ozyilmaz et al., 2018; Sverdrup and Stensaker, 2018). Regardless of this, little effort has been made to study the nexus of trust, development, and sustenance within human capital, during transformation in organisations.

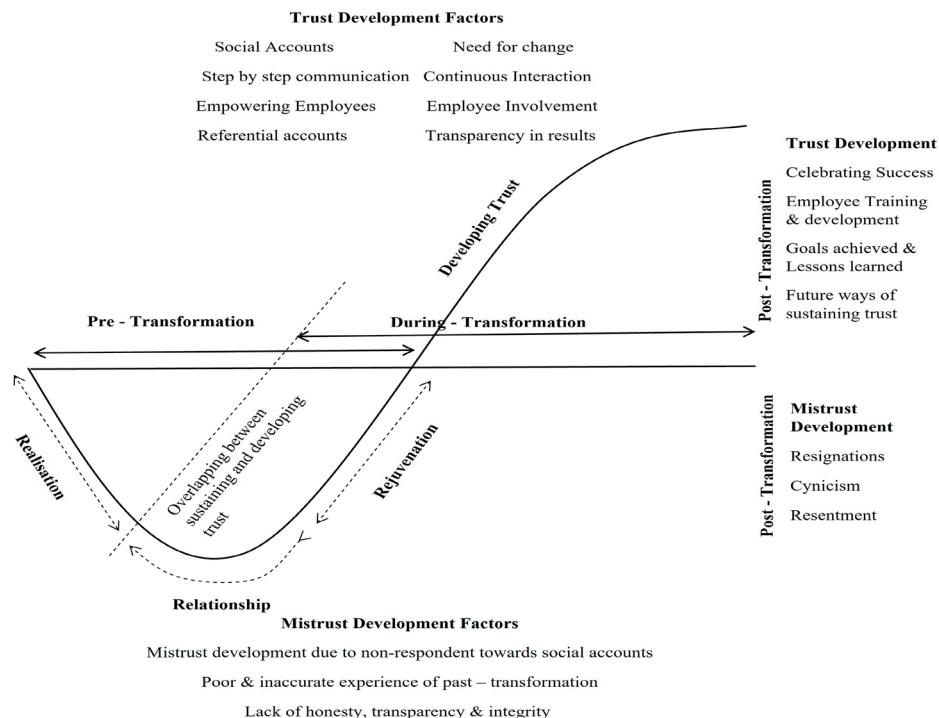
Giddens (1990, p. 34) states "trust in persons is always to some degree relevant to faith in systems but concerns their proper working rather than their operation as such". Klausner (2012) also states that positive expectations are a necessary condition for trust to develop, and this falls within the scope of the current paper. Typically, trust is investigated as one's trust in another, e.g., employees' trust in managers or leaders (Tzafrir et al., 2004; Shrivastava et al., 2018) vice-versa. Moreover, several articles on trust have integrated past literature to study interpersonal and inter-organisational trust (Driscoll, 1978; Butler, 1991; Currall and Judge, 1995; Mayer et al., 1995; McAllister, 1995; Whitener et al., 1998; Kroeger, 2012; Fuglsang and Jagd, 2015; Shrivastava et al., 2018). Therefore, it is essential to recognise that trust is both organisational and individual-based (Lewicki et al., 1998; Kroeger, 2012; Fuglsang and Jagd, 2015).

The current study on interpersonal trust relies on the concept of vulnerability, being vital to the definitions of trust (Rotter, 1967; Currall and Judge, 1995; Mayer et al., 1995; Rousseau et al., 1998; Möllering, 2006; Fulmer and Gelfand, 2012). The notion of willingness to be vulnerable refers to the suspension of uncertainty (Möllering, 2006) that is obvious in the process of trust-building (Lewicki and Bunker, 1996; McKnight et al., 1998; Savolainen and Ikonen, 2016; Shrivastava et al., 2018). According to Lewicki et al., (1998), trust and mistrust are separate, but linked dimensions vary from low to high, rather than opposite ends of a scale. Thus, there could be a context where an employee can experience both trust and mistrust, offering an opportunity to restore and sustain trust. A trust permits positive expectations to be assured and reduces complexity and uncertainty by eliminating unfavourable expectations. In contrast, mistrust allows unfavourable expectations to be assured and reduces complexity and uncertainty by removing favourable expectations.

### **2.2 Framework for trust and organisational transformations**

Past scholars (Shapiro et al., 1992; Lewicki and Bunker, 1995; Savolainen and Ikonen, 2016) have studied trust development as stage-based models that illustrate trust develops gradually and depends on the work relationships as the association moves from one stage to another. Lewicki and Bunker (1996, p. 124) propose a "stage-wise evolution of trust" that "develops gradually as the parties move from one stage to another." Thus, trust develops in relationships between actors depending on those relationships' nature and functionality. Laaksonen's (2010) study on trust formation in a team context revealed that trust is a wave-like motion with its "surges, spatters, splashes and calms." The process seems compound, non-linear, and non-straightforward with more wave-like development (Laaksonen 2010).

This paper proposes a wave-like framework for trust development and sustenance mapped to the three stages of transformation (pre-transformation, during transformation, and post-transformation). When transformations are announced in organisations, there is unease in employees' existing trust, i.e., the trust inclines towards the lower end. The conceptual framework (Figure 2) presented in this study is unique and represents both the trust development and mistrust development in each stage of transformations and segregates the action that leads to trust or mistrust development. The framework introduces 3R's: Realisation, Relationship, and Rejuvenation necessary for trust sustenance in transforming organisations.



**Figure 2:** Trust sustenance and development framework during organisational transformation: illustrated as the wave.

### 2.2.1 Pre-Transformation

During the pre-transformation, the prime responsibility is to sustain the existing trust within the human capital. In figure 2, sustaining trust is represented in the lower wave, which is considered the pre-transformation stage. In the 'pre-transformation process' (stated as the most crucial stage), researchers in the past have epitomised the happy relationship between social accounts (Brockner et al., 1990; Cobb and Wooten, 1998; Shaw et al., 2003) and trust (Lines et al., 2005). Social accounts are "the explanations one gives another for the decisions and actions he or she has made" (Cobb and Wooten, 1998, p. 148). The development of trust and mistrust during transformation is dependent on how competently organisations use social accounts.

### *Realisation*

The realisation here is considered as a process that delivers not only communication regarding the explanation of inaccuracy and why but also actions needed to prevent a future violation or destruction of trust. The realisation method comprises of attributional processes (Dirks et al., 2009; Kim et al., 2009) relation to repairing of trust “the Immediate Response and Diagnosis stages” (Gillespie and Dietz, 2009) and reviews the first two stages, i.e., the Discovery and Explanation stages of organisational reintegration and trust restoration (Pfarrer et al., 2008). The prior work supports that the realisation method needs to be perceived as reliable and honest explanations of activities and causes to sustain trust. The timely communication and reasons for executed actions and decisions during the transformation process have also been identified, as necessary. The employees during transformation typically assume the worst in the absence of explanations that leads to mistrust. An incident such as transformation lowers trust and trusting beliefs (Kim et al., 2009; Ikonen et al., 2016) towards organisations. The violator must recognise the cause that has damaged trust, to repair and sustain it (Lewicki and Bunker, 1996). Research suggests these verbal responses aid forgiveness and trust repair (Bottom et al., 2002).

### *2.2.2 During-Transformation*

The next stage ‘*during transformations*’ stage highlights the prerequisite to emphasis on communication along with other actions like empowering employees (Mathieu et al., 2006), employee involvement (Glew et al., 1995), referential accounts (Tucker et al., 2013), transparency (Morgan and Zeffane, 2003). These actions will enhance employee acceptance of the change process (Oreg, 2006). Negligence to attend to the issues in this stage results in deterioration or breach of trust. The 2 R’s: relationships and rejuvenation in various studies are considered vital factors for developing trust, whereas this study considers them as overlapping factors that need to be attended to in both the sustaining and developing stage. Figure 2 also shows the factors responsible for trust development and mistrust development on either side of the waves.

### *Relationship*

Trust is fundamentally considered a relational construct, with a strong social and emotional basis. According to Dirks et al., (2009, p. 69) “*relationship repair occurs when a transgression causes the positive state(s) that constitute(s) the relationship to disappear and/or negative states to arise, as perceived by one or both parties, and activities by one or both parties substantively return the relationship to a positive state*”. Studies have cited trust and trustworthiness as cognitive factors that are influenced instantly in relationships (McAllister, 1995; Robinson, 1996) as McEvily et al. (2003) explain, trust functions as an “organising principle” for developing relationships within organisations. According to Goffman’s (1967) and Tomlinson et al., (2004) different form of offerings such as explanations, apologies, benefits, and compensations serves as the elements helping to restore and reconciling the relationship.

### *Rejuvenation*

Past literature advocates that some broken trust can be mended (Mishra, 1996; Bottom et al., 2002; Gillespie and Dietz, 2009) and offers useful and fruitful perspectives on trust repair at the interpersonal level (Dirks et al., 2009; Kramer and Lewicki, 2010), intergroup level (Tomlinson et al. 2004), business to stakeholders’ level (Eberl et al., 2015), and organisational level (Gillespie and Dietz, 2009; Fraser, 2010).

Rejuvenation of violated or broken trust may be critical, but it is possible to re-build and sustain trust. Rejuvenation can be seen from a “social equilibrium or balance perspective” signifying that a trust breach disturbs the social equilibrium and rejuvenation of trust missioned to restore that equilibrium (c.f., Ren and Gray, 2009). Rejuvenations of trust also laid importance of apologies (Kellerman, 2006; Bachmann et al., 2015), explanations (Shapiro, 1991; Tomlinson et al., 2004; Ferrin 2007), and compensations (Bottom et al., 2002; Dirks et al., 2009; Bachmann, 2015).

### *2.2.3 Post-Transformation*

The final “*post-transformation*” stage mark for the closure for the transformation process, addressing this stage is vital to avoid adverse reactions like worry, future safety, cynicism, resentment, and resignation during and after transformations (Brockner, 1988; Brockner et al., 1992; Fein and Hilton, 1994; O’Neill and Lenn, 1995; Fein, 1996; Kramer, 1996, 2001).

## **3. Research Design**

This study utilises a qualitative method to gather data through semi-structured interviews, narrations and adopts a social constructivism paradigm. Organisational actors develop their forms of reality based on several experiences through interactions (Creswell and Poth, 2017) within the organisation’s hierarchies. Some of these experiences led to developing viewpoints related to trust towards the organisational processes and practices.

As supported by (McAleese and Kilty, 2019), this research utilises a qualitative approach due to a few sound reasons: the sensitive and delicate nature of the research topic itself; and the ambiguity of theoretical concepts of the issue (both trust and its development). Creswell (2003, p. 4) defines “qualitative research as a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures. Data are typically collected in the participant’s setting. Data analysis is inductively building from particulars to general themes. And the researcher making interpretations of the meaning of the data”. Therefore, the qualitative approach is well-grounded in this study’s framework due to the depth and multi-dimensionality of the topic.

The reliability and validity of qualitative research are warranted through a thorough clarification of the research design and eradicating biases (Creswell and Poth, 2017). In this study, the research method is explained in this section, and the research questions and the segments of participants’ accounts are presented in the next sub-section. The interviews were recorded where possible, and in other cases, detailed notes were taken that were later validated by the participants to eradicate the possibility of biases.

### **3.1 Participants and Data Collection**

The participants’ selection was guided by the desire to find informants that have experienced the influence on trust during the transformation. Two methods were used for data collection: interviews and narratives, twenty-one semi-structured interviews, and seven narratives from the organisation under transformation in Finland. Participants were Finns and Asians working in Finland. The interviews were conducted outside working hours.

The interview technique is a flexible method that enables the participants to discuss openly and free (Savolainen, 2013; Eriksson and Kovalainen, 2016). Narratives and stories are typical ways to clarify reality, and narration is close to ordinary speech (Eriksson and Kovalainen,



2016). More precisely, in the current study, the narrative is defined as “a spoken or written text that involves temporal sequences of events and actions” (Maitlis, 2012, p. 492).

Each interview lasted about 60-90 minutes to understand employees’ emotional experiences and social consequences. Initial questions were intended to understand better the transformation’s occurrence and former transformation pros and cons. Specific interviews were recorded, and the participants were encouraged to discuss the topic freely, and written notes were used for the employees who were not comfortable with recording. Later, a discussion regarding the perception of trust during and post-transformation was held.

The following questions were discussed at the end of the interviews to understand a participant’s viewpoint on trust in the setting of transformation.

- How was employees’ trust influenced when organisation transformation was announced?
- What actions were initiated in the organisation to develop and sustain trust during the transformation process?
- How was the trust developed and sustained by transformation actors during the transformation process?

The first question was designed to prompt observations on the perceived level of trust within human capital (employees). The second and third questions were designed to focus on the organisational practices adopted by transformational actors and their impact on trust development and sustenance.

The participants’ viewpoints were grouped and categorised related to pre-transformation and the study’s transformation process to facilitate the data analysis. It became clear in the analysis of the records and texts that participants could clearly distinguish the thin line between trust sustenance, trust development, and mistrust during the transformation.

#### 4. Findings

A critical and urgent step for organisation actors during transformation is an initial response towards social accounts, like interacting and connecting with the employees. As, when transformations are announced, trust is initially influenced and goes to the negative side, i.e., mistrust. This is explained by the narrative (N1) stating how the employee feels and how the trust was influenced. Past studies have illustrated that trust is more natural to destroy than to develop (Meyerson et al., 1996; Hempel et al., 2009). According to Kramer (1999), trust breach actions are often more noticeable than trust developing ones. Slovic (1993) concluded that trust-breaking steps are determined to influence trust judgments more than decisive actions.

**Narrative 1 (N1):** *“They announced the transformation in all employees meet and presented the vision for it. They even announced the number of employees being laid off during the transformation process; this remains unanswered that who will be laid off. When we enquired from our managers, they just answered that they are still waiting for the orders and decisions need to be made. This was very tough for me, I joined the organisation three months back, and I was always worried that I could be one of them as I was new to the system”.*

Transparency does not comprise complete openness; it requires presenting information precisely and “offering information that is material to the recipients in important ways-affecting personal or financial well-being” (Paine et al., 2005, p. 131). Such a connection between the



actors of the transformation and human capital facilitates the flow of information essential for sustaining trust within the organisation (Das and Teng, 1998; Whitener et al., 1998).

**N2:** *“I was not able to get enough and adequate information from my manager; the interaction was less and not transparent. I felt like my manager was trying to hide the exact information. I was worried about my job; I cannot trust him at all”.*

Lewicki et al., (1998) argued that it instantaneously involves trust and mistrust as a relationship becomes complex or multi-layered. This argument is based on the concept that human capital can segment relationships and consequently permit the possibility, that the connections can be complicated and optimistic at the same time and vice-versa. Building a relationship when realised that the negative trust affects the employees, the actors need to become active in creating a connection to sustain and rejuvenate the trust.

**N3:** *“Sometimes I was afraid to start discussions, and I feel like postponing a discussion for tomorrow, I do not interact and connect with my manager more often and cannot share what I was feeling. This time, my manager was making an effort to connect, and I felt quite positive about it. He was interacting quite often and delivering the information as an when necessary. However, he was not completely transparent, and he was positive about the transformation and, we could rely on him”.*

Tsai and Ghoshal (1998), studied that to increase organisational trust, frequent interactions between the actors of transformations, enhance the relationships by learning about their commonalities, interests, and priorities (Fisher et al., 1991; Fulmer and Gelfand, 2012).

**N4:** *“The top management held several informational sessions. The news was not positive to all. Even though there were only imperfect answers to our questions, but the interaction sessions were often conducted that at least made me feel that organisation do value our emotions and trying to satisfy our worries”.*

According to Goffman (1967), different forms of ‘offerings’ like explanations, apologies, and compensation to victims (Dirks et al., 2009) can rejuvenate breached trust relationships.

**N5:** *“During the sessions by top management, it was explained that they do not have problems with the individuals, but the issue was the hierarchical structure, they want to reduce the hierarchy. They promised that due to restructuring some new positions would be opened and the employees laid off will be given priority”.*

Hopkins and Weithington (2006) illustrated that trust intervenes in the perception of the employees who survive during layoffs. They were ambivalent, should they trust the actors of transformation for saving them from layoffs during transformation, or worry that they could be laid off in the future if an organisation transforms again. Appreciation and time are needed. It seems that listening to the concerns and worries of the employees is one of the critical elements of the process of trust development (Ikonen, 2013), particularly during organisational transformation.

**N6:** *“Meetings and skip-level meetings were arranged frequently, to make us understand the areas of concerns for the organisation. Employee training and group activity were conducted with a motive*

*to integrate the employees to new roles and new team after change respectively”.*

Since the healing process (Reina and Reina, 2006) is more complex, it is imperative to sustain trust. It is necessary to identify and understand how and why the breach and violation of trust have occurred. Mistrust is challenging for organisations as trust has been shown to reinforce and support organisational transformations (Stouten et al., 2018). Trust development needs time and compatible words and actions (Mishra, 1996; Lewicki and Bunker, 1996), trust is recognised as dynamic and can be sustained over time. Trust is restored and developed through communication, consultation, and human capital participation (Sverdrup and Stensaker, 2018). Stouten et al. (2018) argue the importance of employee participation for a successful organisational change.

## **5. Discussions and conclusion**

This paper aims to facilitate integration and academic development of the existing studies and proposes a trust sustenance and development process during organisational transformation stages.

### **5.1 Practical implications**

This study's practical implication is for the key actors (i.e., human resource and change managers) of organisational transformation. Findings substantiate the claim that trust is a critical source of competitive advantage (EYQ, 2019) in the transforming organisation to overcome the mistrust during the process, hence understanding how this resource can be sustained and developed during the transformation is significant. This paper introduces a framework for trust sustenance and development during organisational transformation: illustrated as a wave. The findings are presented on the basis of the 3 R's proposed as a sustenance model during the transformation process. An impressive result was that a fragile line separating trust and mistrust. This ambivalence was reported by Lewicki et al., (1998, 2006), who emphasises that trust and mistrust can co-exist and Schumacher et al., (2016) said that the uncertainty during transformation could lead to the variability of responses between and within an emotional and behavioural spectrum of human capital.

### **5.2 Theoretical implications**

This article has made a useful contribution to the literature by studying trust development and sustenance during transformation. Past studies (Mossholder et al., 2000; Lines et al., 2005; Schumacher et al. 2016; Sverdrup and Stensaker, 2018) illustrate the significance of the emotions of trust during the structural change, whereas this study reveals trust, its development, and sustenance as the vital component during an organisation's transformation within human capital. This study found that during the pre-transformation phase, the 3 R's introduced need significant attention to avoid mistrust development. This study results also indicate that the aspects of a transformation process are strongly related to trust in the actors' interactions during transformation. Sverdrup and Stensaker (2018) support the significant role of trust in organisational change communication and identified in this study too.

### **5.3 Limitations and future studies**

This study discusses employees' responses regarding trust and mistrust from their leaders and their perception. This study is limited to only an organisation based in Finland irrespective of the participants' culture and cultural background. Another important empirical limitation

was that it was difficult to find and access the organisations transforming on a similar scale since transformations are strategic and involve confidentiality. For the most part, it was found that organisations undergo minor changes in their structure, which affects trust but does not destroy it.

There are several ways to broaden this study's scope, such as cultural perspective, or the study could be conducted in various cultures. There is a possibility to identify other factors that can influence successful organisational transformation. Also, future studies could include minor changes and their effect on trust. Trust development is not a one-day activity, and trust needs to be incorporated into the system beforehand; not only when an organisation plans for transformations. Additionally, this study could be widened through a longitudinal study. This study will generate an interest in how trust is sustained, developed, potentially destroyed, and re-built.

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**Lahjoittaminen on tulevaisuuteen sijoittamista – Liikesivistysrahasto tukee apurahoin liikkeenjohtoa palvelevaa tutkimusta, koulutusta ja julkaisutoimintaa.**

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The Nordic Journal of Business is a scholarly journal that publishes original scientific research in all fields of business studies. Different aspects of business theory and practice related, among others, to accounting, corporate governance, entrepreneurship, finance, information systems, international business, management, and marketing are within the scope of the Journal.

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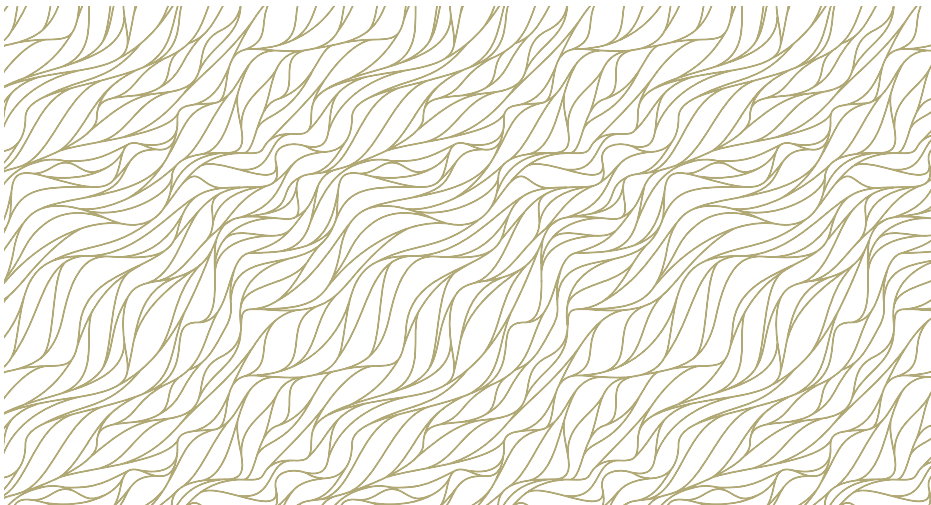
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