Investment in Training & Development in Times of Uncertainty

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Abstract

The problem
While there is some consensus in the economics literature that there is a negative association between uncertainty and investment in capital, whether this relationship applies to investment in human capital – in particular training and development (T&D) - undertaken by firms is not clear. The evidence about what has happened to T&D investment in the aftermath of the global financial and economic crisis of 2008 is very inconclusive. This paper examines how uncertainty has affected overall, general, and firm-specific T&D post-2008.

The solution
In organisations that followed a quality or innovator-based strategy; where the crisis was viewed as a strategic opportunity; and where investment in T&D was planned to be undertaken regardless of the uncertainty and turbulence – these organisations continued to invest - especially in general T&D. These organisations appear to regard investment in T&D as a critical dynamic capability.

The stakeholders
The article will be of particular relevance to human resources, human resource development, training and development practitioners, all of whom have to compete for scarce resources.

Keywords
Training and development, uncertainty, strategy, general and specific T&D, dynamic analysis.

While Company Directors and Chief Executive Officers frequently espouse the popular rhetoric that “people are our most important asset”, their actions are often more consistent with treating people as a cost – a big cost. Both from an accounting reality – where training and development (T&D, hereafter) activities are treated as a cost – and from an economics viewpoint – where ongoing uncertainty is likely to adversely affect investment levels, especially in the short-run, as can be expected, firms are cutting spending on T&D activities. The global economic crisis and its resulting ongoing uncertainty, especially around investment decisions in both physical and human capital, have resulted in organisations re-assessing all such investments.

Moreover, pay-back time lines and associated risk premiums to such investments continue to be re-evaluated, not only for organisations as a whole, but critically, for the inputs which comprise the “whole” – that is individual subsidiaries often spread across a variety of industries and countries. Multi-national corporations (MNCs, hereafter) generally have highly diversified portfolios of subsidiaries, often with subsidiaries experiencing very
different economic, regulatory and labour market environments (Sheehan and Sparrow, 2012). Subsidiaries are also likely to operate in economies with very different levels of uncertainty.

The theoretical implications of uncertainty on investment are twofold. First, uncertainty may affect the level of investment; second, it may affect the timing of investment. Although it is uncontroversial that uncertainty may theoretically affect investment, there is no conclusive agreement on the signs of the investment-uncertainty relationship, especially in the long-run (Fuss and Vermeulen, 2008). However, where an investment is ‘irreversible’ – that is, at least some of the investment is a sunk cost, and if some time flexibility exists to postpone investment - there is a general consensus in the economics literature, and in particular, in the real options theory literature, that firms are likely to wait to invest until more is known. Thus, uncertainty is likely to depress current irreversible investment and postpone investment projects (Butzen, Fuss and Vermeulem, 2002). This would be particularly relevant to investment in general human capital (e.g., T&D) that takes place over-time.

However, not all companies may respond to uncertainty by cutting or even postponing T&D investment. Rather, the dynamic capabilities literature suggests that forward-looking companies are likely to see opportunities in the crisis to build increased organisational capacity enabling them to adjust dynamically to a rapidly changing environment (Albers and Worley, 2009). Sustainable competitive advantage requires not only ownership of scarce but relevant and difficult-to-imitate assets, especially know-how, but critically that these capabilities are dynamic. These capabilities need to be harnessed to continuously create, expand, upgrade, protect and keep relevant the business’ unique asset base (Teece, 2007). Continued investment in T&D is likely to be crucial for sustained competitive advantage by ensuring that these dynamic capabilities are continuously enhanced.

So what appears to be happening, in practice, to training and development (T&D) investment? In a 2009 survey by the Institute of Directors (IoD) (UK), 80% of Directors reported that their organisations had either maintained (51%) or increased (29%) investment in T&D over the past 6 months, with just 20% reporting they had been forced to reduce this investment. However, the report found that the recession was prompting organisations to reassess the type of training offered: 46% of directors agreed that their organisation was prioritising ‘essential’ over ‘investment’ training. In other words, there appears to be a
switch away from general to firm specific T&D. A more recent survey by the UK’s Chartered Institute of Professional Development (CIPD, 2013) found that the median training budgets and training hours per employee had both declined. Nearly two-fifths of respondents anticipated further reductions in funding for T&D in the following year. These findings suggest that despite firms’ initial intentions to sustain T&D investment - ongoing uncertainty and anaemic economic growth in the UK, amongst many other EU nations - may have forced initial plans to be revised.

By utilising longitudinal, multi-respondent data this paper examines how environmental (macroeconomic) and its associated product market (microeconomic) uncertainty in the immediate aftermath of the 2008 crisis affected changes to T&D investment over the period 2009/10-2012. It examines whether there are differential impacts of uncertainty for general and firm-specific T&D. How a firm’s characteristics, including strategy and national context, affects these T&D investment decisions are also analysed. These relationships are examined in subsidiaries of UK-owned MNCs. For the purpose of the article, the terms ‘general’ and ‘firm-specific’ T&D investment, rather than expense is used. It is argued that T&D should be viewed as an investment in the firm’s human capital stock which is expected to generate positive returns over-time.

This paper is structured as follows. The first section provides an overview of the relevant literatures. The research hypotheses are then formulated. Subsequently, the sample and estimation methods are discussed. The results are then presented. The implications of the study’s findings are then discussed. Reflections upon the limitations of the study, which are linked to opportunities for future research, are considered. The paper then concludes.

Literature Review and Hypotheses

Uncertainty and Human Capital Investment

It is important first to differentiate between risk and uncertainty when analysing investment behaviours. There is general consensus in the economics and finance literature that ‘risk’ describes decision-making situations in which ‘probabilities are available to guide choice’ and ‘uncertainty to describe decision-making situations in which ‘information is too imprecise to be
summarised by probabilities’ (Runde, 1998; adapted from Knight’s classical 1921 work). The analysis presented here focuses on uncertainty, reflecting the aftermath of the global financial and economic crisis, where already previously hard to forecast returns on investment – especially human capital investment – became even more volatile and imprecise. Perhaps surprisingly, there is considerable debate in the economics literature about the effect that uncertainty will have on investment. The debate was influenced by the early (almost exclusively theoretical) work of Hartman, 1976 and Abel, 1983 who posited that increased uncertainty would stimulate investment, especially in the ‘long-run’.

Intuitively, most individuals would expect there to be a negative relationship: that is, increased uncertainty would result in a reduction, or at least a postponement of investment until more information was known and/or until uncertainty diminished. This expected relationship is captured in much of the more ‘recent’ theoretical and empirical research on investment and uncertainty by economists (Driver and Moreton, 1992) and is summarised in Papadimitriou and Wray’s recent volume updating Hyman Minsky’s work (2011):

Under uncertainty it would never be rational, in the standard economic sense to invest; a rational calculation could not be made. The investment decision requires the emotional urge to act in spite of uncertainty; this is potentially reasonable behavior, not irrational behavior. But of course in euphoric conditions, the urge to act may not be reasonable in retrospect, when asset prices fail to meet expectations (Papadimitriou & Wray, 2011, p. 255-256).

A key concept, especially in relation to firm level analysis of investment and uncertainty, is that at least some component of a firm’s investment may be “irreversible” (e.g., a percentage of the investment, once spent cannot be reclaimed, or if sold, can only be sold for a price less than the original expenditure, thereby a loss is incurred). Critically, if the option exists to postpone an investment that is at least partially irreversible, in an environment of uncertainty, firms are likely to avail of this waiting opportunity and the investment will at least be delayed (referred to as “real options’”). In other words, real options theory predicts that there will be a negative relationship between uncertainty and investment at least in the short-run (Dixit and Pindyck, 1994).
Linking human capital theory to the investment literature, it can be posited that since general and firm-specific investment have components or irreversibility, both are likely to be delayed when there is external (e.g., linked to global economy) and/or internal (e.g., the firm’s product market) uncertainty. However, firm specific training is generally shorter in duration (e.g., a day or a few days) and often less expensive (e.g., a few hundred pounds for a computing course) compared to general training which tends to be longer in duration and often more expensive (e.g., even one semester of a CIPD or MBA qualifications can easily range from a few hundred pounds to several thousands of pounds, depending on the qualification and the educational institution), thus the irreversibility dimension of general training is likely to be higher. Based on general options theory, the level of this type of investment is likely to be lower because it will not be undertaken in the short-run, or postponed until uncertainty diminishes. Thus, placed within this literature, the first two hypotheses are as follows:

**Hypothesis 1:** There will be a negative association between higher levels of (a) macroeconomic (or environmental) uncertainty and (b) product market uncertainty (reported at Time 0) and changes in investment in training and development (over the period 2009/10-2012).

**Hypothesis 2:** The expected negative association will be greater for (a) general training and development compared to (b) firm specific training and development.

**The role of strategy**

Within the strategic human resource management (SHRM) the role of organisational strategy is widely acknowledged to influence the types of HR practices used and has been found to mediate the relationship between HR and performance (Khatri, 2000; Michie and Sheehan, 2005; Schuler and Jackson, 1985). Moreover, it is expected that changes to T&D investment will be significantly influenced by whether HRD has a strategic role in the organisation and whether it is horizontally and vertically aligned with overall strategy (Garavan, 2007).

In addition, strategy and whether HRD is strategic or not in the organisation, is likely to influence employee interpretations about the organisation’s commitment to them – or lack
of - which has been found to influence employees’ behaviours (commitment, satisfaction, discretionary behaviours, productivity, absenteeism) and employee attributions (i.e., attitudinal and behavioural responses) about why HR practices are introduced. The attribution-based framework emphasises the importance of how employees interpret “what is important” in an organisation and, critically, both behaviours and attributes have been found to influence individual and firm level performance outcomes (Nishii, Lepack and Schneider, 2008).

While organisations may cease or postpone investment in T&D in response to uncertainty, they need to be very conscious of the potential adverse effects associated with this for employee behaviours and attributes (Nishii et al., 2008; Tracey, 2012). Nishii et al (2008) found that employee attributes in relation to HR practices that reflect a quality-focused HR strategy were positively related to individual satisfaction and commitment. Aggregate-level measures of satisfaction and commitment were positively related to organisational citizenship behaviours, and that aggregate level citizenship behaviours were positively related to unit-level performance (customer satisfaction). In contrast, cost-reduction HR strategies were related to negative performance outcomes. Their study shows that employee interpretations about firms’ HR practices – of which T&D will be a critical component – are pivotal to the causal chain that is embedded within any HR-performance relationship. Thus, cutting T&D investment may have negative implications for employee behaviours and attributes and, in turn, for firm performance, especially if employees interpret such cuts to mean that they are a replaceable commodity (e.g., Bamberger and Meshoulam, 2000). However, Nishii et al (2008) found that the negative relationships associated with cost-reduction HR strategies could be mitigated when the climate for HR – characterised by a focus on employee commitment and performance – was placed in a context of high commitment work systems (HCWS).

Thus, it is expected that organisational strategy will have a significant effect on T&D investment decisions, especially in a period of uncertainty. Drawing upon Schuler and Jackson’s (1987) strategy typologies of ‘innovation’; ‘quality-enhancement’ and ‘cost-reducer’, it is expected that both innovation and quality strategies will be associated with positive changes in T&D (or at least in terms of the maintenance of T&D investment). It is expected that firms pursuing either of these strategies are likely to view T&D as a dynamic capability which, if invested in, despite uncertainty and significant environmental dynamism,
will help the organisation to achieve sustainable success in a shifting landscape. In contrast, it is expected that firms pursuing a cost-based strategy are likely to view T&D as a cost which is could be targeted in response to the crisis.

There is no reason to assume that the pursuit of any of these strategies reflects a bureaucratic or incremental strategy process which does not fit turbulent times (Albers and Worley, 2009). Rather, it is expected that they reflect a dynamic process in which managers make ongoing assessment of the challenges facing the company, derive possible and preferred scenarios of the future, and align resources effectively to maximise opportunities and minimise threats that arise from new realities. The final hypotheses are as follows:

*Hypothesis 3(a):* For firms pursuing quality or innovator strategies (reported at Time 0) it is expected that the change in T&D investment will be positive, or neutral.

*Hypothesis 3(b):* For firms pursuing a cost-based strategy (reported at Time 0) it is expected that the change in T&D investment will be negative.

### Methodology & Study Variables

#### The Sample and Method

The population was provided by the Dun and Bradstreet’s Global Reference Solution (GRS) database. The GRS database is the most comprehensive and detailed source for information on complex companies (see Henriques, 2009 for detail). The sample was drawn from the GRS database using the following criteria: the ‘global ultimate parent company’ was, (1) in the UK (the UK ownership criteria was used to eliminate potential ‘country of origin’ effects); (2) employed at least 200 people overall (this criteria was used so that the data could be compared with other such surveys – e.g., Cranet – which also uses this size criteria); and (3) had a subsidiary in at least one of the three non-UK study countries (i.e., Czech Republic, Hungary and Poland). Five hundred and fifteen UK-owned subsidiaries met the study’s criteria. Priority was given to the 378 organisations that also had a similar subsidiary in the UK (proxied by SIC code) so that the results were not diluted by high levels of heterogeneous activities between the two subsidiaries of the organisation.
In order to explore the relationships outlined above, it was important to generate a sample size that could be statistically and econometrically interrogated. The methods used to collect such data were a large-scale telephone survey conducted by a professional survey company. The telephone interviews ranged in duration from 30-50 minutes. Overseas interviews were conducted by native speakers who had been trained by the professional survey company based in the UK. Prior to these interviews being undertaken, each of the surveys was translated and back translated by two native speaking translators (a total of six translators were involved in this process). Reasons for any discrepancies that emerged were discussed between the two translators and the principle investigator. The surveys were then piloted and the questions, when necessary, were modified.

Given the potential for a divergence of perspectives, especially about issues pertaining to T&D between HR specialists and managers, a multi-respondent approach to data collection was used. The information on T&D is subsidiary-level data. In order to capture information on uncertainty amongst other organisational level issues, including strategy, Chief Financial Officers (CFOs) based at the organisation’s UK Head Quarters were also interviewed. The results are based on a matched sample whereby the UK CFO, two HR managers/specialists, and two line managers in the organisation’s UK and foreign subsidiaries completed interviews (5 respondents per organisation) (See Table 1). The data were collected in three waves: CFO interviews were undertaken January–March 2009; HR and line manager interviews in Dec/January-March 2010; and January-March 2012. Completed 5-way ‘matched’ interviews for the 3 waves were achieved in 116 organisations (representing a response rate of 30.7%; a sample of 232 subsidiaries; and 580 completed interviews amongst these respondents). Forty-five of the study subsidiaries were based in Poland; 40 in the Czech Republic; 31 in Hungary; and 116 in the UK. A minimum quota of 40 responses per country was set. However, due to the extent and duration of Hungary’s economic crisis, it was not possible to achieve this quota in the third round of data collection. The sample is broadly representative of the population and no response bias was found (see Sheehan 2012(a) for a detailed discussion).

Insert Table 1 here
Study Variables

Dependent Variable: T & Di

Given the potential for a divergence of perspectives, especially about issues pertaining to T&D between HR specialists and line managers, a multi-respondent approach to data collection was used (see, Sheehan, 2012a for a detailed discussion). Aggregation of the individual ratings in the estimations is justified by the standard threshold for the interclass correlation analysis ICC(1) and ICC(2) exceeding 0.20 (Ostroff and Schmitt, 1993), specifically 0.29 for the former and 0.70 (Kozlowski and Klein, 2000), specifically 0.79 for the latter.

Three measures of T&D investment were piloted: (1) the ratio of total expenditure on training to total payroll; (2) the ratio of total persons trained to total employment; and (3) the ratio of total days of training to total employment. Similar to findings in other studies – e.g., Barrett and O’Connell, 2001; Fox, 2005 – respondents (especially and not surprisingly, line managers) struggled to answer the training expenditure question. Thus, the second and third measures are aggregated and used in the estimates of overall T&D investment. In terms of training days per annum, the sample appears broadly comparable to other studies. The Cranet, 2011 survey found that average training days per annum was 6.26 in the Czech Republic (compared to 7.1 in the study sample); 4.12 in Hungary (4.35 in the sample); and 3.02 in the UK (3.20 in the sample) (Cranet 2012). Poland did not participate in the Cranet surveys. The average number of training days in the Polish subsidiaries was 8.9. The marginally higher number of days in the sample is likely to reflect the size and MNC dimension of the sample.

The definitions for general and firm specific T&D modified definitions used in previous surveys outlined above. General training was defined as training that provided “broad skills and knowledge” and firm specific training was defined as training that is “directly related to the operation of the company”. Please see the Appendix for further detail. The T&D data cover two periods of time 2009/10 and 2012. Change in T&D investment over these two periods is the dependent variable in the analysis.
Explanatory Variables

Standard Control Variables:

The first control variable is a measure of the size of the subsidiary (‘subsidiary size’) and is the log of the number of employees in each subsidiary. This variable is included because of theoretical and empirical evidence on the relationship between enterprise size and T&D. Specifically, small and medium sized (SMEs) organisations generally have lower levels of T&D, reflecting less resources, especially cash flow, compared to older, more established firms (Black, Noel, and Wang, 1999; De Kok, 2002; Patton, Marlow and Hannon, 2000). This size effect may be moderated because the subsidiaries are all part of large MNCs. Nevertheless, it is expected that there will to be a positive relationship between subsidiary size and change in T&D investment.

The second control variable is capital investment (‘Capital investment’). On the one hand, a higher level of capital investment is likely to have a positive effect on T&D investment, reflecting the need to train employees on how to use new machinery or software, for example. However, capital investment may also be used to substitute employees for capital/technology (e.g., to automate a job). Evidence shows that MNCs have a relatively high marginal rate of technological substitution (MRTS: the rate at which labour is substituted for capital), especially compared to domestic companies, reflecting that they generally pay higher wages and operate in more technologically advanced industries (Lipsey, 2002; Navaretti and Venables, 2004). Thus, if there is a high rate of MRTS between capital and labour, higher capital expenditure may be associated with negative changes in T&D, if there are fewer employees to train. Thus, no a priori assumption is made about the sign of this variable.

The coefficient for sales per employee (‘sales/employee’) is expected to be positive reflecting that higher sales are generally associated with better firm performance, which is, in turn, often associated with positive changes in T&D (Black and Lynch, 1997).

There has been considerable – and unresolved - debate in the economics and industrial relations literatures about the effect of trade union density (‘TUDensity’) and T&D levels, with, generally, a positive association being found (see Waddoups, 2012 for a
comprehensive overview), although there are some notable exceptions, e.g., Mincer, 1993. Trade union density is low in the sample subsidiaries – 14.3% in the UK (compared to 25.8% at national level (2011)); 9.2% Czech Republic (17.3% national level (2009)); 7.3% in Hungary (16.8% national level (2008)); and 5.2% in Poland (15% national level, (2010)). These differences between the sample and national level trade union densities primarily reflect that the sample is for the private sector and that trade union organisation has been quite weak within Eastern European MNCs (see Madga, Marsden and Moriconi, 2012 for a recent discussion). Thus, this variable is not expected to be significant.

The potential effect of industry on T&D is controlled for by a dummy variable reflecting manufacturing and services (manufacturing is the control). Ideally, this variable would be further disaggregated but this would result in cell sample sizes that would be too small to estimate. No *a priori* assumption is made about the expected sign for industry.

*T&D Investment under Uncertainty: The Role of National Context*

The four study countries were affected quite differently by the economic crisis which is likely to impact on the T&D undertaken. In relation to the macroeconomic environment, Poland was the only one of the four study countries that had positive growth (measured by a change in real GDP) over the study period, 2009-2012, at almost 3%; whereas all of the other countries experienced negative growth (-0.35%, Czech Republic; -1.4%, Hungary; and -0.275%, UK (Eurostat, 2013). Hungary was most adversely affected and received a 12.5 billion euro bail-out from the IMF in late 2008 (Bloomberg, 2012). It could be expected that negative national economic growth would put considerable pressure on companies to reduce T&D investment. This pressure is likely to be exacerbated by the nature of the sample, UK owned and head quartered in a country experiencing negative growth over the study period.

*Uncertainty Measures*

The external or environmental uncertainty measures are adapted from Sia, Teo, Tan and Wei (2004); and the firm-level (product and price variance) measures of uncertainty from the National Bank of Belgium’s Annual survey on firm-level investment (see Butzen, Fuss and Vermeulen, 2002 for further detail). The questions were designed to contribute to the debate in the economics and dynamic capabilities literature the about how uncertainty and a rapidly
changing external environment is likely to affect investment (hypothesis 1 and 2). These questions about uncertainty were as ked of the CFO’s in 2009/10. The external measures of uncertainty gauged turbulence prior to the 2008 crisis; post 2008; and examined whether the turbulence was viewed as an opportunity to expand market share; expected financial performance and expected staffing and T&D plans were also examined. Product market uncertainty was measured by demand uncertainty and price uncertainty. In many ways firms have more control over product market uncertainty because they can change or diversify the products they are producing and/or target them at economies that are growing. The Cronbach’s alpha for the uncertainty index is 0.78.

*Strategy Measures*

Subsidiaries were classified as having a ‘cost-based strategy’ if it was reported that their strategy focused on (a) cost minimisation/reduction or on price competition/reduction and (b) if they had a lower than average remuneration rate (33.2% of subsidiaries). Subsidiaries were classified as having an ‘innovator-based’ strategy if it was reported that (a) being innovative was the primary focus of their strategy and (b) if they had introduced either a product or process innovation over the past three years (26.8%). Subsidiaries were classified as having a ‘quality-based’ strategy if their strategy focussed on (a) quality enhancement and (b) if they had achieved a recognised quality award (40%). The first part of each question (a) is an aggregated average of responses from the CFO, HR manager and line manager. The second part of the question (part b), which is subsidiary focussed, is the average responses of the HR and line managers at the subsidiary. Aggregation was justified as the ICC(1) and ICC(2) thresholds (see above) were exceeded.

*Findings*

To start with basic descriptive statistics, over the period 2009/10-2012 overall T&D investment declined in 51.3% of subsidiaries; increased in 43.5% and remained the same in 5.2%. On average, across all of the subsidiaries, there was a decrease in overall T&D investment by 12.7%; a decrease in general T&D by 19.2%; and a decrease in firm specific T&D of 3.3%. Table 2 examines the factors which influenced these patterns of T&D investment.
Turning first to the standard control variables (Model 1, Table 2). As expected, subsidiary size is positively and significantly associated with changes in all T&D at the p<0.10 level for overall and firm specific T&D. For general T&D it is positive and significant at the p<0.001 level. This possibly reflects that larger subsidiaries were more likely to be able to continue to commit to expensive general T&D even given the uncertainty compared to the smaller subsidiaries in the sample. Capital investment is also positive and significantly associated with changes in T&D, especially for general T&D (p<0.001). This implies that the relationship between investment in capital stock and human capital (proxied by changes in T&D) is a complementary one, rather than a substitute. Higher sales per employee is positively and significantly associated with T&D changes, especially for firm specific T&D (p<0.001). Trade union density and industry are not significantly associated with changes in T&D.

Perhaps, not surprisingly, given Hungary’s severe economic crisis, the coefficients for all categories of changes in T&D are negative and significant, especially for general T&D (p<0.05 for overall T&D; p<0.10 for firm-specific; and p<0.001 for general). For Poland there are positive and significant associations with changes in T&D (p<0.10 for overall and firm specific; and p<0.001 for general). The strongly significant association between Poland and changes in general T&D investment is likely to be a sign of its relatively stable external environment, reflected by the fact that it was the only country within the 27 EU member states that did not enter into recession in the post-2008 crisis.

Turning now to the study’s first two hypotheses and the relationship between uncertainty and T&D (Model 2). While uncertainty prior to 2008 is negatively associated with changes in T&D investments, none of the coefficients were significant. In contrast, the post 2008 economic crisis is significantly negatively associated with changes in overall T&D (p<0.05); general T&D (p<0.001); and while negative for firm-specific T&D, the relationship is not significant. This change in significance is likely to reflect the severity of the post-2008 crisis. The negative signs associated with greater uncertainty and negative change in T&D investment is consistent with hypothesis 1. The very high significance level in relation to changes in general T&D suggests that it was indeed more adversely affected by the
uncertainty and turbulence compared to firm specific T&D, which is consistent with hypothesis 2. The addition of the uncertainty variables also improved the explanatory power of the model by 19.6% (measured by percentage change in $R^2$ for the overall training model). This suggests that uncertainty is an important explanatory variable when analysing the determinants of changes in T&D investment.

Yet, not all uncertainty is associated with negative changes in T&D investment. For organisations that viewed the turbulence as a ‘strategic opportunity to expand market share’ there are positive and significant changes to all three types of T&D ($p<0.05$ for overall; $p<0.001$ for general; and $p<0.10$ for firm-specific). Expectations of ‘improved financial performance’; ‘increased staffing’; and ‘higher investment in T&D’ were all positively and significantly associated with changes in overall and general T&D. The question about planned T&D investment in 2009 and actual changes in T&D investment over-time enabled a check on whether plans were actually implemented, which appears to be the case in aggregate. Interestingly, while the coefficients for changes in firm-specific T&D for these questions are positive they are not significant (with the exception of ‘improved financial performance’). This adds additional evidence in support of hypothesis 2 which suggests that firm-specific investment is less sensitive to external changes in the environment, compared to general T&D. Moreover, these findings are consistent with what the theory suggested given firm specific T&D’s lower level of irreversibility.

Turning to product market uncertainty, decreased demand and decreased price uncertainty were associated with positive changes in overall T&D ($p<0.10$) and firm-specific T&D ($p<0.05$). While positive, the relationship with changes in general T&D and firm level measures of uncertainty/certainty are not significant. This seems to indicate that general T&D is less sensitive to changes in firm-level conditions compared to overall and firm-specific T&D.

The results reported in Table 2 do not, however, show the T&D investment behaviour by organisations located in the ‘tails’ of the uncertainty measures. Using the 8 questions about uncertainty, an uncertainty index was created which ranged (reverse coded here to make interpretation easier) from 40 (high level of uncertainty) – 8 (low level of uncertainty). The median for the index was 24.6. A cluster of approximately seventeen percent of subsidiaries (39) was located in the range of between 14-20 and classified as
facing “low” uncertainty; whereas a cluster of twenty-one percent of organisations (48) was classified as facing “high” uncertainty, with ranges between 30-39.

For organisations placed in the “high uncertainty” category, their overall T&D investment fell by 19.3%; with a fall of 27.8% in general T&D; and 12.5% for firm-specific training. In contrast, for organisations placed in the “low uncertainty” category, their overall T&D investment increased by 5.3%; with an increase in general T&D of 10.5%; and firm specific T&D by 4.8%. Critically, for organisations in the “high uncertainty” category that viewed the turbulence as a ‘‘very significant’ ‘strategic opportunity to expand market share’’ (17 or the 48 organisations in this category), all but 4 increased overall, general and firm-specific T&D investment.

For organisation strategy, positive and significant relationships are found between organisations pursuing a quality-focussed strategy and changes in T&D investment. This is especially so for general T&D (p<0.001) and at p<0.10 for both overall and firm specific (Model 3). In contrast, for organisations pursuing a cost-focussed strategy there are negative and significant relationships with changes in T&D investment for both overall and general T&D (p<0.001); and for firm specific T&D at p<0.10. The addition of the strategy variables improved the explanatory power of the model by 21.6% (for the overall training specification), thereby indicating that strategy also significantly influences the model of T&D investment develop here. Hypothesis 3 is therefore not rejected.

Disaggregating the relationship between strategy and changes in T&D investment, in 33.2% of organisations that pursued a cost based strategy, T&D was cut in 75.7% of these organisations’ subsidiaries (compared to 51.3% of all sample subsidiaries). Overall T&D was cut by 53.3%; firm specific by 35.8%; and general by 82.6% (compared to 12.7%; 3.3%; and 19.2% for the full sample). Indeed, all general T&D investment was stopped in approximately a quarter of organisations pursuing a cost-based strategy. The median scores for responses to questions about uncertainty, especially to the questions about commitment to employees, were significantly lower than the median score for the sample as a whole (1.96 compared to 2.98).

In contrast, 40% of organisations pursued a quality-focussed strategy and 26.8% innovator-based. T&D was cut in 28.7% and 17.5% of these organisations’ subsidiaries; and
actually increased in 56.1% and 73.3% of these subsidiaries respectively. The median scores for responses to questions about uncertainty, especially to the questions about commitment to employees, were significantly higher than the median score for the sample (2.98) as a whole (3.78 compared to 3.35 respectively).

**Discussion and Implications**

Economic theory generally suggests that, in relation to capital stock, there will be a negative relationship between uncertainty and investment. Some of this reduction may only be a delay - a postponement - of the investment until there is less uncertainty, or more information is obtained. This negative association is expected to be higher for investment that is more irreversible. It has been argued that general T&D has higher irreversibility because of its frequently higher costs and longer duration compared to firm-specific training. It may also be easier to postpone general T&D because it is likely to be linked to medium-long term strategic objectives of an organisation whereas firm-specific investment is likely to be linked to a short-term need such as health and safety training.

The results reported in Table 2, find that general T&D was more likely to be postponed – and possibly cut all together – compared to firm specific investment post-2008. Moreover, general T&D appears to be more vulnerable to environmental uncertainty compared to overall and firm-specific T&D. For product market uncertainty - which is linked to factors that the firm can potentially have more control over (e.g., the pricing of products; the use of marketing campaigns to influence demand) – general T&D investment appears to be less vulnerable compared to overall and firm-specific T&D. Again, this probably reflects the higher rate of irreversibility associated with general T&D – there are high sunk costs and, once the investment has been undertaken, associated returns will only be fully realised if it is completed (e.g., investment in an MBA degree for an employee). Thus, the aggregate results in Table 2 are broadly consistent with the theory developed earlier, which posited that uncertainty would have a differential impact on general and firm specific T&D investment.

For firms pursuing quality and innovator focussed strategies, especially the latter, the continued development of employees appears to be regarded as a dynamic capability to help to ensure sustained competitiveness. In addition to the potential direct effects associated with
T&D on employees’ productivity, the display of continued commitment to employees’ development, even in uncertain and turbulent times, is likely to enhance their attributes and behaviours, which can further enhance their status as a critical dynamic capability essential for sustained competitiveness.

General T&D shows a long-term commitment by the employer to the employee and if these development opportunities cease, or are even postponed, especially once commenced, this is likely to have adverse affects on employee behaviours and attributes (Tracey, 2012). Ceasing general T&D opportunities is also likely to have negative implications for an organisation’s ability to attract and retain talent (Karaveli and Hall, 2003). These relations are especially complex and challenging for MNCs which operate in environments that experienced different levels of uncertainty and volatility post-2008. In this study the impact of ceasing general T&D opportunities on employees’ behaviours and attributes is likely to be much lower in the Hungarian subsidiaries, reflecting the country’s severe recession compared to Poland, which continued to grow and where talent remains scarce (Sheehan, 2012(b)). Thus, it is essential that environmental uncertainty is contextualised to the location where the subsidiary operates and is not overly biased toward uncertainty in the country where the MNC is head quartered (the UK in this study). This requires careful environmental screening by the organisation’s key decision makers.

The analysis shows that there were positive and significant relationships between organisations remaining committed to employees – measured by responses to questions about (a) expected staffing levels and (b) expected investment in T&D - for overall and general T&D. While the relationship with firm-specific T&D was positive it was not significant, perhaps reflecting that this type of investment is more reactive and short-term, rather than the more committal investment associated with general T&D. Based on the findings of Nishii et al. (2008) and Tracey (2012), it would be expected that this commitment to retaining T&D even in such an uncertain environment would help to generate positive attributes and behaviours by employees, which could enable the organisation to make their HR function more flexible in response to the changed environment. All of these factors taken together could have positive implications for sustained competitiveness.


**Implications for Practice**

The ideas presented in this paper have important implications for practice. First, the application of the investment model demonstrates that uncertainty has different effects on general and firm specific investment. HRD practitioners must be conscious of this and try to retain general T&D wherever possible, as it is generally more vulnerable to cuts in uncertain and volatile environments. It is recognised, however, that firms continue to face challenging and uncertain times and thus many may need to reconfigure their HR systems. Indeed, a flexible HR system is likely to be a critical dynamic capability which will contribute to sustained competitiveness. Cutting T&D is likely to be viewed by employees as a lack of commitment by the organisation which, in turn, is expected to contribute to negative behaviours and attributes and thus to potentially jeopardise this dynamic capability. The findings in this paper show that firms which remained committed to T&D and to staffing levels increased their investment in T&D, especially general T&D. The HRD practitioner is pivotal to ensuring that T&D investment is central to reconfigured more flexible HR systems.

This is an even more pressing concern given the recent analysis by Teague and Roche (2013) of recessionary bundles which finds that firms appear to lack concern about the ‘breadth’ (defined in terms of the extent to which they seek to preserve motivation, morale and commitment) of bundle reconfiguration, preferring to combine communication and engagement measures with HRD and talent management in behaviourally intensive sets of bundles. While acknowledged throughout the paper that behaviour and attributes are important, this type of bundling could make it difficult to formally and rigorously evaluate the return on HRD investment. A way to perhaps bridge these tensions is to ensure that employee behaviours and attributes, and critically, employees’ views in relation to employer commitment are part of any formal evaluation of HRD.

The analysis also demonstrates how important strategy is in terms of T&D investment. Strategy reflects previous decisions and rapidly evolving path dependencies, and thus may set limits on the types of dynamic capabilities that can be developed, especially in the short-run. HRD practitioners must remain cognisant of strategy dynamics within their
organisation and be able to interpret and respond to these internal and external environmental changes. This may be a challenge as many HRD practitioners generally have to report to the HR Director who may, or may not, be in a strategic role in the organisation. Investment in T&D, especially in uncertain times, will only be justified through its impact on firm performance. This requires not only a clear ability to demonstrate rate of return to HRD, but perhaps more fundamentally, to reconfigure how HRD is ‘accounted for’.

Unlike physical capital, investment in human capital – i.e., training and development activities – is reflected in company accounts under ‘selling, general and administrative expenses’ which results in these expenses not being treated as an asset of the business (nor are they expected to add value in the future) and are written off entirely in the year in which they were incurred (as opposed to being depreciated and written off over a number of years) (Bassi and McMurrer, 2004 and 2007). In other words, human capital investment is treated as a ‘sunk’ cost (a once off expenditure), at least in the time period in which the ‘expense’ was incurred. These accounting procedures and their associated implications for investment decision-making, greatly increases the vulnerability of T&D in periods of economic downturn and uncertainty.

Rather than as a once off expenditure that will adversely affect an organisation’s bottom line in the period when it occurs, the onus is on HRD practitioners to create a shift in mindset so that T&D is viewed and accounted for as an investment. Human capital analytical tools can assist with this transformation. This transformation will also require working closely with the organisation’s management accountants, which may also require further professional development by HRD practitioners to ensure proficiency in accounting practices and financial modelling. It is essential that investment in HRD, like investment in capital stock, is carefully planned to ensure that the sustained development of employees remains, or becomes, an essential dynamic capability.

**Conclusions and Limitations**

The analysis shows that while uncertainty adversely affects T&D, this relationship is highly complex. While investment in T&D did decline in more than half of the sample subsidiaries and general T&D was more adversely affected compared to fixed investment, this pattern was
not found in all subsidiaries. In almost 44% of subsidiaries, investment in T&D increased. This was most likely where the organisation pursued a quality or innovator strategy, and critically remained committed to staffing levels and T&D plans and viewed the financial turbulence as an opportunity to gain market share in the future.

The paper is, of course, not without limitations which present a considerable opportunity for future research. The sample is for UK owned MNCs, thus whether the relationships found apply in firms with different ownership origins and size cannot be established and undoubtedly national culture is likely to affect outcomes, especially attitudes and perceptions and reactions to uncertainty. The sample subsidiaries were located in four different countries, which were treated as control variables in this analysis. The importance of national context, especially the potential link between national levels of human capital and returns to T&D will be explored in future analyses. Finally, this paper has only presented quantitative findings and thus the complex relationships and processes - especially those related to employee behaviour and attributes - have not yet been explored.
References


**Funding**

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Table 1. Sample: Time Lines & Matched Organisational Respondents

<table>
<thead>
<tr>
<th>Interview Timelines</th>
<th>2009 t = 0</th>
<th>2010 t = 1</th>
<th>2012 t = 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFOs</td>
<td>Jan-March: 2009</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>HR Manager</td>
<td>Dec 2009</td>
<td>Jan-March 2010</td>
<td>Jan-March 2012</td>
</tr>
<tr>
<td>Line Manager</td>
<td>Dec 2009</td>
<td>Jan-March 2010</td>
<td>Jan-March 2012</td>
</tr>
</tbody>
</table>

Note: the total number of organisations in the sample = 116 and the total number of subsidiaries is 232 (one domestic and one foreign subsidiary for each organisation).
## Table 2. The relationship between Uncertainty and Changes in T&D Investment, 2009/10-2012

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Control Variables (2009/10)</strong></td>
<td>Overall T&amp;D Model 1</td>
</tr>
<tr>
<td>Constant</td>
<td>0.336 (0.678)</td>
</tr>
<tr>
<td>In(subsidiary size = number of employees)</td>
<td>0.167* (1.832)</td>
</tr>
<tr>
<td>Ln(capital investment/employee)</td>
<td>0.228** (2.256)</td>
</tr>
<tr>
<td>Ln(sales/employee)</td>
<td>0.183* (2.027)</td>
</tr>
<tr>
<td>TUDensity</td>
<td>-0.107 [-1.123]</td>
</tr>
<tr>
<td>Industry</td>
<td>-0.128 [-1.108]</td>
</tr>
<tr>
<td><strong>National Context (reference category: UK)</strong></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0.067 [1.532]</td>
</tr>
<tr>
<td>Hungary</td>
<td>-0.123** [-2.276]</td>
</tr>
<tr>
<td>Poland</td>
<td>0.131* [2.297]</td>
</tr>
<tr>
<td><strong>Environmental Uncertainty</strong></td>
<td></td>
</tr>
<tr>
<td>Trends in the organisation’s external environment post 2008 have varied frequently (1 = not at all – 5 = very significantly)</td>
<td>-0.123 [-1.576]</td>
</tr>
<tr>
<td>Trends in the organisation’s external environment post 2008 have varied frequently (1 = not at all – 5 = very significantly)</td>
<td>-0.226** [-2.226]</td>
</tr>
<tr>
<td>Do you view the global economic and financial turbulence as a strategic opportunity to expand market share within the next 3-5 years? (1 = not at all – 5 = very significantly)</td>
<td>0.178** [2.567]</td>
</tr>
<tr>
<td>Expected financial performance within the next 3 years (1 = significantly worsen – 5 = significantly improve)</td>
<td>0.133* [1.876]</td>
</tr>
<tr>
<td>Expected staffing levels within the next 3 years (1 = significantly decline – 5 = significantly improve)</td>
<td>0.189** [2.256]</td>
</tr>
<tr>
<td></td>
<td>Quality-focus</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Increase)</td>
<td>0.217*</td>
</tr>
<tr>
<td>Expected investment in training and development within the next 3 years (1 = significantly worsen – 5 = significantly improve)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.221***</td>
</tr>
<tr>
<td></td>
<td>0.178</td>
</tr>
<tr>
<td></td>
<td>0.198*</td>
</tr>
<tr>
<td></td>
<td>0.218***</td>
</tr>
<tr>
<td></td>
<td>0.170</td>
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</tbody>
</table>

**Note 1:** * significant at 10%; ** significant at 5%; *** significant at 1%
### Appendix. Details of the Training Variables

<table>
<thead>
<tr>
<th>Variables</th>
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</thead>
<tbody>
<tr>
<td><strong>General Training Courses:</strong> Defined as “Broad skills and knowledge”, days spent on each of the seven categories of “general training”:</td>
</tr>
<tr>
<td>• Management &amp; Organisational Techniques</td>
</tr>
<tr>
<td>• Human Resource Management</td>
</tr>
<tr>
<td>• Job &amp; environmental safety</td>
</tr>
<tr>
<td>• Data processing</td>
</tr>
<tr>
<td>• Accounts/finance</td>
</tr>
<tr>
<td>• Marketing, sales &amp; customer services/relations</td>
</tr>
<tr>
<td>• Communication</td>
</tr>
<tr>
<td>• Languages</td>
</tr>
</tbody>
</table>

| Firm Specific training courses: Defined as training that is “directly relevant to the operation of the company”, days spent on each of four categories of “firm specific training”: |
| • Firm specific technical skills (e.g., use of telephone systems/intranet/operation & maintenance of automated systems) |
| • Quality;                                      |
| • Development of New materials;                |
| • Products;                                    |
| • Services;                                    |

Residual class: “Other training”: 4% of whole sample.  
**Note:** Due to the very specific influence of national context on apprenticeships these were excluded from the study.
All companies in the sample were in the private sector. The definition of ‘UK owned’ is that the Ultimate Controlling Company is headquartered in the UK (see Edwards, Edwards, Ferner, Marginson and Tregaskis, 2006).

These countries are examined because they have received the largest share of UK foreign direct investment (FDI) in the region with the exceptions of Cyprus and Malta (UNCTAD, World Investment Report, 2008).

In order to maximise compatibility between this survey and previous surveys on T&D the questions used were adapted from: Black and Lynch, 2001; the Cranet surveys; a large EU survey on training and development undertaken in the 1990s (see Fox, 1995 and Eurostat, 1996); and Mabey and Ramirez, 2005.

The trade union data are from the OECD and represent the most recent year of availability.

The strategy variables are modified from Khatri, 2000; Michie and Sheehan, 2005; Schuler and Jackson, 1987.

The model was also estimated using innovation as an explanatory variable and quality as the control variable. The innovation coefficient’s significance levels were similar to quality but the coefficient was not significant for firm specific T&D.