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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 article examines how uncertainty has affected overall, general, and firm-specific T&D post-2008.

The Solution.

The analysis shows that T&D investment is highly sensitive to uncertainty, especially general T&D. Given the importance of T&D—especially general T&D for sustained competitive advantage—it is absolutely essential that investment is sustained, even in the presence of uncertainty. Viewing and treating T&D as an investment, rather than its current accountancy configuration, as an “expenditure,” can help to ensure T&D investment is maintained. Practitioners need to become more confident and competent in demonstrating that T&D is an investment, with the potential to generate significant returns for organizations, especially in relation to sustained competitive advantage.

The Stakeholders.

The article will be of particular relevance to human-resource development, T&D practitioners, and employees, all of whom have to compete for scarce resources.

Keywords

training and development, uncertainty, general and specific T&D, dynamic analysis.

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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. From an accounting reality—where training and development (T&D, hereafter) activities are treated as a cost—and from an economics viewpoint—where ongoing uncertainty¹ is likely to adversely affect investment levels, especially in the short-run—firms are cutting spending on T&D activities. The global economic crisis and resulting ongoing uncertainty, especially around investment decisions in both physical and human capital, has resulted in organizations re-assessing all such investments. The International Monetary Fund’s (IMF; 2013) forecast for slow global economic growth (3%); concern about slowing growth in key emerging economies (Brazil, Russia, India, China, and South Africa [BRICs]); uncertainty about the impact of quantitative easing and fiscal stimuli slowing in the United States; and ongoing uncertainty about the sustainability of the euro suggests that this uncertainty is set to remain for the foreseeable future.

Moreover, pay-back time lines and associated risk premiums to such investments continue to be re-evaluated, not only for organizations as a whole but critically for the inputs that 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 labor market environments (Sheehan & 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 & Vermeulen, 2008). However, where an investment is “irreversible”—that is, at least some of the investment is a sunk cost (e.g., the purchase of an office building; purchase of plant and machinery), and if some time flexibility exists to postpone investment—there is a general consensus in the economics 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, & Vermeulen, 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 a crisis to build increased organizational capacity, enabling them to adjust quickly to a rapidly changing environment (Albers & 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 be dynamic. Continued investment in T&D is likely to be crucial for sustained competitive advantage by ensuring that these dynamic capabilities are continuously enhanced.

Table 1. Sample: Time Lines and Matched Organizational Respondents.

Interview timelines	2009	2010	2012
	$t = 0$	$t = 1$	$t = 2$
CFOs	January-March: 2009	n/a	n/a
HR manager	December 2009	January-March 2010	January-March 2012
Line manager	December 2009	January-March 2010	January-March 2012

Note. The total number of organizations in the sample = 116 and the total number of subsidiaries is 232 (one domestic and one foreign subsidiary for each organization). CFOs = Chief Financial Officers; n/a = not applicable; HR = human resources.

So what appears to be happening in practice to T&D investment? In a 2009 survey by the Institute of Directors (IoD; United Kingdom), 80% of Directors reported that their organizations 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 organizations to reassess the *type* of training offered: 46% of directors agreed that their organization was prioritizing “essential” over “investment” training (IoD, 2009). In other words, there appears to be a switch away from general to firm-specific T&D. A more recent survey by the U.K.’s Chartered Institute of Personnel 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 (CIPD, 2013). These findings suggest that despite firms’ initial intentions to sustain T&D investment, ongoing uncertainty and weak economic growth in the United Kingdom, among many other EU nations, may have forced initial plans to be revised.

By utilizing longitudinal, multi-respondent data, this article examines how environmental (macroeconomic) and product market (microeconomic) uncertainty in the immediate aftermath of the 2008 crisis affected *changes* to T&D investment over the period 2009/10-2012 (see Table 1 for details of exact dates and interviewees). It examines whether there are differential impacts of uncertainty for general and firm-specific T&D. How a firm’s characteristics, including national context, affect these T&D investment decisions is also analyzed. These relationships are examined in subsidiaries of U.K.-owned MNCs.²

For the purpose of the article, the terms “general” and “firm-specific” T&D *investment*, rather than expense, are used. It is argued that T&D should be viewed as an investment in the firm’s human capital stock that is expected to generate positive returns over time. To clarify, human capital theory is generally regarded as the main basis for the contemporary analysis of T&D (Garavan, Costine, & Heraty, 1995). The two terms are used interchangeably in this article.³

Literature Review and Hypotheses

Uncertainty and Human Capital Investment

It is important first to differentiate between risk and uncertainty when analyzing investment behaviors. There is general consensus in the economics and finance literature that “risk” describes decision-making situations in which “probabilities are available to guide choice.” In contrast, uncertainty describes decision-making situations in which “information is too imprecise to be summarized by probabilities” (Runde, 1998; adapted from Knight’s classic 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 and almost exclusively theoretical work that posited increased uncertainty would stimulate investment, especially in the “long-run” (Abel, 1983; Hartman, 1976).

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 & Moreton, 1992) and is summarized in Papadimitriou and Wray’s (2011) recent volume updating Hyman Minsky’s work:

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, pp. 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.” “Irreversibility” refers to percentage of the investment that once spent cannot be reclaimed (e.g., the purchase of an office building; the purchase of plant and machinery), 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 delay investment decisions. Thus, it is likely that there will be a negative relationship between uncertainty and investment, at least in the short run (Dixit & Pindyck, 1994).

Linking human capital theory to the investment literature, it can be posited that as 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 with general training that tends to be longer in duration and often more expensive (e.g., even one semester of a CIPD or Masters of Business Administration (MBA) qualification 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 study's hypotheses are as follows:

1. **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 T&D (over the period 2009/10-2012).
2. **Hypothesis 2:** The expected negative association will be greater for (a) general T&D compared with (b) firm-specific T&D.

Methodology and 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). The sample was drawn from the GRS database using the following criteria: the "global ultimate parent company" (1) was in the United Kingdom (the U.K. ownership criterion was used to eliminate potential "country of origin" effects); (2) employed at least 200 people overall (this criterion was used so that the data could be compared with other such surveys—for example, Cranet—which also uses this size criterion); and (3) had a subsidiary in at least one of the three non-U.K. study countries (i.e., Czech Republic, Hungary, and Poland).⁴ Five hundred and fifteen U.K.-owned subsidiaries met the study's criteria. Priority was given to the 378 organizations that also had a similar subsidiary in the United Kingdom (proxied by SIC code) so that the results were not diluted by high levels of heterogeneous activities between the two subsidiaries of the organization. For a discussion of the sample, see Sheehan (2012a).

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 to 50 min. Overseas interviews were conducted by native speakers who had been trained by the professional survey company based in the United Kingdom. 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 principal investigator. The surveys were then piloted and the questions, where necessary, were modified.

Given the potential for a divergence of perspectives, especially about issues pertaining to T&D between HR specialists and managers (Guest & Conway, 2011) and the potential for common method bias (Cascio, 2012), a multi-respondent approach to data collection was used. The information on T&D is subsidiary-level data. To capture information on uncertainty among other organizational-level issues, Chief Financial Officers (CFOs) based at the organization's U.K. Headquarters were also interviewed. The results are based on a matched sample whereby the U.K. CFO, two HR managers/specialists, and two line managers in the organization's U.K. and foreign subsidiaries completed interviews (five respondents per organization; see Table 1). The data were collected in three waves: CFO interviews were undertaken January-March 2009; HR and line manager interviews were in December/January-March 2010 and January-March 2012. Completed five-way "matched" interviews for the three waves were achieved in 116 organizations (representing a response rate of 30.7%; a sample of 232 subsidiaries; and 580 completed interviews among these respondents). Of the study subsidiaries, 45 were based in Poland, 40 in the Czech Republic, 31 in Hungary, and 116 in the United Kingdom. A minimum quota of 40 responses per country was set. However, due to the extent and duration of the economic crisis in Hungary, 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, 2012a).

Study Variables

A summary of the 20 study variables used in the estimations is contained in Table 2.

Dependent Variable: T&D⁵

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). Aggregation of the individual ratings in the estimations is justified by the standard threshold for the "Inter-Class Correlations" (ICC, hereafter) analysis. The ICC (1) and ICC (2) exceeded 0.20 (Ostroff & Schmitt, 1993), specifically 0.29 for the former and 0.70 (Kozlowski & 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 persons employed; 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 (1995)—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

Table 2. Study Variables (With Cronbach's Alpha Where Appropriate).

Variables	Measure/interview item	α
Control variables (2009-2010):		
In(age)	Age of subsidiary in 2009-2010	
In(subsidiary size = number of employees)	Total persons employed	
In(capital investment/employee)	Capital investment per persons employed	
In(sales/employee)	Total sales per persons employed	
TU density	Percentage of employees who are trade union members/total persons employed	
Industry	0 = manufacturing; 1 = services	
National context (reference category: UK)		
Czech Republic	Subsidiary is located in the Czech Republic	
Hungary	Subsidiary is located in Hungary	
Poland	Subsidiary is located in Poland	
UK	Subsidiary is located in the UK	
Environmental uncertainty		0.83
Trends in the organization's external environment prior to 2008 varied frequently	1 (<i>not at all</i>)-5 (<i>very significant</i>)	
Trends in the organization's external environment post 2008 have varied frequently	1 (<i>not at all</i>)-5 (<i>very significant</i>)	
The global economic and financial turbulence is viewed as a strategic opportunity to expand market share within the next 3 years.	1 (<i>not at all</i>)-5 (<i>very significant</i>)	
Expected financial performance within the next 3 years?	1 (<i>significantly decline</i>)-5 (<i>significantly increase</i>)	
Expected staffing levels within the next 3 years?	1 (<i>significantly decline</i>)-5 (<i>significantly increase</i>)	
Expected investment in T&D within the next 3 years?	1 (<i>significantly decline</i>)-5 (<i>significantly increase</i>)	
Product market uncertainty		0.65
Demand:	1 (<i>significantly weaker</i>)-5 (<i>significantly higher</i>)	
Expected demand for your main product/service (majority of sales):		
Price:	1 (<i>significantly weaker</i>)-5 (<i>significantly higher</i>)	
Expected price for your main product/service (majority of sales):		
Overall T&D	General training + firm-specific training	
General T&D courses	General training only (Appendix 1)	
Firm-specific T&D courses	Firm-specific training only (Appendix 1)	

Note. TU = trade union; T&D = training and development.

sample appears broadly comparable with other studies. The Cranet survey found that average training days per annum were 6.26 in the Czech Republic (compared with 7.1 in the study sample); 4.12 in Hungary (4.35 in the sample); and 3.02 in the United Kingdom (3.20 in the sample; Cranet Network, 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 are 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” (see the appendix). The T&D data cover two periods of time, December 2009-March 2010 and January-March 2012. Change in T&D investment over these two periods is the dependent variable in the analysis.

Explanatory Variables

Standard control variables. Nine control variables are used in the estimations. 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) organizations generally have lower levels of T&D, reflecting fewer resources, especially cash flow, compared with older, more established firms (D. Black, Noel, & Wang, 1999; De Kok, 2002; Patton, Marlow, & Hannon, 2000). This size effect may be moderated because the subsidiaries are all part of large MNCs. Nevertheless, it is expected that there will 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 labor is substituted for capital), especially compared with domestic companies, reflecting that they generally pay higher wages and operate in more technologically advanced industries (Lipsey, 2002; Navaretti & Venables, 2004). Thus, if there is a high rate of MRTS between capital and labor, 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 whether this regression coefficient for this variable will be positive or negative.

The coefficient associated with the third control variable—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 (S. Black & 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, for example, Mincer, 1993. Trade union density is low in the sample subsidiaries—14.3% in the United Kingdom (25.8% national level [2011]); 9.2% in 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]; Organization for Economic Cooperation and Development [OECD] data, accessed 2013).⁶ These differences between the sample and national-level trade union densities primarily indicate that the sample is for the private sector and that trade union organization has been quite weak within Eastern European MNCs (see Madga, Marsden, & Moriconi, 2012, for a recent discussion). Thus, the coefficient associated with the fourth control 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 coefficient sign for the fifth control variable, industry.

T&D Investment Under Uncertainty: The Role of National Context

The four study countries were affected quite differently by the economic crisis that is likely to impact on the T&D undertaken (control variables 6-9). 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% for the Czech Republic, -1.4% for Hungary, and -0.275 for the United Kingdom (Eurostat, 2013). Hungary was most adversely affected and received a 12.5 billion Euro bail-out from the IMF in late 2008 (Simon, 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, U.K.-owned and head-quartered in a country experiencing negative growth over the study period.

Uncertainty Measures

Two types of uncertainty are investigated: (1) environmental uncertainty and (2) product-market (firm-level) uncertainty. The former captures macroeconomic factors that are likely to influence T&D, whereas the latter captures more firm-specific factors (e.g., how sensitive the quantity demanded of the firm's product is to price changes [elasticity of demand]).

The external or "environmental uncertainty" measures are adapted from Sia, Teo, Tan, and Wei (2004), and the "product-market" firm-level (product and price variance) measures of uncertainty from the National Bank of Belgium's Annual survey on firm-level investment (see Butzen et al., 2002). The questions were designed to contribute to the debate in the economics and dynamic capabilities literature about how uncertainty and a rapidly changing external environment are likely to affect investment (Hypothesis 1 and 2). These questions about uncertainty were asked of the CFO's between January and March 2010. 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 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 environmental uncertainty index is 0.65.

To test the hypotheses of the study, hierarchical-regression analysis was used. The steps taken were as follows (Delery & Doty, 1996; Youndt, Snell, Dean, & Lepak, 1996):

Step 1: The control variables were added as a set to control for any extraneous effects across organizations, industries and countries. Model 1 reports these results in Columns 1-3 (Table 3).

Step 2: The set of “environmental uncertainty” and “product–market” uncertainty measures were entered. Model 2 reports these results in Columns 4-6 (Table 3).

The values reported in the brackets are the *t*-values for each regression coefficient.⁷

Findings

Descriptive Statistics

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 3 examines the factors that influenced these patterns of T&D investment and presents the results for the study’s two hypotheses.

Model 1—Control Variables

Turning first to the standard control variables (Model 1, Table 3), as expected, the coefficient for subsidiary size is positively and significantly associated with changes in all T&D at the $p < .10$ level for overall and firm-specific T&D. For general T&D, it is positive and significant at the $p < .001$ 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 with the smaller subsidiaries in the sample. The coefficient for capital investment is also positive and significantly associated with changes in T&D, especially for general T&D ($p < .001$). 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. The coefficient for higher sales per employee is positively and significantly associated with T&D changes, especially

Table 3. The Relationship Between Uncertainty and Changes in T&D Investment, 2009/10-2012 Outcome Measure: Changes in T&D, 2009/10-2012 (N = 228 subsidiaries).

Study variables	Overall T&D	General T&D	Firm-specific	Overall T&D	General T&D	Firm-specific
	Model 1	Model 1	T&D Model 1	Model 2	Model 2	T&D Model 2
	(1)	(2)	(3)	(4)	(5)	(6)
Control variables: model 1/step 1:						
Constant	0.336 [0.678]	0.308 [0.543]	0.302 [0.765]	0.329 [0.670]	0.308 [0.543]	0.302 [0.765]
ln(subsidiary size = number of employees)	0.167* [1.832]	0.285*** [2.621]	0.173* [1.886]	0.173* [1.835]	0.285*** [2.621]	0.173* [1.886]
ln(capital investment/employee)	0.228** [2.256]	0.325*** [3.456]	0.206* [1.922]	0.230** [2.262]	0.325*** [3.456]	0.206* [1.922]
ln(sales/employee)	0.183* [2.027]	0.197* [2.006]	0.229*** [2.621]	0.188* [2.035]	0.197* [2.006]	0.229*** [2.621]
TU density	-0.107 [-1.123]	-0.052 [-1.092]	-0.098 [-1.076]	-0.105 [-1.112]	-0.052 [-1.092]	-0.098 [-1.076]
Industry	-0.128 [-1.108]	-0.127 [-1.328]	-0.167 [-1.675]	-0.127 [-1.106]	-0.127 [-1.328]	-0.167 [-1.675]
National context (reference category: UK)						
Czech Republic	0.067 [1.532]	0.088 [1.509]	0.132* [1.826]	0.107 [1.654]	0.113 [1.689]	0.146* [1.926]
Hungary	-0.123** [-2.276]	0.225*** [-3.678]	-0.106* [-1.865]	-0.123** [-2.276]	-0.225*** [-3.678]	-0.106* [-1.865]
Poland	0.131* [2.297]	0.216*** [3.267]	0.127* [1.987]	0.131* [2.297]	0.216*** [3.267]	0.127* [2.206]
Environmental uncertainty: model 2/step 2						
Trends in the organization's external environment prior to 2008 varied frequently				-0.117 [-1.328]	-0.140 [-1.632]	-0.097 [-1.206]
Trends in the organization's external environment post-2008 have varied frequently				-0.223** [-2.220]	-0.341*** [-3.222]	-0.160 [-1.703]
Global economic and financial turbulence viewed as a strategic opportunity to expand market share within the next 3-5 years?				0.175** [2.559]	0.224*** [3.223]	0.165* [1.942]
Expected financial performance within the next 3 years				0.130* [1.872]	0.162* [1.971]	0.153 [1.673]
Expected staffing levels within the next 3 years				0.185** [2.244]	0.225** [2.872]	0.150 [1.429]
Expected investment in T&D within the next 3 years				0.198* [1.879]	0.218*** [2.833]	0.170 [1.702]

(continued)

Table 3. (continued)

Study variables	Overall T&D	General T&D	Firm-specific	Overall T&D	General T&D	Firm-specific
	Model 1	Model 1	T&D Model 1	Model 2	Model 2	T&D Model 2
	(1)	(2)	(3)	(4)	(5)	(6)
Product-market uncertainty: model 2/step 2						
Demand:				0.135*	0.089	0.199**
Expected demand for main product/service within next three years (2010-2013)				[1.925]	[1.067]	[2.380]
Price:				0.127*	0.078	0.216**
Expected price for main product/service within next three years (2010-2013)				[1.904]	[1.265]	[2.363]
Adjusted R ²	.398	.386	.375	.619	.646	.584
ΔR^2	—	—	—	.221	.271	.209

Note. *t*-statistics reported in [·]. T&D = training and development; TU = trade union.

* $p < .10$. ** $p < .05$. *** $p < .001$.

for firm-specific T&D ($p < .001$). The coefficients for 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 ($p < .05$ for overall T&D; $p < .10$ for firm-specific; and $p < .001$ for general). For Poland, the coefficients are positive and there are significant associations with changes in T&D ($p < .10$ for overall and firm-specific; and $p < .001$ for general). The strongly significant association between the coefficient for 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.

Model 2—Environmental & Product–Market Uncertainty

Hypothesis 1. Turning now to the study's 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 coefficients for the post-2008 economic crisis is significantly negatively associated with changes in overall T&D ($p < .05$); general T&D ($p < .001$); 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.

Hypothesis 2. 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 with firm-specific T&D, which is consistent with Hypothesis 2. The addition of the uncertainty variables also improved the explanatory power of Model 2 by 22.1% for overall T&D (measured by percentage change in R^2 for the overall training model; Column 4). The explanatory power of the model of the inclusion of the uncertainty variables is most significant for general T&D (Column 5)—with a change in R^2 of 27.1%—providing additional evidence of the sensitivity of this type of T&D to increases in uncertainty.

Yet, not all uncertainty is associated with negative changes in T&D investment. For organizations 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 ($p < .05$ for overall; $p < .001$ for general; and $p < .10$ 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 with 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 ($p < .10$) and firm-specific T&D ($p < .05$). 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 with overall and firm-specific T&D.

T&D & Uncertainty “Tails”

The results reported in Table 3 do not, however, show the T&D investment behavior by organizations located in the “tails” of the uncertainty measures. Using the eight questions about uncertainty, an uncertainty index was created that ranged (reverse-coded here to make interpretation easier) from 40 (high level of uncertainty) to 8 (low level of uncertainty). The median for the index was 24.6. A cluster of approximately 17% of subsidiaries (39) was located in the range of between 14 and 20 and classified as facing “low” uncertainty, whereas a cluster of 21% of organizations (48) was classified as facing “high” uncertainty, with ranges between 30 and 39.

For organizations 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 organizations 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 organizations in the “high uncertainty” category that viewed the turbulence as a “very significant strategic opportunity to expand market share” (17 of the 48 organizations in this category), all but four increased overall, general and firm-specific T&D investment.

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 with firm-specific training. It may also be easier to postpone general T&D because it is likely to be linked to medium- to long-term strategic objectives of an organization, 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 3 find that general T&D was more likely to be postponed—and possibly cut all together—compared with firm-specific investment post-2008. Moreover, general T&D appears to be *more* vulnerable to environmental uncertainty compared with 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 with 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 realized if it is completed (e.g., investment in an MBA degree for an employee). Thus, the aggregate results in Table 3 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.

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 effects on employee behaviors and attributes (Tracey, 2012). Ceasing general T&D opportunities is also likely to have negative implications for an organization’s ability to attract and retain talent (Karaveli & Hall, 2003). These relations are especially complex and challenging for MNCs that 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’ behaviors and attributes is likely to be much lower in the Hungarian subsidiaries, reflecting the country’s severe recession compared with Poland, which continued to grow and where talent remains scarce (Sheehan, 2012b). Thus, it is essential that environmental uncertainty is contextualized to in the location where the subsidiary

operates and is not overly biased toward uncertainty in the country where the MNC is head-quartered (the United Kingdom in this study). This requires careful environmental screening by the organization's key decision-makers.

The analysis shows that there were positive and significant relationships between organizations 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 committed investment associated with general T&D. Based on the findings of Nishii, Lepack, and Schneider (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 behaviors by employees, which could enable the organization 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 article have important implications for practice. First, the application of the investment model demonstrates that uncertainty has different effects on general and firm-specific investment. Practitioners specializing in human-resource development (HRD) and/or T&D must be conscious of this and try to retain general T&D wherever possible, as this analysis has shown that it is more vulnerable to cuts in uncertain and volatile environments. It is recognized, 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 that will contribute to sustained competitiveness. Cutting T&D is likely to be viewed by employees as a lack of commitment by the organization which, in turn, is expected to contribute to negative behaviors and attributes and thus to potentially jeopardize this dynamic capability. HRD and T&D practitioners are 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” (i.e., HR bundles reconfigured in the aftermath of the 2008 global crisis) 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 behaviorally intensive sets of bundles. While acknowledged throughout the article that behavior 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 behaviors and attributes, and critically, employees' views in relation to employer commitment are part of any formal evaluation of HRD.

HRD practitioners must remain cognizant of strategy dynamics within their organization 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 organization. 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—that is, 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 & McMurrer, 2004, 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 increase the vulnerability of T&D in periods of economic downturn and uncertainty.

Rather than as a once-off expenditure that will adversely affect an organization’s bottom line in the period when it occurs, the onus is on HRD practitioners to create a shift in mind-set 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 organization’s management accountants, which may also require further professional development by HRD practitioners to ensure proficiency in accounting practices and financial modeling. 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. Although investment in T&D did decline in more than half of the sample subsidiaries and general T&D was more adversely affected compared with fixed investment, this pattern was not found in all subsidiaries. In almost 44% of subsidiaries, investment in T&D increased.

The article is, of course, not without limitations that present a considerable opportunity for future research. The sample is for U.K.-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 article has only presented quantitative findings and thus the complex relationships and processes—especially those related to employee behavior and attributes—have yet to be explored.

Appendix

Table IA. Details of the Training Variables.

Variables

General training courses: Defined as “broad skills and knowledge,” days spent on each of the seven categories of “general training”:

- Management & organizational techniques
- Human resource management
- Job & environmental safety
- Data processing
- Accounts/finance
- Marketing, sales & customer services/relations
- Communication
- Languages

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.

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Notes

1. Uncertainty is understood to describe decision-making situations in which “information is too imprecise to be summarized by probabilities” (Runde, 1998; adapted from Knight’s classic 1921 work).
2. All companies in the sample were in the private sector. The definition of “U.K.-owned” is that the Ultimate Controlling Company is head-quartered in the United Kingdom.

3. In the academic literature, Human Resource Development (HRD) is defined as a “strategically focused perspective on training and development” (Garavan, Costine, & Heraty, 1995, p. 2). As strategy is not examined in this article, the term “HRD” is not used. In practice, however, T&D is generally the responsibility of HRD specialists, especially in larger organizations; thus, reference is made to “HRD practitioners” in the “Implications” section.
4. These countries are examined because they have received the largest share of U.K. foreign direct investment (FDI) in the region with the exceptions of Cyprus and Malta (United Nations Conference on Trade and Development [UNCTAD], World Investment Report, 2008).
5. To maximize 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 Eurostat, 1996; Fox, 1995); and Mabey and Ramirez (2005).
6. The trade union data are from the Organization for Economic Cooperation and Development (accessed 2013) and represent the most recent year of availability.
7. Means, standard deviations, and correlations between study variables are available from the author on request.

References

- Abel, A. B. (1983). Optimal investment under uncertainty. *American Economic Review*, 73, 228-233.
- Albers, S., & Worley, C. (2009). Dealing with rough times: A capabilities development approach to surviving and thriving. *Human Resource Management*, 48, 433-445.
- Barrett, A., & O’Connell, P. (2001). Does training generally work? The returns to in-company training. *Industrial & Labor Relations Review*, 54, 647-662.
- Bassi, L., & McMurrer, D. (2004). Are skills a cost or an asset? *The Milken Institute Review*, 6, 24-29.
- Bassi, L., & McMurrer, D. (2007). Maximizing your return on people. *Harvard Business Review*, 85, 115-123.
- Black, D., Noel, B., & Wang, Z. (1999). On-the-job training, establishment size, and firm size: Evidence for economics of scale in the production of human capital. *Southern Economic Journal*, 66, 82-100.
- Black, S., & Lynch, L. (1997, November). *How to compete: The impact of workplace practices and information technology on productivity* (Working Paper 6120). Boston, MA: National Bureau of Economic Research.
- Black, S., & Lynch, L. (2001, August). How to compete: The impact of workplace practices and information technology on productivity. *The Review of Economics and Statistics*, 83, 434-445.
- Butzen, P., Fuss, C., & Vermeulen, P. (2002, May). *The impact of uncertainty on investment plans* (Working Paper no. 24). Brussels: National Bank of Belgium.
- Cascio, W. (2012). Methodological issues in international HR management research. *The International Journal of Human Resource Management*, 23, 2532-2545.
- Chartered Institute of Personnel Development. (2013). *A barometer of HR trends and prospects*. London, England: Author.
- Cranet Network. (2012). *Cranet survey on comparative human resource management: International executive report*. Cranfield, UK: Author.

- De Kok, J. (2002). The impact of firm-provided training on production. *International Small Business Journal*, 20, 271-295.
- Delery, J. E., & Doty, H. D. (1996). Modes of theorizing in Strategic Human Resource Management: Tests of universalistic, contingency, and configurational performance predictions. *Academy of Management Journal*, 39, 802-35.
- Dixit, A., & Pindyck, R. (1994). *Investment under uncertainty*. Princeton, NJ: Princeton University Press.
- Driver, C., & Moreton, D. (1992). *Investment, expectations, and uncertainty*. Oxford, UK: Blackwell.
- Eurostat. (1996). *Continuing vocational training in enterprises: An essential part of life-long learning* (Statistics in focus: Population and Social Conditions, No. 7, 1-4). Luxembourg: Author.
- Eurostat. (2013). *GDP data*. Retrieved from <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115>
- Fox, R. (1995). *Company training in Ireland*. Dublin, Ireland: FAS.
- Fuss, C., & Vermeulen, P. (2008). Firms' investment decisions in response to demand and price uncertainty. *Applied Economics*, 40, 2337-2351.
- Garavan, T., Costine, P., & Heraty, N. (1995). *Training & development in Ireland: Context, policy and practice*. Dublin, Ireland: Oak Tress Press.
- Guest, D., & Conway, N. (2011). The impact of HR practices, HR effectiveness and a "strong HR system" on organisational outcomes: A stakeholder perspective. *The International Journal of Human Resource Management*, 22, 1686-1702.
- Hartman, R. (1976). The effects of price and cost uncertainty on investment. *Journal of Economic Theory*, 5, 258-266.
- Henriques, M. (2009). UK database, global linkage and global data collection. In *Internal Dun & Bradstreet (D&B) report on the representativeness and reliability of the Global Reference Solutions (GRS) database* (pp. 1-40). Marlow, Buckinghamshire: D&B UK Head Office.
- Institute of Directors. (2009). *Training in the recession: Winner or loser?* London, England: Author.
- International Monetary Fund. (2013). *World economic outlook: Update*. Washington, DC: Author.
- Karaveli, A., & Hall, D. (2003). Growing leaders for turbulent times: Is succession planning up to the challenge? *Organisational Dynamics*, 31, 62-79.
- Kozlowski, S. W. J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research and methods in organizations: Foundations, extensions, and new directions* (pp. 3-90). San Francisco, CA: Jossey-Bass.
- Lipsey, R. E. (2002, October). *Home and host country effect of FDI* (Working Paper 9293). Cambridge, MA: National Bureau of Economic Research.
- Mabey, C., & Ramirez, M. (2005). Does management development improve organisational productivity? A six-country analysis of European firms. *International Journal of Human Resource Management*, 16, 1067-1082.
- Magda, I., Marsden, D., & Moriconi, S. (2012). Collective agreements, wages, and firms' cohorts: Evidence from Central Europe. *Industrial and Labor Relations Review*, 65, 607-629.
- Mincer, J. (1993). Job training, wage growth and labor turnover. In J. Mincer (Ed.), *Studies in human capital: Collected essays of Jacob Mincer* (Vol. 1., pp. 239-262). Brookfield, VT: Edward Elgar.

- Navaretti, G., & Venables, A. (Eds.). (2004). *Multinational firms in the world economy*. Princeton, NJ: Princeton University Press.
- Nishii, L., Lepack, D., & Schneider, B. (2008). Employee attributes of the “why” of HR practices: Their effects on employee attitudes and behaviors, and customer satisfaction. *Personnel Psychology, 61*, 503-545.
- Organization for Economic Cooperation and Development. (2013). *Trade union density statistics*. Retrieved from http://stats.oecd.org/Index.aspx?DataSetCode=UN_DEN
- Ostroff, C., & Schmitt, N. (1993). Configurations of organizational effectiveness and efficiency. *Academy of Management Journal, 36*, 1345-1361.
- Papadimitriou, D., & Wray, T. (Eds.). (2011). *The Elgar companion to Hyman Minsky*. Cheltenham, UK: Edward Elgar.
- Patton, D., Marlow, S., & Hannon, P. (2000). The relationship between training and small firm performance: Research frameworks and lost quests. *International Small Business Journal, 19*, 11-27.
- Runde, J. (1998). Clarifying Frank Knight’s discussion of the meaning of risk and uncertainty. *Cambridge Journal of Economics, 22*, 539-546.
- Sheehan, M. (2012a). Exploring the link between management development and perceived performance in multinational corporations (MNCs): An analysis of Polish and UK subsidiaries. *Human Resource Management, 84*, 117-134.
- Sheehan, M. (2012b). Investing in management development in turbulent times and perceived organisational performance: A study of UK MNCs and their subsidiaries. *The International Journal of Human Resource Management, 23*, 2491-2513.
- Sheehan, M., & Sparrow, P. (2012). Global human resource management and economic change: A multiple level of analysis research agenda. *The International Journal of Human Resource Management, 23*, 2393-2404.
- Sia, C.-L., Teo, H.-H., Tan, B., & Wei, K.-K. (2004). Effects of environmental uncertainty on organizational intention to adopt distributed work arrangements. *IEEE Transactions on Engineering Management, 51*, 253-265.
- Simon, Z. (2012, January 19). Hungary mulls IMF loan on order of 2008 bailout, index reports. *Bloomberg*. Available from <http://www.bloomberg.org/>
- Teague, P., & Roche, W. (2013). Recessionary bundles: HR practices in the Irish economic crisis. *Human Resource Management Journal*. Advance online publication. doi:10.1111/1748-8583.12019
- Tracey, B. (2012). The contextual, flexibility-based model of the HR-firm performance relationship. *Management Decision, 50*, 909-924.
- United Nations Conference on Trade and Development. (2008). *World investment report overview: Towards a new generation of investment policies*. New York, NY: Author.
- Waddoups, C. J. (2012). Union membership and job-related training: Incidence, transferability and efficacy. *British Journal of Industrial Relations*. Advance online publication. doi:10.1111/j.1467-8543.2012.00909.x
- Youndt, M. A., Snell, S. A., Dean, J. E., & Lepak, D. P. (1996). Human resource management, manufacturing strategy, and firm performance. *Academy of Management Journal, 39*, 836-866.

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