

**The development of an empirical enterprise risk management
values scale accounting for the effect of culture in emerging
market managers**

Arthur Linke

Research assignment presented in partial fulfilment
of the requirements for the degree of
Doctor of Philosophy in Business Management and Administration
at Stellenbosch University

Study Leader:

Prof Evan Gilbert (University of Stellenbosch)

Co-Study Leader:

Prof Eon VdM Smit (University of Stellenbosch Business School)

factor loadings tie in with theoretical considerations. This warrants further exploration in a future research direction. However, the determination of whether the items are organic or mechanistic should be replicable by other researchers utilising the matrix.

Table 4.9: Pre-study rotated two-factor analysis model – oblique promax with Kaiser on

Factor analysis/correlation		Number of observers = 28		
Method: principal-component factors		Retained factors = 2		
Rotation: oblique promax (Kaiser on)		Number of parameters = 45		
Variable	Factor 1	Factor 2	Uniqueness	Organic vs. Mechanistic
rm_cc_02_escalation	0.6102	0.0491	0.5998	M
rm_cc_10_relationships	0.6216	0.0607	0.5778	O
rm_ci_13_employeesimproving	0.6360	-0.4854	0.6225	O
rm_ci_14_learnings	0.8254	-0.1596	0.4053	O
rm_ec_01_riskculture	0.2634	0.6312	0.3907	O
rm_ec_15_understandroles	0.8742	-0.0422	0.2655	-
rm_fd_06_embedded	0.6797	0.1301	0.4458	O
rm_fd_07_tailored	0.7062	-0.3361	0.5902	O
rm_fd_05_policy	0.1437	0.5041	0.6636	M
rm_mc_12_mgtcommunication	0.6229	0.3908	0.2522	O
rm_mc_08_governance	0.7713	0.1781	0.2566	M
rm_mc_11_rmauthority	0.5996	0.1416	0.5482	M
rm_mc_20_execendoresement	0.5732	0.1695	0.5601	M
rm_ra_03_comprehensiveness	0.5522	0.2665	0.4988	O
rm_ra_04_regularbasis	0.0766	0.7311	0.4120	M
rm_rm_09_actionplans	0.3662	0.1145	0.8171	O
rm_rt_23_bumitigation	0.4745	0.1152	0.7150	O
rm_ec_16_understandexternal	-0.1418	0.7794	0.4664	M
rm_fd_17_frameworkholistic	-0.0961	0.9166	0.2255	M
rm_mc_19_direction	0.6473	0.2814	0.3469	-
rm_mc_18_execsponsor	0.6754	0.0022	0.5426	-
rm_cc_21_quality	0.0057	0.7768	0.3927	M
rm_fd_22_integration	0.6783	0.1563	0.4253	O

Using variable *rm_ci_13_employeesimproving* (row 3) as one example, there is a significant positive loading of 0.6360 on the ‘organic’ construct and a significant negative loading of -0.4854 on the ‘mechanistic’ factor. Theoretically, as can be seen in the variable description in either the full table of items in Appendix A or in Table 4.1, the item representing continual improvement of employees in terms of risk management is a focal point of the ISO 31000 (2009) framework.

Improvement by its nature is strongly organic, exhibiting a strong association with items 3 and 10 on the organic side of the Burns and Stalker (1961) matrix (Table 2.1). The item *rm_fd_07_tailored* (row 8) is another example of a significant positive organic loading also negatively loading on mechanistic factor, whereby customising or tailoring ERM by its definition fits exceptionally to the organic classification.

These theoretical considerations were taken into account in setting the model for the ensuing CFA testing discussed in Section 4.5.2. Keeping in mind the relatively small sample size for this EFA, theoretical considerations linked with the EFA outputs could, and in fact should also, effect the optimisation of the factor model after CFA, i.e. the dropping or amending of items, cross-loading of items etc. These findings and the future research directions are discussed in more detail in the conclusion chapter.

Table 4.10 below shows the factor rotation matrix of the selected model, which is also graphically depicted in Figure 4.6.

Table 4.10: Factor rotation matrix for pre-study two-factor model

	Factor 1	Factor 2
Factor 1	0.9428	0.7027
Factor 2	-0.3333	0.7115

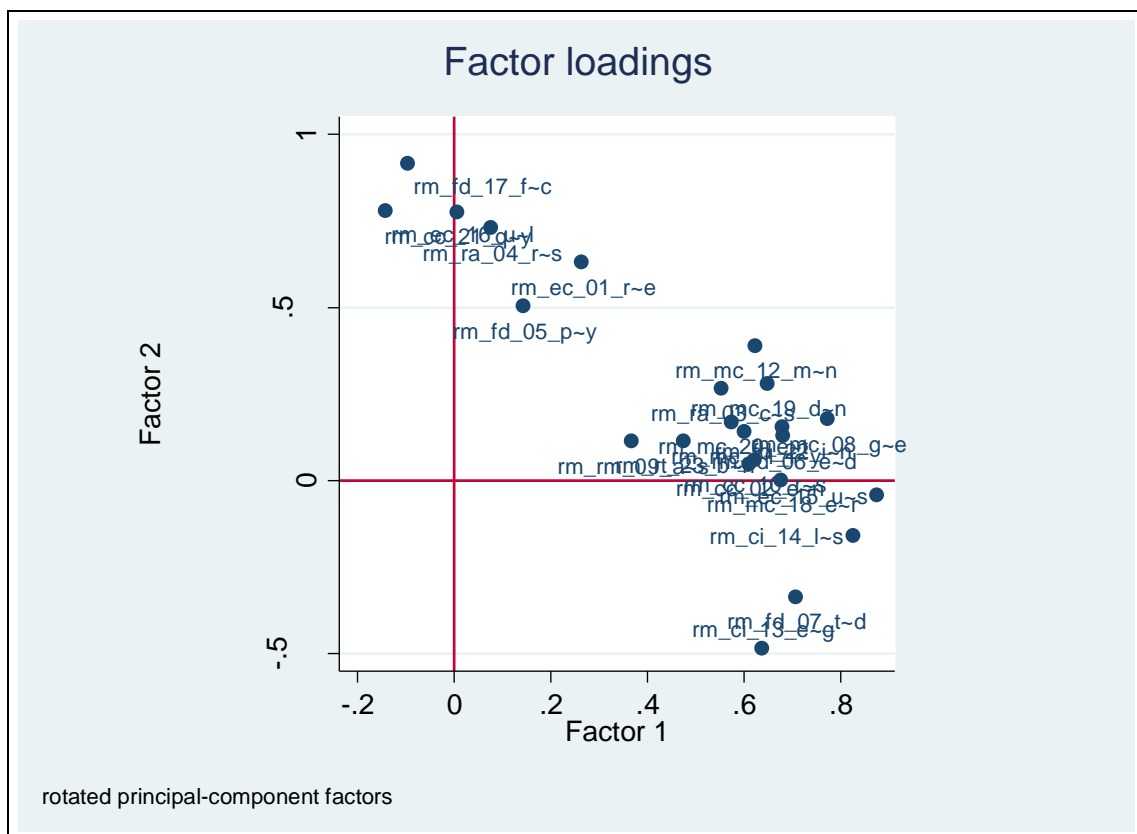


Figure 4.6: Scatterplot of items in the rotated oblique principal component factor analysis

Figure 4.6 represents the updated scatterplot of the items on the new, rotated oblique two-factor model. One can clearly see the potential for a two-factor structure with only several outliers. The fact that the clusters have moved more directly towards the axes, particularly in the case of Factor 2, also demonstrates that the oblique rotation had the anticipated effect of appropriate adjustment.

In conclusion, Section 4.4 has discussed the results and findings of the pre-study, which provided further empirical testing of the ERMVS taken forward from the expert group investigation. The main outcome of the pre-study was the development of a two-factor model through EFA which demonstrated significant loading by all the 23 ERMVS items on one of the two factors. This model was taken into the main study to perform additional tests of reliability and validity, such as CFA, and provide further empirical testing and development of the ERMVS and its related constructs.

4.5 THE MAIN STUDY

4.5.1 Sample and descriptive statistics

As discussed in the methodology chapter, the sample for the main study was comprised of associates of IRMSA, namely, risk professionals predominantly based in Sub-Saharan Africa. The sample size of $N=327$ (not all participants responded to all items) was well over the 200 participants generally recommended as the rule of thumb for structural equation modeling (SEM) analysis which is utilised in this study for CFA as discussed below. Schermelleh-Engel, Moosbrugger and Müller (2003) suggested a conservative estimate of a sample for CFA where N should be ten times the number of free parameters (variables). In the case of this study and the main study sample, that would mean greater than 23 times ten or a sample of more than 230 ($N > 230$). This study's sample size of 327 comfortably exceeds the suggested 230.

The descriptive statistics of the full main study dataset is provided in Appendix F. In summary, at a high level these statistics include the mean scores and standard deviations for the risk management items denoted by 'rm' with the one overall and two second-order ERMV constructs, cultural items, denoted by 'g' for GLOBE and 'h' for Hofstede. Furthermore, the demographic variables are noted, as these do not have numerical values.

4.5.2 Reliability of constructs

The item sets within the two-factor model were tested for reliability by means of Cronbach's alpha. The results are given in Table 4.11 and Table 4.12 below. In summary, the items were found to load reliably on both factors. The alphas were all > 0.95 for Factor 1 and 0.85 or greater for Factor 2. These results are aligned with the results from the EFA, whereby the scatterplots showed that Factor 2 had a less consistent structure (Figure 4.6). The reliability testing also points towards potential adaptation or modification of the two-factor model taking into consideration the

modification indices from the CFA discussed above and the loading factors in the EFA results of the model. Certainly, there is a strong tendency for loading on Factor 1.

Table 4.11: Reliability for the ERMV Construct 1

Item	Obs	Item-test corr.	Item-rest corr.	Interitem cov.	alpha
rm_cc_02	326	0.7049	0.6586	0.472202	0.9571
rm_cc_10	324	0.6920	0.6478	0.47714	0.9571
rm_ci_13	326	0.7166	0.6697	0.4686721	0.9570
rm_ci_14	323	0.7402	0.7000	0.4702414	0.9562
rm_ec_15	320	0.7426	0.7088	0.4775922	0.9561
rm_fd_06	325	0.8411	0.8181	0.4686489	0.9543
rm_fd_07	323	0.7622	0.7284	0.472839	0.9557
rm_mc_12	324	0.8239	0.7941	0.4603517	0.9546
rm_mc_08	324	0.8720	0.8509	0.4593309	0.9536
rm_mc_11	321	0.6821	0.6340	0.4741838	0.9575
rm_ra_03	323	0.7363	0.7039	0.4811477	0.9562
rm_mc_20	323	0.7944	0.7672	0.4744727	0.9552
rm_rm_09	325	0.8240	0.7975	0.4680713	0.9546
rm_rt_23	325	0.8251	0.7993	0.4677766	0.9546
rm_mc_19	325	0.8417	0.8172	0.4643812	0.9542
rm_fd_22	325	0.8364	0.8130	0.468887	0.9544
rm_mc_18_	325	0.7568	0.7190	0.4688053	0.9559
Test scale				0.4702808	0.9581

Table 4.12: Reliability for the ERMV Construct 2

Item	Obs	item-test corr.	item-rest corr.	Interitem cov.	alpha
rm_ec_01	321	0.8341	0.7501	0.3771504	0.8481
rm_fd_05	322	0.8214	0.7276	0.3919805	0.8575
rm_ra_04	324	0.7285	0.6053	0.413779	0.8713
rm_fd_17	322	0.8258	0.7387	0.3830021	0.8503
rm_ec_16	321	0.8328	0.7539	0.3869714	0.8494
rm_cc_21	324	0.7382	0.5990	0.399943	0.8754
Test scale				0.3921285	0.8795

The reliability of the culture values dimensions replicated in this sample, and tested at sub group level, can be found in Appendix J.

4.5.3 Confirmatory Factor Analysis (CFA)

Fabrigar et al. (1999) expounded on the paradigm for scale development by stating that it is useful to utilise EFA and CFA in conjunction with one another, whereby an EFA is conducted in an initial study to provide the basis for specifying a CFA in a subsequent model. The basic definition of CFA and why it was utilised as a methodology in this study was discussed in Section 3.8. “CFA requires a researcher to specify a specific number of factors as well as to specify the pattern of zero and non-zero loadings of the measured variables on the common factors” (Fabrigar et al., 1999:277). According to Hinkin (1998), it is recommended that after EFA, CFA be conducted using the item variance-covariance matrix computed from data collected from a second, independent sample. In the case of this study, this second sample is the main study sample. According to Asparouhov and Muthén (2009:398), “The use of CFA measurement modelling in SEM has the advantage that researchers are encouraged to formalize their measurement hypotheses and develop measurement instruments that have a simple measurement structure”. The main difference that SEM adds from CFA is the directionality of the relationships between the variables.

In structural equation modeling (SEM), a model is said to fit the observed data to the extent that the model-implied covariance matrix is equivalent to the empirical covariance matrix. Once a model has been specified and the empirical covariance matrix is given, a method has to be selected for parameter estimation (Schermelleh-Engel et al.,2003).

The steps in the process of CFA or SEM methodology can be seen in the flowchart in Figure 4.7 below.

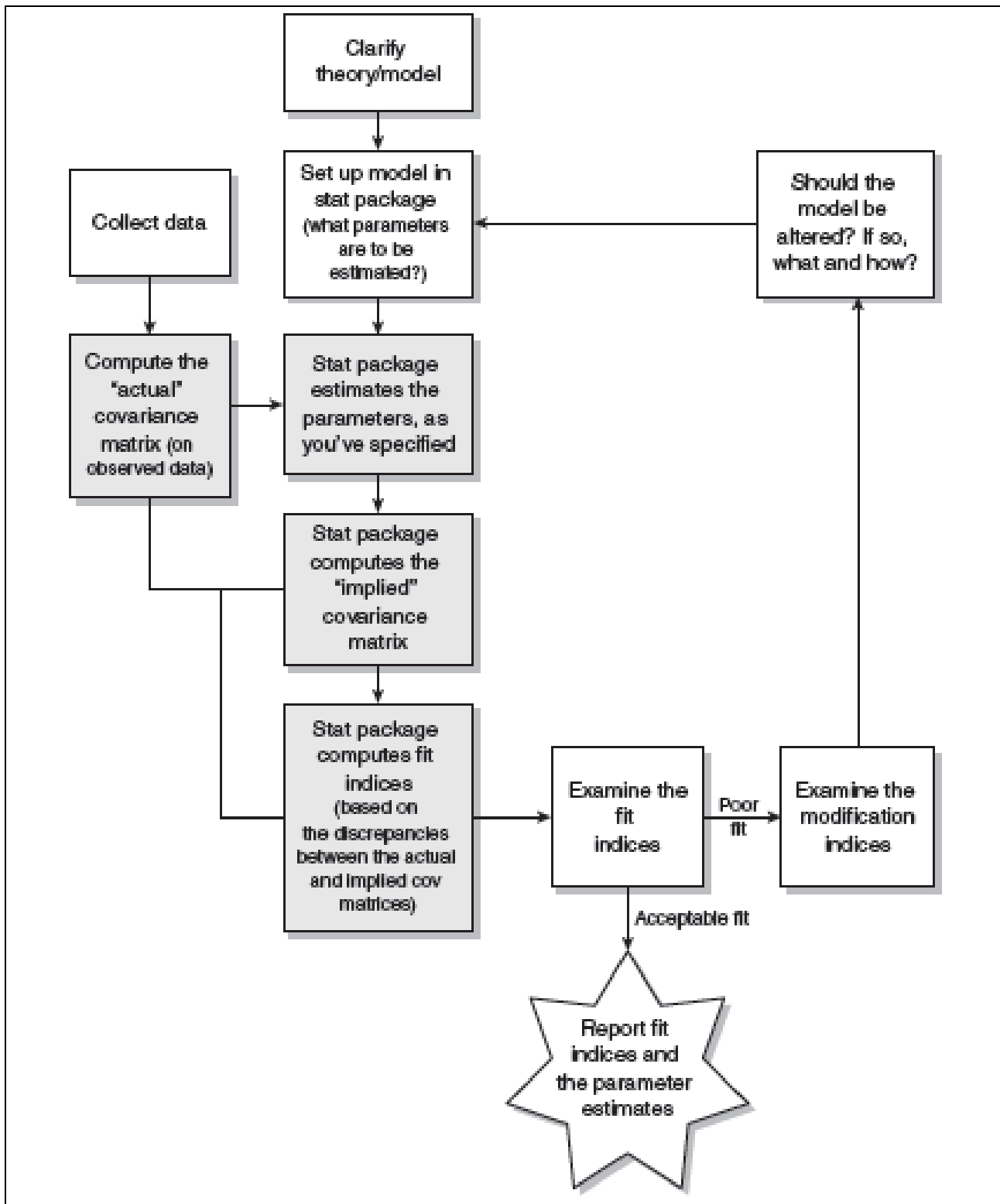


Figure 4.7: Flowchart of CFA and SEM

Source: Furr, 2011:93.

As has been discussed throughout this study, in the decades since the first articles were published on the topic of CFA, computer software has advanced in maturity and computing power providing the formulas for calculating a variety of “goodness-of-fit” (GoF) statistics for the CFA models. Following on these advances, in the 1990s, there was an increased attention to more complex GoF

indices. Hinkin's (1998) review of the literature showed over 30 in use for CFA at the time. For much of the testing within this dissertation, the Stata software was utilised for statistical analysis of the data – as was outlined in the discussion of EFA above. This statistical analysis continued with the empirical CFA testing. Tests were conducted utilising the structural equation model (SEM) features of Stata. The details and results of the specific indices calculated for CFA in this study are discussed below.

Consensus on what exactly is a “good fit” of a model for CFA does not exist, and thus a variety of empirical tests must be considered. For structural equation models, a huge variety of fit indices have been developed which can point to conflicting conclusions about the extent to which a model actually matches the observed data. In structural equation modelling, the evaluation of model fit is not as straightforward as it is in statistical approaches based on variables measured without error. Because there is no single statistical significance test that identifies a correct model given the sample data, it is generally necessary to take multiple criteria into consideration and to evaluate model fit on the basis of various measures simultaneously. For each estimation procedure, a large number of goodness-of-fit indices is provided in the literature to judge whether the model is consistent with the empirical data.

The choice of the estimation procedure depends on the type of data included in the model. Generally, the fit criteria of a structural equation model indicate to what extent the specified model fits the empirical data. Only one goodness-of-fit measure, i.e., the χ^2 test statistic (chi-square statistic), has an associated significance test, while all other measures are descriptive. (Schermele-Engel et al., 2003:24, 31).

For the purposes of this dissertation, it was important to remember that the factor model of this study is still a relatively “simple” model that is being empirically tested as part of the ERMVS and construct development process. The empirical-testing process is meant to be robust and carry as many items through as many iterations as possible to best optimise the ERMVS – not necessarily to maximise the GoF results for reporting purposes. All the 23 ERMV items (variables) were loaded on the main two-factor model examined in the CFA analysis as per the outputs of the EFA presented in Section 4.4.3 – despite some relatively borderline loadings in the EFA as previously indicated. The impact of removing those variables with borderline loadings from the CFA is discussed at the end of this section. The depiction of the model inputted for the CFA analysis is exhibited in Figure 4.8 below.

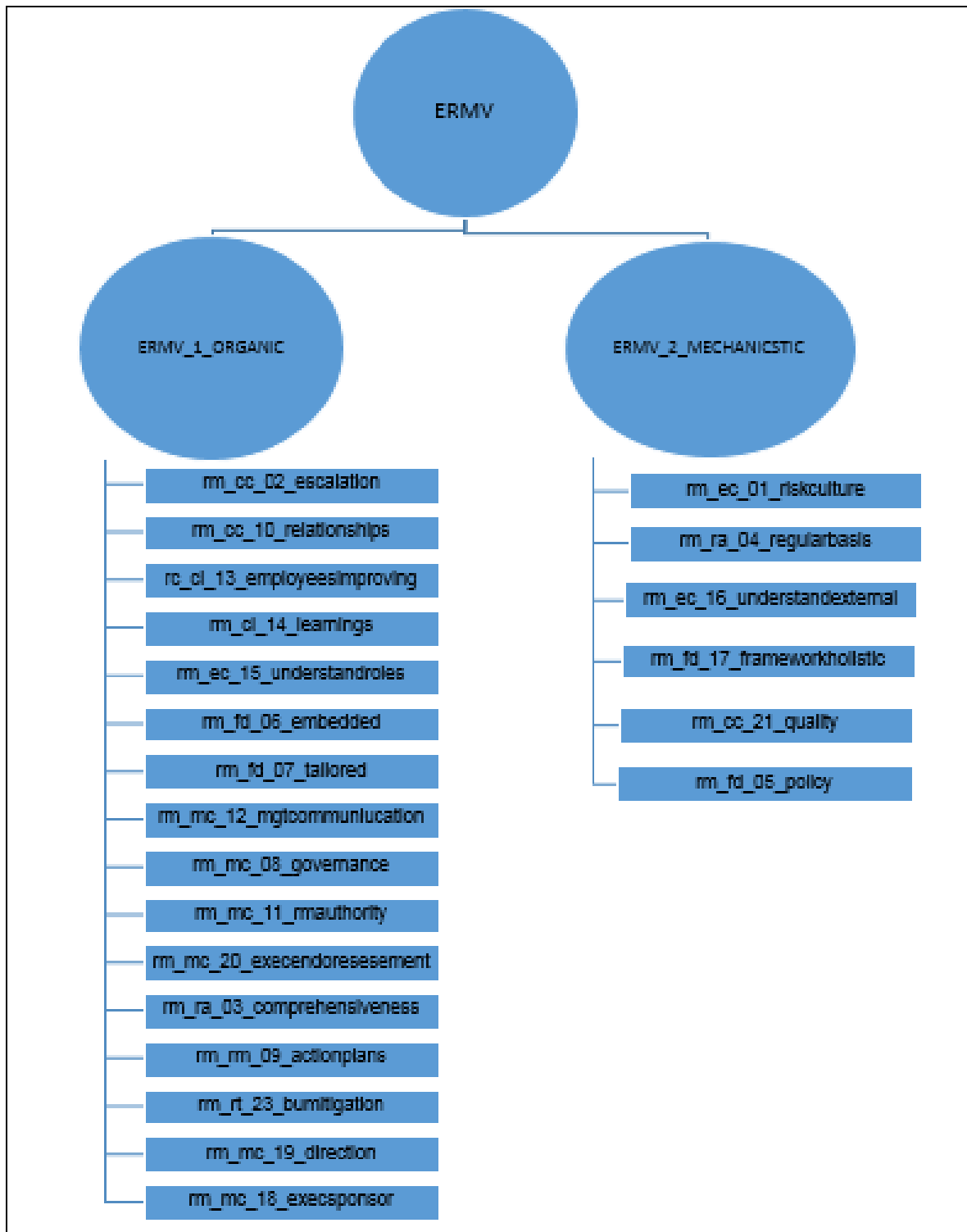


Figure 4.8: The CFA item structure for the two-factor model

The detailed outputs of the two-factor CFA model, in particular, the specific item loadings on each of the factors calculated in the SEM module of Stata are presented in Appendix G.

Table 4.13 below shows the GoF outputs for the selected two-factor ERMV model, which was run in the Maximum Likelihood (ML) parameter estimation setting. According to Schermelleh-Engel et al. (2003), ML is the most widely used fitting function for structural equation models. This method leads to estimates for the parameters which maximise the likelihood that the empirical covariance matrix is drawn from a population for which the model-implied covariance matrix is valid. Fabrigar et al. (1999:277) indicated that, for relatively normal distributed data, the “primary advantage of ML is that it allows for computation of a wide range of indexes of the goodness-of-fit model. ML also permits statistical significance testing of factor loadings and correlations among factors and the computation of confidence intervals for these parameters.” The findings are discussed in the relevant sections below.

Table 4.13: Goodness-of-fit measures for the two-factor ERMV model

Fit statistic	Value	Description
Likelihood ratio		
chi2_ms(229)	1175.399	Model vs. saturated
p > chi2	0.000	
chi2_bs(253)	6074.599	Baseline vs. saturated
p > chi2	0.000	
Population error		
RMSEA	0.118	Root mean squared error of approximation
90% CI, lower bound	0.112	
upper bound	0.125	
pclose	0.000	Probability RMSEA <= 0.05
Information criteria		
AIC	12529.441	Akaike's information criterion
BIC	12787.529	Bayesian information criterion
Baseline comparison		
CFI	0.837	Comparative fit index
TLI	0.820	Tucker-Lewis index
Size of residuals		
SRMR	0.058	Standardized root mean squared residual
CD	0.974	Coefficient of determination

Kline (2015), in its third edition, considered the “handbook” of Structural Equation Models (SEM) proposes following several “rules of thumb” when assessing Goodness of Fit (GoF) as is applied to the outputs of Table 4.13. Each metric has its particular strengths and weaknesses, and as previously indicated, there is no one, single accepted approach to assessing GoF. As such a battery of measures applicable to this study and outputted by the Stata software is discussed in steps in the following sections.

They are:

- The chi-square statistic (χ^2);
- The Root Mean Square Error of Approximation (RMSEA);
- The Standardized Root Mean Square Residual (SRMR);
- The Comparative Fit Index (CFI) and the Non-Normed Fit Index (NNFI) / the Tucker-Lewis Index (TLI);
- The Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC)

Hinkin (1998) explained that the chi-square statistic (χ^2 or χ^2) is utilised to assess the fit of a specific CFA model as well as compare different models to determine which fits better. Some authors view it as the gold standard of CFA because it is the only test with a binary output, i.e. it either provides a statistically-significant output or it does not. As a rule of thumb, the smaller the chi-square, the better the fit of the model. In general, high χ^2 values in relation to the number of degrees of freedom indicate that the population covariance matrix and the model-implied covariance matrix differ significantly from each other – in other words there is a poor fit.

As the residuals... should be close to zero for a good model fit, the researcher is interested in obtaining a nonsignificant χ^2 value with associated degrees of freedom. If the p-value associated with the χ^2 value is larger than .05, the null hypothesis is accepted and the model is regarded as compatible with the population covariance matrix (Schermelleh-Engel et al., 2003:24, 31).

The chi-square statistic, however, has a number of strong limitations, in particular its dependency on sample size. Therefore, in spite of its status, some authors such as Medsker, Williams, and Holahan (1994) recommended that the chi-square statistic should be used with caution. The closer χ^2 is to the degrees of freedom of the model the better – a factor of three times the degrees of freedom is generally accepted as a reasonable value. However, according to Hinkin (1998:114), “a model with a large chi-square may still be a good fit if the indices are high”.

Referring back to Table 4.13, according to Stata (2015), the saturated model is the model that fits the covariances perfectly. In the baseline versus saturated test, the baseline model includes the means and variances of all observed variables plus the covariances of all observed exogenous variables. So, in the case of the data presented in Table 4.13, it is evident that the values in the first section represent a poor fit. The chi-square statistic is high (1 175) as it is greater than three times the degree of freedom (229), and furthermore it is statistically significant, i.e. < 0.05 .

The second GoF criteria being assessed, the Root Mean Square Error of Approximation (RMSEA) is also one of the most popular descriptive GoF measures and is based on the chi-square value in terms of calculating it as a ratio to the population. The RMSEA is a measure of approximate fit in the population and therefore concerned with discrepancy due to approximation (Schermelleh-Engel et al., 2003).

According to Stata (2015), RMSEA reports the root mean squared error of approximation and its 90% confidence interval, and *pclose*, the p-value for a test of close fit, namely, $RMSEA < 0.05$. Most interpreters of this test label the fit close if the lower bound of the Confidence Interval (i.e. 90%) is below 0.05 and label the fit poor if the upper bound is above 0.10, i.e. the score's range for an acceptable fit is generally between 0.05 and 0.10.

Analysis of the results in Table 4.13 indicates a borderline RMSEA score at 0.118, i.e. a score greater than 0.10, also indicating poor fit of our two-factor ERMV CFA model.

The third criteria, the Standardised Root Mean Square Residual (SRMR) can be termed an overall "badness-of-fit" measure, which is based on fitted residuals, according to Schermelleh-Engel et al. (2003). Stata (2015) indicated the SRMR is an absolute measure of fit and is defined as the standardised difference between the observed correlation and the predicted correlation. It is a positively-biased measure and that bias is greater for small N and for low df studies. Because the SRMR is an absolute measure of fit, a value of zero indicates perfect fit. The SRMR has no penalty for model complexity. A value less than 0.08 is generally considered a good fit (Hu & Bentler, 1999). Associated in terms of scrutinising the residuals is the Coefficient of Determination (CD), which according to Stata (2015), is like R-Squared for the whole model – a perfect fit corresponds to a CD of one (1).

The results in Table 4.13 with regards to SRMR and CD reflect positively and are the first to provide the un-modified base two-factor ERMV model with scores of a good fit. The SRMR is close to 0.5 at 0.58, which almost represents even an excellent fit, and the CD is approaching 1.0 with a score of 0.974.

There are furthermore, several descriptive measures for GoF based on model comparisons, or baseline comparisons, including the Comparative Fit Index (CFI) and the Non-Normed Fit Index (NNFI), of which the Tucker-Lewis Index (TLI) is an example. The basic idea of such comparison indices is that the fit of the model of interest is compared to the fit of some baseline model, most often the independence model. "The independence model assumes the observed variables are measured without error, i.e. all error variances are fixed to zero and all factor loadings to one, and that all variables are uncorrelated," according to Schermelleh-Engel et al. (2003:39). This baseline model is thus considered very restrictive. The CFI, similar to the NNFI and LTI ranges from a score of zero to one, with higher values indicating a better fit. According to Schermelleh-Engel et al. (2003), a general rule of thumb for the above noted indices based on model or baseline comparisons is that a value greater than 0.95 indicates a good fit.

As exhibited in Table 4.13, scores on both the CFI and TLI for the study's model were low, closer to 0.8 than 0.9, and thus indicated a poor fit of the model.

According to Schermelleh-Engel et al. (2003), the NNFI (and similarly the LTI) takes into account the degrees of freedom of the specified model as well as the degrees of freedom of the independence model into consideration. More complex, i.e. less restrictive models are thus penalised by a downward adjustment, while more parsimonious, i.e. more restrictive models, are rewarded by an increase in the fit index. This could relate to the base ERMVS model tested.

Descriptive measures for GoF based on information such as the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) are in contrast to the RMSEA with its focus on the population factors, in that they take only the estimated model for the prediction of further observations. They thus reflect the search for a compromise between the approximation and estimation errors that minimises the overall error, according to Schermelleh-Engel et al. (2003). As a rule of thumb, for these types of information indices, a lower value signifies a better fit of the model. However, these indices are meant to be utilised as a supporting descriptive measure to compare competing models to determine which has the better fit, i.e. when comparing models, those with lower AIC or BIC scores are the better fit with regards to estimation errors.

As exhibited in Table 4.13, AIC and BIC scores are relatively large. These scores should, however, not be seen in isolation as discussed above. If compared to other models, and these indicators featured lower scores in the selected two-factor model, it would indicate a better fit than the alternative models.

Whilst the literature on CFA indicates that a comparison of a study's proposed model (in this case the two-factor ERMVS) to alternatives, such as a single-factor model or other multiple-factor models, is to be considered, this is not prescribed. Potential alternate models are discussed in the conclusion Section 4.6 of this chapter.

However, to demonstrate results of some potential examples of modifications to the selected two-factor model, the modification index analysis was run on the two-factor model in Stata.

Tables 4.14 and 4.15 show the effects the different variables have on the model if they are allowed to co-vary. Table 4.14 shows the latent variable effects and Table 4.15 is an extract of the manifest variable effects. Furthermore, the specific effects of all these potential modifications on GoF scores are noted. In CFA on the base two-factor ERMVS model, only the two second-order constructs, namely ERMV1 and ERMV2 are allowed to co-vary, and only those manifest variables specified from the EFA results are loaded onto the specified second-order constructs. The manifest variables are not allowed to co-vary in the base two-factor model – it is simple and restricted. In Table 4.14, in effect, the issue of potential cross-loading (as stemming from the EFA) is addressed, whereby the effects of significant cases of manifest variables being allowed to load on the other secondary construct are noted.

Table 4.14: Modification Indices (MI) for the two-factor model latent variables

						Standard
Measurement		MI	df	P>MI	EPC	EPC
rm_cc_02_escalation <-						
	ERMVS_2_Mechanistic	31.381	1	0.00	10.02262	7.123957
rm_cc_10_relationships <-						
	ERMVS_2_Mechanistic	5.997	1	0.01	4.063953	3.114122
rm_ci_13_employeesimproving <						
	ERMVS_2_Mechanistic	8.287	1	0.00	5.512406	3.668385
rm_ec_15_understandroles <-						
	ERMVS_2_Mechanistic	50.115	1	0.00	10.60239	8.567087
rm_fd_07_tailored <-						
	ERMVS_2_Mechanistic	20.819	1	0.00	6.995516	5.371884
rm_mc_12_mgtcommunication <-						
	ERMVS_2_Mechanistic	21.265	1	0.00	-7.206238	-4.886559
rm_mc_08_governance <-						
	ERMVS_2_Mechanistic	25.001	1	0.00	-6.48503	-4.6387
rm_mc_19_direction <-						
	ERMVS_2_Mechanistic	19.585	1	0.00	-6.035885	-4.523587
rm_fd_17_frameworkholistic <-						
	ERMVS_1_Organic	6.800	1	0.01	4.645012	3.693847
rm_ra_04_regularbasis <-						
	ERMVS_1_Organic	12.335	1	0.00	6.554442	5.033613
rm_ec_16_understandexternal <						
	ERMVS_1_Organic	4.940	1	0.03	-3.781096	-3.125954

In Table 4.15, which exhibits an extract of the full output, the effect of statistically-significant potential co-variance specifically between manifest variables is reported. The full output is exhibited in Appendix H.

Table 4.15: Extract of modification indices for two-factor model manifest variables

						Standard
Measurement		MI	df	P>MI	EPC	EPC
cov(e.rm_cc_02_escalation,e.rm_cc_10_relationships)		39.441	1	0.00	0.1587387	0.3763689
cov(e.rm_cc_02_escalation,e.rm_ci_13_employeesimproving)		9.131	1	0.00	0.0881431	0.1810599
cov(e.rm_cc_02_escalation,e.rm_ci_14_learnings)		8.036	1	0.00	0.0715415	0.1708347
cov(e.rm_cc_02_escalation,e.rm_fd_06_embedded)		5.867	1	0.02	-0.0441466	-0.149096
cov(e.rm_cc_02_escalation,e.rm_fd_07_tailored)		4.371	1	0.04	0.0485916	0.1260858
cov(e.rm_cc_02_escalation,e.rm_mc_12_mgtcommunication)		9.466	1	0.00	-0.0722515	-0.1876382
cov(e.rm_cc_02_escalation,e.rm_mc_20_execendorsement)		7.151	1	0.01	-0.0563755	-0.1614101

In Tables 4.14 and 4.15, four columns of results are reported:

- MI stands for modification index and is an approximation to the change in the model's goodness of fit if the path were added, i.e. the reduction in chi-squared.
- df stands for degrees of freedom and is the number that would be added to (df).
- $P > MI$ is the value of the significance of (df).
- EPC stands for expected parameter change and is an approximation to the value of the parameter if it were not constrained to zero (0). It is reported in unstandardised and standardised units.

The modification indices report statistics on all omitted paths and covariances. Paths and covariances are listed only if the modification index is significant at the 0.05 level. One way of addressing these significant results would be to add direct paths between the variables, but that is very much linked to the theoretical issues behind the variables and constructs which are discussed in the conclusion of this chapter in Section 4.6.

Schermelleh-Engel et al. (2003:52) concluded their discussion of CFA by stating that, as has been demonstrated by a robust discussion of different goodness-of-fit indices in the literature, it is quite difficult to decide exact specifics on data-model fit or misfit, especially if various measures of model fit point to conflicting conclusions about the extent to which the model actually matches the observed data.

Although there are no well-established guidelines for what minimal conditions constitute an adequate fit, some rules of thumb exist ... it should be clear that these rule of thumb cut-off criteria are quite arbitrary and should not be taken too seriously. Fit indices may be affected by model misspecification, small-sample bias, effects of violation of normality and independence, and estimation method effects. Therefore, it is always possible that a model may fit the data although one or more fit measures may suggest bad fit (Hu & Bentler, 1998).

4.5.4 Cross-validation of the constructs: Correlation analysis

Having completed the steps in the scale and construct development process as outlined and discussed within this chapter so far for the new Enterprise Risk Management Values Scale, it can be stated with some confidence, according to Hinkin (1998:116), that it possesses content validity and internal consistency and reliability. However, “[f]urther evidence of construct validity can be determined by examining the extent to which the scales correlate with other measures designed to assess similar constructs (convergent validity) and to which they do not correlate with dissimilar measures (discriminant validity).”

Completing this stream of analysis is testing for criterion validity, which examines whether the measures correlate with other variables that they could be expected to. To test these three criteria, data from the main study sample was utilised, focusing on the cultural values constructs previously discussed (Hofstede and GLOBE) as well as selected demographic variables.

The tests for correlation between the ERMV factors and the demographic variables can be seen in Table 4.16 below.

Table 4.16: Correlation matrix of demographic variables and ERMV constructs 1 and 2

	ERMV_1_ Org	ERMV_2_ Mec	Age	Education	OrgSize	LevelMgt	OrgPerformance
ERMV_1_ Org	1.0000						
	326						
ERMV_2_ Mec	0.9315	1.0000					
	0.0000						
	326	326					
Age	-0.0445	-0.0700	1.0000				
	0.4295	0.2139					
	317	317	318				
Education	0.0599	0.0467	0.0029	1.0000			
	0.2873	0.4075	0.9591				
	317	317	316	318			
OrgSize	0.0700	0.0579	0.0778	-0.0684	1.0000		
	0.2122	0.3029	0.1671	0.2243			
	319	319	317	317	320		
LevelMgt	-0.0871	-0.1009	0.1958	0.1569	-0.5622	1.0000	
	0.1216	0.0728	0.0005	0.0053	0.0000		
	317	317	315	315	317	318	
OrgPerformance	-0.0024	-0.0356	0.1690	-0.0502	0.0945	-0.0091	1.0000
	0.9665	0.5275	0.0026	0.3730	0.0926	0.8715	
	318	318	316	317	318	316	319

The results represented by the correlation analysis indicate that whilst, as previously discussed, there is a high correlation between the two ERMV factors, there is no statistically-significant relationship between either of the two ERMV factors and the demographic variables. This is a confirmation of discriminant validity. The results indicate that some of the expected correlations between the demographic variables are present. For example, Level of Management is significant and positively correlated with Age and Education, whilst negatively correlated with Organisation Size. This leads to the conclusion that the data set accurately represents validity of those variables in the sample.

Table 4.17: Correlation matrix of culture values dimensions correlated with ERMV constructs 1 and 2

Main culture	Culture dimension	ERMV1	ERMV2	
Indian/Asian	h_mas_agg	-0.4309	-0.444	<i>Correlation</i>
		0.028	0.0231	<i>p-value</i>
		26	26	<i>N</i>
Coloured	g_po_agg	0.4436	0.4534	<i>Correlation</i>
		0.0299	0.0261	<i>p-value</i>
		24	24	<i>N</i>
	g_col_agg	0.5566	0.5476	<i>Correlation</i>
		0.0039	0.0046	<i>p-value</i>
		25	25	<i>N</i>
Black	h_uai_agg	0.2086	0.19	<i>Correlation</i>
		0.0079	0.0158	<i>p-value</i>
		161	161	<i>N</i>
	h_ivr_agg	-0.2043	-0.2001	<i>Correlation</i>
		0.0096	0.0112	<i>p-value</i>
		160	160	<i>N</i>
White	h_lto_agg	-0.2376		<i>Correlation</i>
		0.0204		<i>p-value</i>
		95		<i>N</i>

With regards to the cultural values dimensions, Table 4.17 above shows the results of the correlation analysis between the ERMV constructs 1 and 2 and the GLOBE and Hofstede culture dimensions aggregated at sub-group level for those cases where a statistically-significant ($p < 0.05$) relationship was detected. The sub-group level is indicated by the 'Main Culture' grouping of the respondents i.e. which broader South African designated population grouping the respondent associates themselves with. Appendix K also shows additional labels from the dataset, such as the country of the respondent or their ethnicity (a further sub-grouping within 'Main Culture' such as the tribe a respondent associates with), and whilst some preliminary tests were done with these data, there was uncertainty around the statistical power with these variables. For example, only two countries (South Africa and Zimbabwe) had the minimum number of respondents expected for correlation testing. In Table 4.17, sample size (N) is indicated for each correlated pair. The full correlation matrix for all ERM and culture variables, organised by Main Culture, can be found in Appendix K.

These statistically significant correlations exhibited in Table 4.17, represent outcomes of the null hypothesis testing of the cultural values dimensions which are outlined in Appendix I. It is important to note, that as is required by the culture values dimensions, the correlation testing was done at group level, and not at individual level. In other words, the correlation testing was done within the main culture sub-groups of the sample, also for the ERMV constructs.

The results above show that some of the null hypotheses detailed in Appendix I could in fact be rejected, for example, from Table 4.17 "*There is no statistically-significant relationship between ERMV 1 and LTO*". This implies that to a certain degree the NC values, as discussed in the literature, are associated with risk culture indicating convergent validity of the constructs. In terms of the effect of culture on ERM, cause and effect relationship cannot be determined based on these results, but there are interesting statistically significant relationships between the variables. For example, the relationship between ERMV 1 (Organic) and LTO outlined above as rejecting the null hypothesis (demonstrating a statistically significant relationship). 'White Cultures' are hypothesised as demonstrating a high LTO score (and also to score reliably on this measure) and it would be anticipated, based on analysis of the items comprising both the LTO and ERMV 1 that these two constructs are comprised of associated values items. In other words, a respondent with a high score on the Organic ERMV dimension i.e. a high rating on the organic ERM items value scale would also score LTO values items highly. As a future research direction, it would be well worth exploring further, which cultural dimensions are reliable in a sample, compiling within in the appropriate groups, and testing those in more detail for statistically significant relationships with the ERMV constructs.

4.6 CONCLUSION OF THE RESULTS CHAPTER

After presenting a view of the landscape of the study and analysis of the findings in the ERMVS development process, Chapter 4 presented the results and findings of three sets of empirical tests. The first set of tests investigated content validity, with a group of expert judges evaluating the importance of the pool of 102 reduced ERMVs measurement items (manifest variables). ICC was a test utilised to determine whether the judges agreed on their ratings of the items. The results of the ICC tests indicated that there was a small, albeit statistically significant, agreement by the judges on the importance of the items. The small SD in the judge's scores on the items may have contributed to discrepancies in agreement. The highest scoring items, those 23 items scoring one standard deviation above the mean, were selected to be included in the ERMVS for the pre-study. Further expert group review of the ERMVS items is recommended in future research, to address the ICC findings and ensure the validity of the instrument. Furthermore, ERM is an evolving field, and thus the ERMVS item pool will need continued development with the support of an expert group – these issues are discussed in further detail in section 5.4 below.

The goals of the pre-study were to test the reliability of the initial ERMVS, and to determine whether in a small sample, the ERMVS exhibited explanatory power for an ERM values construct. Furthermore, through EFA an empirical investigation was undertaken to test for possible second-order constructs comprising the ERM values construct domain, which contributed to further validity testing of the ERMVS. After selection of an oblique rotation of the model, and further examination of the factor loadings, the two factors were identified, which were considered to potentially represent Organic and Mechanistic constructs. The theoretical underpinnings for these factors, emanating from the literature reviewed in Chapter 2, were discussed above in Section 4.4. The outcome of the pilot/pre-study was a two-factor model representation of the ERMVS. This model featured statistically-significant loading, albeit not perfect loading, by all of the 23 items on either one of the factors, and was taken into the main study.

The main study, with a significantly larger sample, featured execution of a variety of methods around reliability and validity testing of the ERMVS. The two-factor model emanating from the pre-study formed the basis for CFA, which was conducted on the model by means of hypothesis testing of the simple model within the SEM module of Stata. The reliability of the items within the ERMVS as well as the GoF of the model were subjected to rigorous empirical investigation and fully reported on. Both factor scales were found to be reliable. However, whilst some measures demonstrated a good fit, the full two-factor model was also found to represent a poor fit on some of the parameters. In summary, the majority of the GoF parameters were either a good fit, or like the χ^2 statistic, within reach of a good fit with some implementation of the recommendations of the modification indices.

As discussed in greater detail in the concluding Chapter 5, the goal of this study was to develop the ERMVS from its theoretical beginnings, and not specifically to finalise a factor model for a

subsequent iteration of empirical testing with a new sample. The model assessed in Table 4.13 for GoF is the culmination of a fully-loaded two-factor model CFA based on the theoretical underpinnings and EFA outputs. It represents a simple structure. In future research efforts, which are outside the remit of this dissertation, the CFA model can be modified based on theoretical underpinnings for testing on a new sample. For example, by going back to the EFA results and identifying those variables (statistically and theoretically) that are loading poorly or cross-loading, in conjunction with the results of the modification indices, the factor model could potentially be optimised in terms of GoF. Central to this are some of the modification possibilities exhibited in Tables 4.14 and 4.15. These modifications, for example, by eliminating error-inducing variables or adding paths between variables, could reduce the chi-square and RMSEA values, whilst improving the CFI and TLI scores. There are several permutations of possible modifications, which it must be cautioned need to be carefully considered as well as theory and hypothesis driven. Beyond the allegory of the “Little Jiffy”, the literature warns of researchers that selected those GoF measures best suited for their results. This study has not taken any shortcuts and provided a comprehensive set of results based on those tests recommended by the literature for testing reliability and validity in the scale and construct development methodology.

In the final stage of testing the ERMVS in the main study, the ERMVS was tested for the effect of culture. Cross-validation methods were applied in order to examine convergent, discriminant and criterion-related validity, and address the known issue of bias. This was carried out by testing the ERMVS for statistically-significant relationships with culture values dimensions from Hofstede and GLOBE, as well as against demographic variables from the study. Some of the culture values dimensions exhibited statistically-significant relationships (correlation) with the ERMV constructs, and so the ERMVS is well positioned for future research directions with regards to culture and other variables or correlates. This could include formal modification for a new, broader sample beyond risk managers, and testing with both the culture dimensions as well as different variables.

According to El Akremi, Gond, Swaen, De Roeck and Igalens (2015:2), a construct is multi-dimensional if it represents several distinct, related dimensions that can be treated as a single, higher-order, theoretical concept. “Higher-order multi-dimensional constructs facilitate theory building because they capture the heterogeneity of organisational phenomena while providing more parsimonious overall constructs.”

Much of the extensive ERM theory from Chapter 2 was distilled into the ERMVS. In the case of this study, the ERM values constructs were examined at multiple levels – at individual / item level, and at construct level, with the overall ERM Values construct comprised ultimately of 23 items loaded by the two sub-constructs that emanated from the exploratory factor analysis (mechanistic and organic). The ERMVS was rigorously tested with a number of empirical methods, and the results are promising, in particular explanatory power and factor structure of the model with its two proposed constructs, mechanistic and organic, and the clear path towards modification and

refinement. Ultimately, these constructs can also act to help predict work attitudes and behaviours, which is a significant contribution to the management sciences from both an academic and practitioner standpoint. One of the future research directions from this study is to further expand the theme of developing a higher order, multi-dimensional construct to act as an ERM values scale providing valid and reliable outputs for management sciences research and practice.

CHAPTER 5

CONCLUSION

5.1 INTRODUCTION

The adequate measurement of abstract constructs is perhaps the greatest challenge to understanding the behaviour of people in organizations (Hinkin, 1998:104).

The literature of Hinkin (1998) was a constant guide throughout the empirical work of this study, and so it is appropriate that the concluding chapter of the dissertation begins with a quote from him. His position is very much representative of the various authors such as MacKenzie et al. (2011) and Morgado et al. (2017), whose bodies of work greatly contributed to the depth and breadth of the methodology for developing the ERMVS and its constructs. The quote succinctly represents both the challenges and rewards of scale and construct development in the business and management sciences. Fundamentally, the business and management sciences are about people and organisations, figuring out how they work together and how they can succeed. One of the key ways of bridging the gap between academia and practice in the business and management sciences domain, is to develop empirical measurement scales for abstract constructs, such as enterprise risk management values, that measure phenomena incorporating people and organisations.

In terms of the business and management sciences, one of the focal points of management is to support an organisation in achieving its objectives and to increase value. As was discussed in depth in Chapter 2, risk and risk management have always been fundamental to the business and management sciences and central towards an organisation achieving its objectives and creating value. Knight's classical work (1921) focused on the topic of risk and uncertainty, and Drucker (1959) stated most clearly, that for enterprises, "to take risk is therefore the essence of economic activity". Where the global economy is becoming ever-more VUCA, it is clearly imperative for organisations to optimise risk-taking abilities and outcomes and risk management has perhaps even become more critical to enable an organisation to achieve its objectives. ERM represents a paradigm meant to do exactly that – it prescribes a framework for formalising the risk management process, and thus provides both opportunity and resilience for organisations in the face of uncertainty. However, recent global financial and economic crises have actually led both academics and practitioners to identify shortcomings in risk management as one the key causes of these crises (Van der Stede, 2011). Therefore, the study of ERM is at the top of the business and management sciences research agenda. Academics and practitioners acting in combination will

determine and optimise ERM's effectiveness for risk resilience and the benefit and success of organisations in the global economy.

The origin of this study was rooted in a very practical problem, which was centred on why ERM implementation and practice appears to be successful in some organisations, and less successful in others. Answering this question explicitly requires measuring ERM on a variety of levels, and determining success factors of implementation and ERM's effect on the organisation, its people and its performance. As a first step, the researcher must thus define exactly what ERM is and how it can be measured. Unfortunately, such an ERM measurement instrument did not exist.

The literature review of this dissertation clearly confirmed the assessments of Kaplan (2011), McShane et al. (2011), Bromiley et al. (2015) and others, namely that there is indeed a significant gap in academic knowledge around the topic of ERM and more specifically, the measurement of ERM. It was concluded, that there is a need for a robust academically-validated instrument that will provide an enterprise risk management measurement scale comprising items and constructs that can act as variables for empirical studies. The main goal and contribution of this dissertation is exactly that, the development of a robust and empirically-tested ERMVS and its related constructs.

As was discussed in the methodology chapter, an extensive review of the organisational behaviour literature (e.g. Hinkin, 1998) highlighted a host of flaws in studies with regards to scale and construct development. These included inappropriate domain sampling, poor factor structure, low internal consistency and poor reporting of newly-developed measures – which ultimately combine to threaten academic understanding of organisational phenomena. There was a concerted effort made in this dissertation to avoid these mistakes in the development of the ERMVS and its related constructs.

To start at the beginning of the scale and construct development process, MacKenzie et al. (2011:329) recommended:

...because so many things depend on having a clear conceptual definition, this is one step in the process that should never be neglected in a scale validation study. More generally, we recommend focusing more attention on the front-end of the process – on providing a clear conceptual definition and developing indicators that adequately tap the concept domain and properly specifying the measurement model – than on cross-validating the scale and developing norms for it.

This study took heed of those serious warnings and followed the recommendations of the seminal articles in the literature – in particular around emphasising the clear definition of the theoretical construct domain, a robust methodological design and reporting the findings as they are without presenting a “Little Jiffy” solution. The contributions of the study are detailed in Section 5.2.

5.2 THE CONTRIBUTIONS OF THE STUDY

The research problem of this dissertation is clearly centred on the development of an empirical measurement instrument for the ERM domain construct, based on primary data collection. It can be summed up by the question:

Can enterprise risk management values of emerging market risk managers be measured empirically in a valid and reliable manner by means of an item-based scale?

The focus of the dissertation was thus, more specifically, the development of an item-based ERM Values Scale (ERMVS) comprised of manifest variables that contribute to a latent variable ERM values construct structure. To be effective, this scale and the resulting constructs should be based on and integrate the broad canon of ERM academic and practice theory, and be empirically tested with an appropriate level of academic rigour. The instrument must demonstrate both reliability and validity and be utilised to empirically measure the resulting latent ERM construct(s) as well as enable further empirical refinement and cross-validation of the scale and constructs.

Referring back to the significant set of research questions detailed in Chapters 1 and 3, which are consolidated and presented in Table 5.1 below, these research questions have all been addressed within the discussion of the findings of this study. The findings form a significant part of the contribution of this dissertation. The main contributions of the study are related to the extension of the ERM body of knowledge in the form of augmenting the empirical measurement of ERM; these contributions are presented in Table 5.1. In determining whether ERM can be empirically measured, this study also contributes to the broader management science body of knowledge in the sense that if ERM can, in fact, be measured, it would also be possible to determine the role ERM plays in achievement of the objectives of the organisation, including increasing value.

From the outset, the literature has highlighted the importance of defining and demarcating a clear theoretical construct domain for developing an empirical measurement instrument. In the case of this study, no such definition had yet been completed in the ERM literature, and thus this study pioneers such an ERM construct domain definition. In fact, there were only three studies discovered, demonstrating a variety of methodological weaknesses, which previously even attempted to measure ERM with primary data. The contribution of this dissertation thus begins with the definition of the ERM domain construct to be measured. This was concluded through a comprehensive ERM literature review and critical analysis of issues in the ERM literature. In a novel contribution to this area of study, this review and analysis incorporated the broad canon of business and management sciences domains such as finance, accounting and organisational and strategic management, as well as practitioner and governance literature. The resulting ERM construct domain was thus defined within the nine pillars and an initial pool of 224 items, providing a contribution to ERM theory.

The main contribution of the study is focused around the development of a new, empirically-validated 23-item ERMVS, which resulted out of an ERM expert group review of the 224 items, and was taken through rigorous empirical reliability and validity testing including EFA and CFA. A new two-factor model of ERMVs was presented comprised of organic and mechanistic constructs.

In order to cross-validate the ERMVs constructs and test for an effect of culture, the ERMVs constructs were then examined for statistically significant relationships with culture dimensions. Several statistically significant relationships were found between the variables in a number of the cultural sub-groupings, and a number of additional contributions stemmed from this exercise. The replication and validation of the culture values instruments in this novel, specific sample provided a contribution around culture values in terms of emerging markets, and more specifically, a Southern African sub-groups context. Incorporating the testing of culture dimensions in a new sample and utilising cultural sub-groups enabled further culture dimension research extensions. This relates to a specific contribution of this study concerning the testing of an ERM nomological network, i.e. a network of interacting constructs that are theoretically related and affect each other.

The key contributions of the study, and details as to where in the dissertation the findings address the research questions that lead to the contributions, are summarised in Table 5.1 below.

Table 5.1: Summary of key contributions of the study

Key research questions	Addressed by	Key contributions of the study
<p>How can a comprehensive theoretical construct domain of ERM values be clearly defined and demarcated?</p> <p>What is that demarcation of the theoretical ERM values domain construct?</p>	The literature review (Chapter 2)	Comprehensive ERM literature review and critical analysis of issues in the ERM literature – incorporating the broad canon of business and management sciences domains such as finance, accounting and organisational and strategic management, as well as practitioner and governance literature. This extends the theoretical discourse around defining and measuring ERM and is novel in both its comprehensive nature and by combining the domains of academia, practice and governance to lead to the overarching theoretical construct domain definition.
<p>What pool of items (manifest variables) can be developed to best reflect (and explain) the ERM values domain?</p>	<p>The pillars of ERM (Sections 2.5 and 4.2)</p> <p>The pool of ERM items (Appendix A)</p>	Development of a new theoretical definition of the ERM construct domain, deeply rooted in the ERM body of literature, for empirical measurement, including (9) pillars for demarcation and critical success factor items (Initial pool of 224).
<p>Do ERM experts confirm the content validity of the item pool i.e. what is the value of importance they assign to the items, and to what level do they agree on these values?</p>	Expert group results (Section 4.2); ICC; Resulting 23-item ERMVS	Generation of a comprehensive item pool from the literature encompassing the ERM domain construct which was validated by an expert group
<p>Within the specified domain construct, can a scale be developed (ERMVS), based on the item set of manifest variables that empirically measures the ERM values construct domain?</p> <p>Is this ERMVS valid and reliable?</p> <p>Is there systematic variation in ERM values across managers in samples of emerging market risk managers?</p>	23-item ERMVS rigorously tested as per the results provided in Chapter 4	Development of a new, empirically-validated 23-item ERMVS
<p>Does this ERMVS generate constructs (latent variables) that empirically measure ERM values of risk managers?</p> <p>If so, is there a single or are there multiple (sub-order) constructs that empirically measure ERM values in a reliable and valid manner?</p> <p>What do they represent?</p> <p>What is the explanatory power of the ERM construct(s) model measured by the ERMVS in terms of the defined ERM values</p>	Results of the pre-study and main study i.e. EFA and CFA empirical analyses in Sections 4.4 and 4.5	ERMVS taken through rigorous empirical testing with presentation of robust results, including EFA and CFA, resulting in a new two-factor model comprised of organic and mechanistic constructs. If the ERMVS is valid and reliable, then it can be utilised to contribute to the broader management sciences – e.g. determine how ERM supports the objectives of the organisation including to increase its value.

construct domain?

Table 5.1: Summary of key contributions of the study (continued)

Key research questions	Addressed by	Key contributions of the study
<p>Are the national cultural values dimensions (independent variables) derived from the cultural values literature, i.e. Power Distance (PDI) and Uncertainty Avoidance (UAI), found to be valid and reliable in the sample selected for this study of emerging market risk managers?</p> <p>If so, is there systematic variation in specific cultural dimensions within the sample?</p>	<p>Results of the cross-validation Section 4.5.4</p>	<p>Replication and validation of the culture values instruments in this novel, specific sample; contribution in terms of emerging markets, Southern African sub-groups context and cross-validation with ERMVS.</p>
<p>Do the observed cultural values dimensions, as well as other demographic variables selected for cross-validation purposes, demonstrate a statistically-significant relationship with ERM values constructs in the selected samples of emerging market risk managers?</p> <p>Which cultural dimensions exhibit the most significant statistical relationship with ERM values constructs?</p> <p>Do the observed systematic construct relationships match those proposed in the theory of ERM and NC values (hypotheses) investigated in this dissertation?</p>	<p>Cross-validation results i.e. Tables 4.16, 4.17 and Appendix K</p>	<p>Demonstration of cross-validation of the ERMVs constructs with culture dimensions where several statistically significant relationships were determined; incorporating testing of culture dimensions in a new sample of emerging market / Southern African managers, utilising cultural sub-groups; enabling further culture dimension research extensions. This contributes to a cross-cultural, emerging markets and African dimension to ERM.</p>

The methodology of the dissertation, as evidenced by the main results discussed in Chapter 4 and above, indicates critical thought and demonstrates application of judgement towards the critical primary quantitative evaluation criteria highlighted by authors such as Hinkin (1998), MacKenzie et al. (2011) and Morgado et al. (2017). In other words, the requisite methodologies provided by seminal works in the literature on the 'classical' scale and construct development were followed and documented within the dissertation, adding to the contribution of the study.

It should be noted, that the contribution of the study finishes with the presentation of the results of the empirical analysis and proposed future research directions. The next step in the scale development process, as outlined in both Churchill's (1979) original model for scale and construct development as well as MacKenzie et al.'s (2011) final step in the iterative process, is norm development, for which a new and different design and samples are required.

5.3 LIMITATIONS OF THE STUDY

Hinkin (1998:118) stated that "scale development clearly involves a bit of art as well as science. Anyone who has gone through a process similar to that described above will understand the difficulty of developing sound measures". This sentiment is echoed in terms of this dissertation. The study has several limitations, the most prominent being that it is primarily an exploratory study to develop and test a new measurement scale and the resultant constructs in ERM, a still-emerging field of the business and management sciences. As a result, it is likely that future research directions will evolve through time as more work is done on the ERMVS. This study thus makes a significant contribution to the body of work in the ERM domain, but is the first step on a journey. Taking this analogy further, there are many different paths which may be taken to develop the ERMVS further from this platform.

The dissertation presents the development of the ERMVS through a methodology where a comprehensive literature review (including practitioner contributions) is then followed by implementation of the business and management sciences paradigm of scale and construct development. Whilst having a considerable body of knowledge in the academic and practitioner literature spanning decades, ERM is still a relatively-new topic. The pool of items considered in the development of the scale and its refinement were rigorously tested through methods such as utilising an expert group and empirical processes including EFA and CFA throughout the course of the research; however, their generation required the active judgement of the researcher. Referring to Morgado et al. (2017), EFA in particular, is one of the tests that are most susceptible to subjectivity. All these empirical methods may be potentially improved on in future.

There are many different perspectives on both ERM and the measurement scale and construct development process represented in the literature that needed to be considered by the researcher. These include broad issues such as:

- How to best demarcate the ERM theoretical construct domain;
- How to provide expert content validity; and
- Dealing with nuances around specific technicalities in the reliability and validity testing, such as the rotation and loading of factors and interpretation of goodness of fit (GoF) in test procedures such EFA and CFA.

Whilst the two-factor ERM values construct structure ultimately provided a significant degree of explanatory power for a broad and comprehensive ERM values measure (which in turn demonstrated statistical significance as per the EFA and CFA testing), as well as reliability and validity, there is clearly further potential for refinement of the instrument.

For example, additional optimisation of the item pool and factor loading and structure, as well as cross-validation of the scale beyond the culture values dimensions that can still take place. The most obvious example is to utilise the ERMVS within a study of a broader management sample across a broader set of organisations – and one that includes management functions of the organisation beyond those typically associated with enterprise risk management. This speaks to the generalisability of the ERMVS and the findings of the study – all three of the samples of this study purposefully incorporated risk management professionals. Whilst this positively impacted development of the ERMVS in its conception, most specifically its content validity, future studies will need to incorporate a broader sample of management practitioners in order to increase the generalisability of the ERMVS and enhance its utility. Ultimately, the ERMVS will see its greatest value in a broader context in investigating phenomena within organisations.

Some technical limitations of the empirical scale and construct development methodology have been discussed in detail in the results chapter, for example around the ICC or GoF measures, and why some of the results may have reflected as they did. The ‘mechanistic’ and ‘organic’ classifications, whilst very promising and underpinned by a long history of theory in the business and management sciences were based on a resilient, but old, body of literature, and required interpretation by the researcher in terms of the classification matrix.

In the expert group process, many items were dropped from the initial pool of 102, which represented nine comprehensive ERM construct pillars. Referring to the discussions of formative vs. reflective indicators, in the modification indices stemming from the CFA of the two-factor model, there was potentially noise in the data with regards to relationships and directionality of the relationships between the variables and constructs. This could possibly be in part attributed to bias – a well-known phenomenon in studies collecting primary data. In a refinement, or norm development, of the two-factor model, besides dropping items, or directing the relationships

between variables, original items from the initial pool of 102 that demonstrate theoretical importance may contribute to explanatory power and the accuracy of the model. These could be re-introduced in further testing and sub-scale development within the nomological network.

As was discussed in the introduction, MacKenzie et al. (2011), in their seminal article on construct measurement and validation procedures, summarised the “life’s work” aspect of construct development in the business and management sciences. They pointed towards Nunnally and Bernstein (1994: 87-88) who commented that “each scientist can only perform a relatively small number of major studies in a lifetime, which leaves insufficient time to do all that is required to specify the domain of a construct, develop measures of the construct, and relate these measures to other variables of interest”. Having now reached the conclusion of this study, while its contribution is tangible and the findings documented, this limitation certainly applies to the work in this dissertation. Future research directions, including the promising areas for further development of the ERMVS are highlighted in the section which follows.

5.4 FUTURE RESEARCH DIRECTIONS

There are a number of interesting future research directions to pursue from this study. One of the most tangible future research directions is to embark on the next step of scale development for the ERMVS. As alluded to above, this includes the setting of norms by continuing with the empirical work around the CFA and SEM analysis of the data emanating from the two-factor ERMVS model. The modification indices for the two-factor ERMVS model were exhibited in Tables 4.14 and 4.15 and these show some clear opportunities from a statistical perspective to optimise the factor loadings – for example by “freeing” the covariances. Potentially the organic and mechanistic constructs could be developed independently, or as part of a greater nomological network. Determining direction between the variables and causality is an important topic to address. Asparouhov and Muthén (2009) discussed exploratory SEM as a mechanism for such studies, whereby EFA and CFA are incorporated in SEM to refine models with a variety of theoretical and statistical inputs. A strong warning here is that any changes made must have strong theoretical underpinnings. For example, an item which is found to statistically not load on one of the factors, should not just be dropped; there should be a theoretical explanation to such a decision and the relationships between variables considered, for example if they are formative or reflective. In future research efforts with the ERMVS, it will be important to ensure any modifications are driven by theory and empirical testing with an eye on the proposed design and sample of the future study.

In conjunction with above statistical analysis, the theoretical component of the mechanistic and organic aspects of the constructs and items can be further developed to explore nuances in the classification matrix. As Burns and Stalker (1961) indicated, organisations are not either organic or mechanistic, but exist on a continuum of this scale. Due to the importance of the pillars, such as

continual improvement, in the framework of ERM, the mechanistic and organic aspects of ERM very much warrant further investigation. For example, further theoretical analysis of the nine pillars of the ERM domain construct for appropriate items to re-include in the scale, and to determine which aspects of the nine pillars are organic or mechanistic.

Concerning content validity of the ERMV constructs, the results of the ICC tests of the expert group in this study showed a statistically significant, but low agreement between the judges of the items. It should be noted, that as alluded to above, ERM is a continuously evolving discipline, and key success factors could change or develop, and so in future, the item pool needs ongoing adjustment to remain relevant. For these reasons, it is important that future research will continue to utilise an expert group to refine and optimise the ERMVS item pool.

Another future research direction is to revisit the item pool with a view on not just optimising the current 23 ERMVS items, their wording etc., but perhaps including additional items back into the scale, for example based on the analysis of organic and mechanistic composition as proposed above. The drop from 102 to 23 items via the expert group testing was fairly significant, and done to provide a practical instrument. In hindsight, some important items to the scale may have been potentially inappropriately culled. Future ERMVS research could also incorporate additional technical nuances around item evaluation, for example, a mechanism whereby pairs of items are rated against each other to determine which scores higher, as well as reverse scored items to increase the diversity of the scale, and remove bias.

In selecting samples for future studies incorporating the ERMVS and testing hypotheses around the ERMVs constructs, researchers could select samples lending themselves to time series. According to MacKenzie et al. (2011), in order to determine the value of the ERMVS to business and management sciences theory (and also increase generalisability thereof), researchers could test the same respondents multiple times, over a period of a year, for example, to see if scores change systematically based on other moderators or influencers. This would promulgate significant findings in the domain of organisational behaviour, such as investigations into the effect of change management on ERM implementation.

Future research directions should certainly address additional aspects of criterion-related as well as predictive validity. Hypothesis testing is key to such evaluations. For example, samples could be purposefully selected and tested based on whether they are hypothesised to demonstrate high or low scores on the ERMVS and focal constructs. At this stage, the outcomes of endorsing one or the other ERMV factor are not known, and variables, such as firm performance, for example, need to be introduced with which to test these relationships. Further studies could be designed to test specific variables that can be manipulated and are hypothesised to exhibit a direct relationship with the ERMVs scores, such as calamitous events within the organisation. Predictors of risk taking in established in the decision sciences could also provide correlates for testing and norm development of the ERMVS. Testing scores on the ERMVS (stated values) against actual

observed behaviours also represents a promising direction for further research. Studies framed as such are experiments, whereby both values and behaviours are tested. They often provide valuable insights into how accurately values scales, such as the ERMVS, reflect actual behaviours related to the phenomenon or domain construct.

In the review of the ERM literature, it was evident that the majority of studies measuring ERM either relied on statistical analysis of secondary data (such as evidence of a CRO), or were qualitative investigations featuring case studies of organisations. If the methodologies of, for example, Florio and Leoni (2017) and Mikes (2009) or Woods (2009) were combined with the ERMVS in one study, this would represent a true triangulation for empirical testing of the ERM phenomenon. In this example, the secondary data of the firms could be tested in terms of the ERM Index developed by Florio & Leoni (2017), the managers in the firms would report ERMVS scores, and selected organisations would furthermore be subjected to the qualitative methodology (observation of actual behaviour) as expounded by Mikes (2009). Such a study would require a great amount of coordination, but would truly give a deep and valuable understanding of ERM values and practices in those organisations. This in turn, would ultimately contribute to the management sciences by providing insights into a potential means of enabling an organisation to achieve its objectives and improve organisational value.

To finally conclude, the ERMVS was rigorously tested with many empirical methods, and the findings are promising, in particular, explanatory power and factor structure of the model with its two constructs, and the clear path towards modification and refinement. Ultimately, these constructs can also act to help predict work attitudes and behaviours, which is a significant contribution to the business and management sciences from both an academic and practitioner standpoint. The main thrust of the future research directions from this study is to further expand this concept of developing a higher order, multi-dimensional construct to act as an ERM values scale. This will provide valid and reliable outputs for management sciences research and practice in a variety of domains and ultimately lead to ERM living up to its paradigm of a formalised risk management process. Namely that it supports organisations in achieving their objectives, providing both resilience and opportunity for organisations in the face of uncertainty.

REFERENCES

- Alasuutari, P., Bickman, L. & Brannen, J. (eds.). (2008). *The SAGE handbook of social research methods*. Thousand Oaks, CA, USA: Sage publications.
- Altuntas, M., Berry-Stölzle, T.R. & Hoyt, R.E. (2011). Implementation of enterprise risk management: Evidence from the German property-liability insurance industry. *The Geneva papers on risk and insurance – issues and practice*, **36**(3), 414-439.
- Aon. (2015). *Global Risk Management Survey 2015*. [Online] Available: www.aon.com/forms/2015/2015-global-risk-management-survey.jsp Accessed: 24 April 2016.
- Arbutnot, J. (1692). *Of the laws of chance, or, a method of calculation of the hazards of game, plainly demonstrated, and applied to games as present most in use*.
- Arena, M., Arnaboldi, M. & Azzone, G. (2010). The organizational dynamics of enterprise risk management. *Accounting, organizations and society*, **35**(7), 659-675.
- Arena, M., Arnaboldi, M. & Azzone, G. (2011). Is enterprise risk management real? *Journal of risk research*, **14**(7), 779-797.
- Asparouhov, T. & Muthén, B. (2009). Exploratory structural equation modeling. *Structural equation modeling: A multidisciplinary journal*, **16**(3), 397-438.
- Bagozzi, R.P. & Edwards, J.R. (1998). A general approach for representing constructs in organizational research. *Organizational research methods*, **1**(1), 45-87.
- Baron, D. (2008). *MTN group limited CASE* – reference no. P65, Stanford Business School.
- Beasley, M.S., Clune, R. & Hermanson, D.R. (2005). Enterprise risk management: An empirical analysis of factors associated with the extent of implementation. *Journal of accounting and public policy*, **24**(6), 521-531.
- Bennett, N. & Lemoine, G.J. (2014). What a difference a word makes: Understanding threats to performance in a VUCA world. *Business horizons*, **57**(3), 311-317.
- Bernstein, P.L. (1996). *Against the gods: The remarkable story of risk*. New York, USA: John Wiley & Sons, Inc.
- Bromiley, P., McShane, M., Nair, A. & Rustambekov, E. (2015). Enterprise risk management: Review, critique, and research directions. *Long range planning*, **48**(4), 265-276.
- Burns, T.E. & Stalker, G.M. (1961). *The management of innovation*. London, UK: Tavistock Publications.
- Cadbury, A. (1992). *The code of best practice*. Report of the Committee on the financial aspects of corporate governance, Gee and Co Ltd, 27.
- Churchill Jr, G.A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of marketing research*, February, **16**(1), 64-73.

- Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2004). *Enterprise risk management – integrated framework*. [Online] Available: <https://www.coso.org/Documents/COSO-ERM-Executive-Summary.pdf> Accessed: 24 April 2016.
- Conway, J.M. & Huffcutt, A.I. (2003). A review and evaluation of exploratory factor analysis practices in organizational research. *Organizational research methods*, **6**(2), 147-168.
- Costello, A.B. & Osborne, J.W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical assessment, research & evaluation*, **10**(7), 1-9.
- Covello, V.T. & Mumpower, J. (1985). Risk analysis and risk management: An historical perspective. *Risk analysis*, **5**(2), 103-120.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, **16**(3), 297-334.
- Datta, D.K., Guthrie, J.P. & Wright, P.M. (2005). Human resource management and labor productivity: does industry matter? *Academy of management journal*, **48**(1), 135-145.
- De Winter, J.D., Dodou, D. & Wieringa, P. (2009). Exploratory factor analysis with small sample sizes. *Multivariate behavioral research*, **44**(2), 147-181.
- Diamantopoulos, A. & Sigauw, J.A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British journal of management*, **17**(4), 263-282.
- Dickinson, G. (2001). Enterprise risk management: Its origins and conceptual foundation. *The Geneva papers on risk and insurance – issues and practice*, **26**(3), 360-366.
- Drucker, P.F. (1959). Long-range planning – challenge to management science. *Management science*, **5**(3), 238-249.
- El Akremi, A., Gond, J.P., Swaen, V., De Roeck, K. & Igalens, J. (2015). How do employees perceive corporate responsibility? Development and validation of a multidimensional corporate stakeholder responsibility scale. *Journal of management*, doi: 10.1177/0149206315569311.
- Fabrigar, L.R., Wegener, D.T., MacCallum, R.C. & Strahan, E.J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological methods*, **4**(3), 272.
- Florio, C. & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian case. *The British accounting review*, **49**(1), 56-74.
- Fraser, J. & Simkins, B. (2010). *Enterprise risk management: Today's leading research and best practices for tomorrow's executives*. Hoboken, New Jersey, USA: John Wiley & Sons.
- Frey, L., Botan, C.H., Friedman, P.G. & Kreps, G.L. (1991). *Investigating communication: An introduction to research methods*. First edition. Englewood Cliffs, NJ, USA: Prentice Hall College Division.

- Gates, S., Nicolas, J. & Walker, P.L. (2012). Enterprise risk management: A process for enhanced management and improved performance. *Management accounting quarterly*, **13**(3), 28-38.
- Gerhart, B. (2009). How much does national culture constrain organizational culture? *Management and organization review*, **5**(2), 241-259.
- Gordon, L.A., Loeb, M.P. & Tseng, C. (2009). Enterprise risk management and firm performance: A contingency perspective. *Journal of accounting and public policy*, **28**(4), 301-327.
- Gorsuch, R.L. (1983). *Factor analysis*. Second edition. Hillsdale, NJ, USA: Lawrence Erlbaum Associates.
- Guttman, L. (1945). A basis for analyzing test-retest reliability. *Psychometrika*, **10**(4), 255-282.
- Hardesty, D.M. & Bearden, W.O. (2004). The use of expert judges in scale development: Implications for improving face validity of measures of unobservable constructs. *Journal of business research*, **57**(2), 98-107.
- Hillson, D. & Murray-Webster, R. (2007). *Understanding and managing risk attitude*. Aldershot, UK: Gower Publishing, Ltd.
- Hinkin, T.R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational research methods*, **1**(1), 104-121.
- Hofstede, G. (2003). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Thousand Oaks, CA, USA: Sage publications.
- Hofstede, G., Hofstede, G.J. & Minkov, M. (2010). *Cultures and organizations: Software of the mind. Intercultural cooperation and its importance for survival*. New York, USA: McGraw Hill.
- House, R.J., Hanges, P.J., Javidan, M., Dorfman, P.W. & Gupta, V. (eds.). (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA, USA: Sage publications.
- Hoyt, R.E. & Liebenberg, A.P. (2011). The value of enterprise risk management. *Journal of risk and insurance*, **78**(4), 795-822.
- Hoyt, R.E. & Liebenberg, A.P. (2015). Evidence of the value of enterprise risk management. *Journal of applied corporate finance*, **27**(1), 41-47.
- Hu, L.T. & Bentler, P.M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological methods*, **3**(4), 424.
- International Standards Organization (ISO). (2009). *31000: 2009 Risk management – Principles and guidelines*. International Organization for Standardization, Geneva, Switzerland.
- The Institute of Risk Management (IRM). (2012). *Risk culture: Resources for practitioners*. United Kingdom.
- Javidan, M., Dorfman, P.W., De Luque, M.S. & House, R.J. (2006). In the eye of the beholder: Cross cultural lessons in leadership from project GLOBE. *The academy of management perspectives*, **20**(1), 67-90.

- Kahneman, D. (2011). *Thinking, fast and slow*. New York, NY, USA: Macmillan: Farrar, Straus and Giroux.
- Kaplan, R.S. (2011). Accounting scholarship that advances professional knowledge and practice. *The accounting review*, **86**(2), 367-383.
- Kimbrough, R.L. & Compton, P.J. (2009). The relationship between organizational culture and enterprise risk management. *Engineering management journal*, **21**(2), 18-26.
- King, M.E. (2009). *King report III on governance for South Africa*. King Committee on corporate governance. Institute of Directors, Southern Africa.
- Kline, R.B. (2015). *Principles and practice of structural equation modeling*. New York, USA: Guilford publications.
- Knight, F.H. (1921). *Risk, uncertainty and profit*. New York, NY, USA: Hart, Schaffner & Marx.
- Langlois, R.N. & Cosgel, M.M. (1993). Frank knight on risk, uncertainty, and the firm: A new interpretation. *Economic inquiry*, **31**(3), 456-465.
- Liebenberg, A.P. & Hoyt, R.E. (2003). The determinants of enterprise risk management: Evidence from the appointment of chief risk officers. *Risk management and insurance review*, **6**(1), 37-52.
- Lim, C.Y., Woods, M., Humphrey, C. & Seow, J.L. (2017). The paradoxes of risk management in the banking sector. *The British accounting review*, **49**(1), 75-90.
- MacCallum, R.C., Widaman, K.F., Zhang, S. & Hong, S. (1999). Sample size in factor analysis. *Psychological methods*, **4**(1), 84.
- MacKenzie, S.B., Podsakoff, P.M. & Podsakoff, N.P. (2011). Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing techniques. *MIS quarterly*, **35**(2), 293-334.
- McGraw, K. O. & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological methods*, **1**(1), 30.
- McShane, M.K., Nair, A. & Rustambekov, E. (2011). Does enterprise risk management increase firm value? *Journal of accounting, auditing & finance*, **26**(4), 641-658.
- Mearns, K. & Yule, S. (2009). The role of national culture in determining safety performance: Challenges for the global oil and gas industry. *Safety science*, **47**(6), 777-785.
- Medsker, G.J., Williams, L.J. & Holahan, P.J. (1994). A review of current practices for evaluating causal models in organizational behavior and human resources management research. *Journal of management*, **20**(2), 439-464.
- Meidell, A. & Kaarbøe, K. (2017). How the enterprise risk management function influences decision-making in the organization – a field study of a large, global oil and gas company. *The British accounting review*, **49**(1), 39-55.

- Merriam-Webster. (2004). *Merriam-Webster's collegiate dictionary: Risk*. 11th edition. Springfield, MA, USA: Merriam-Webster Inc.
- Mikes, A. (2009). Risk management and calculative cultures. *Management accounting research*, **20**(1), 18-40.
- Mikes, A. (2011). From counting risk to making risk count: Boundary-work in risk management. *Accounting, organizations and society*, **36**(4), 226-245.
- Mikes, A. & Kaplan, R.S. (2015). When one size doesn't fit all: Evolving directions in the research and practice of enterprise risk management. *Journal of applied corporate finance*, **27**(1), 37-40.
- Morgado, F.F., Meireles, J.F., Neves, C.M., Amaral, A.C. & Ferreira, M.E. (2017). Scale development: Ten main limitations and recommendations to improve future research practices. *Psicologia: Reflexão e crítica*, **30**(1), 3.
- Nocco, B. W. & Stulz, R. M. (2006). Enterprise risk management: Theory and practice. *Journal of applied corporate finance*, **18**(4), 8-20.
- Nunnally, J.C. & Bernstein, I.H. (1994). *Psychological theory*. New York, NY, USA: McGraw-Hill.
- O'Neill, J., Wilson, D., Purushothaman, R. & Stupnytska, A. (2005). *How solid are the BRICs*. Goldman Sachs. Global Economics Paper No. 134. [Online] Available: <http://www.goldmansachs.com/our-thinking/archive/archive-pdfs/how-solid.pdf> Accessed: 21 May 2017.
- Paape, L. & Speklé, R.F. (2012). The adoption and design of enterprise risk management practices: An empirical study. *European accounting review*, **21**(3), 533-564.
- Park, H. (1993). Cultural impact on life insurance penetration: A cross-national analysis. *International journal of management*, **10**, 342-342.
- Park, H., Borde, S.F. & Choi, Y. (2002). Determinants of insurance pervasiveness: A cross-national analysis. *International business review*, **11**(1), 79-96.
- Pelzer, J. & Pelzer, L. (1982). Coffee houses of Augustan London. *History today*, **32**(10), 40-47.
- Power, M. (2004). The risk management of everything. *The journal of risk finance*, **5**(3), 58-65.
- Power, M. (2009). The risk management of nothing. *Accounting, organizations and society*, **34**(6), 849-855.
- Purdy, G. (2010). ISO 31000: 2009 setting a new standard for risk management. *Risk analysis*, **30**(6), 881-886.
- Reigle, R.F. (2003). *Organizational culture assessment: Development of a descriptive test instrument*. PhD dissertation, The University of Alabama in Huntsville, USA.
- Schermelleh-Engel, K., Moosbrugger, H. & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of psychological research online*, **8**(2), 23-74.

Schwab, K. (2016). *The fourth industrial revolution: what it means, how to respond*. World Economic Forum. [Online] Available: <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/> Accessed: 19 May 2015.

Shenkir, W.G., Barton, T.L. & Walker, P.L. (2010). Enterprise risk management: lessons from the field. In Fraser, J. & Simkins, B.J. (eds.), *Enterprise risk management – today's leading research and best practices for tomorrow's executives*, Chapter 24, 441-463. Hoboken, NJ, USA: John Wiley & Sons.

Shrout, P.E. & Fleiss, J.L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological bulletin*, **86**(2), 420.

Sjöberg, L. (2002). Are received risk perception models alive and well? *Risk analysis*, **22**(4), 665-669.

Spearman, C. (1904). The proof and measurement of association between two things. *The American journal of psychology*, **15**(1), 72-101.

Spearman, C. (1927). *The abilities of man: their nature and measurement*. London, UK: MacMillan and Company.

Standard & Poor's (S&P). (2007). *Industry report card: enterprise risk management can help US commercial lines insurers ward off irrational pricing*, 30 April.

Stata Corp. (2015). *Stata Statistical Software*, Release 14. College Station, TX, USA: Stata Corp LP.

Tabachnick, B.G., Fidell, L.S. & Osterlind, S.J. (2001). *Using multivariate statistics*. New York, USA: Pearson's publishing.

Taleb, N.N. (2007). Black swans and the domains of statistics. *The American statistician*, **61**(3), 198-200.

Taras, V., Roney, J. & Steel, P. (2009). Half a century of measuring culture: Review of approaches, challenges, and limitations based on the analysis of 121 instruments for quantifying culture. *Journal of international management*, **15**(4), 357-373.

Theil, M. & Ferguson, W.L. (2003). Risk management as a process: an international perspective. *Review of business*, **24**(3), 30.

Trompenaars, F. & Hampden-Turner, C. (2011). *Riding the waves of culture: understanding diversity in global business*. London, UK: Nicholas Brealey Publishing.

Turnbull Committee. (1999). *Working party of the committee on corporate governance. Internal control: guidance for directors on the combined code*. London, UK. [Online] Available: <https://www.governance.co.uk/resources/item/259-the-turnbull-report> Accessed: 21 May 2017.

University of Stellenbosch. (2017). *Human research (humanities) ethics*. [Online] Available: <http://www0.sun.ac.za/research/research-integrity-and-ethics/human-research-humanities-ethics-1.html> Accessed: 18 May 2017.

USA Congress (2002). *The Sarbanes-Oxley Act*. Washington DC, USA. [Online] Available: <https://www.sec.gov/about/laws/soa2002.pdf> Accessed: 21 May 2017.

Valsamakis, A., Vivian, R., & DuToit, G. (2010). *Risk Management*. 4ed. Sandton, RSA. Heinemann.

Van der Stede, W.A. (2011). Management accounting research in the wake of the crisis: some reflections. *European accounting review*, **20**(4), 605-623.

Venaik, S. & Brewer, P. (2010). Avoiding uncertainty in Hofstede and GLOBE. *Journal of international business studies*, **41**(8), 1 294-1 315.

Weir, J.P. (2005). Quantifying test-retest reliability using the intraclass correlation coefficient and the SEM. *Journal of strength and conditioning research*, **19**(1), 231.

Woods, M. (2009). A contingency theory perspective on the risk management control system within Birmingham city council. *Management accounting research*, **20**(1), 69-81.

Yao, G., Wu, C.H., & Yang, C.T. (2008). Examining the content validity of the WHOQOL-BREF from respondents' perspective by quantitative methods. *Social indicators research*, **85**(3), 483-498.

Young, J. (2006). *Operational risk management*, Chapter 2: The practical application of a qualitative approach. Pretoria, RSA: Van Schaik publishers.

Zak, P. 2013. *Measurement myopia*. The Drucker Institute, 4 July. <http://www.druckerinstitute.com/2013/07/measurement-myopia/> Accessed: 21 May 2017.

Zwikael, O. & Ahn, M. (2011). The effectiveness of risk management: an analysis of project risk planning across industries and countries. *Risk analysis*, **31**(1), 25-37.

APPENDIX A: FULL ERM ITEM POOL

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
1	3.50	X	Altuntas	EC	Risk Culture	The organisation develops a risk management culture that influences employees and stakeholders to consider risk information in their decisions
2	3.44	X	IRM	C&C	Escalation	The organisation has a clearly-defined chain of accountability and escalation for risk management issues
3	3.44	X	Arena	RA	Comprehensiveness	The organisation takes into consideration a comprehensive range of risks from all relevant categories, such as financial, operational and reputational
4	3.44	X	Gates - RR1	RA	Regular basis	Formal risk identification and assessment is conducted throughout the organisation on a regular basis
5	3.39	X	ISO	FD	Policy	The organisation's risk management policy clearly states objectives for, and commitment to, risk management
6	3.39	X	ISO	FD	Embedded	Risk management is embedded in the organisation's practices and processes in a way that is relevant, effective and efficient
7	3.39	X	Woods	FD	Tailored	The risk management framework is tailored to the type of organisation, its industry or sector, its architecture (i.e. functional areas and operating units) and processes
8	3.39	X	S&P	M&C	Governance	The organisation's governance structure reflects the influence of risk and risk management on decision-making across the organisation
9	3.39	X	Woods	RM&R	Action Plans	Action plans relating to risks and their treatment are distributed and assigned to individual owners in the organisation and systematically followed up on
10	3.33	X	IRM	C&C	Relationships	The risk management function of the organisation builds and sustains relationships across all areas of the organisation, including executive leadership
11	3.33	X	Altuntas	M&C	RM Authority	The organisation's risk management department / function exerts real authority derived from executive leadership

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
12	3.33	X	Gates - IE 1	M&C	Management communication	The organisation's leadership conveys the value proposition and benefits of risk management to employees
13	3.28	X	IRM	CI	Employees improving	In the organisation, all employees take responsibility for improving risk management
14	3.28	X	S&P	CI	Learnings	The organisation learns from experience and adjusts its risk management practices to improve its ability to measure and manage risk
15	3.28	X	Arena	EC	Understand roles	The organisation's risk management framework spans across the organisation, and employees have a clear understanding of their roles and responsibilities with regards to risk management
16	3.28	X	ISO	EC	Understand External	The organisation has an understanding of its external context, including the legal, regulatory, economic and competitive environment and the key drivers and trends impacting objectives and how they relate to risk management
17	3.28	X	Shenkir	FD	Framework Holistic	The risk management framework is holistic, taking a systemic view to integrate risk management within the organisation, countering the effects of silos (even possible silos of risk excellence such as the IT or insurance functions) in functions or operating units
18	3.28	X	Aon	M&C	Exec sponsor	The organisation has a visible risk management "sponsor" or "champion" in senior management
19	3.28	X	IRM	M&C	Direction	The organisation's leadership sets clear expectations and strategic direction for risk management
20	3.28	X	ISO	M&C	Exec endorsement	Senior management clearly defines and endorses the organisation's risk management policy
21	3.22	X	IRM	C&C	Quality	Quality risk information is demanded as part of the decision-making process within the organisation
22	3.22	X	Arena	FD	Integration	The organisation integrates ERM with other existing practices and processes such as strategic planning, budgeting and auditing
23	3.22	X	Gates - RR5	RT	BU Mitigation	The organisation develops and determines risk mitigation strategies within the business or operating unit level, closest to the risks

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
24		X	Altuntas	C&C	Accessibility	Resources and information on risk management are readily accessible to all employees, for example on the organisation's Intranet
25		X	Arena	C&C	Communication performance	The organisation regularly communicates with all stakeholders on risk management performance
26		X	IRM	C&C	Transparency	Transparency on risk information both positive and negative is rewarded within the organisation
27		X	IRM	C&C	Timeliness	Risk information is communicated timeously within the organisation
28		X	IRM	C&C	Forum	The organisation has an accessible forum for communication around risk issues
29		X	ISO	C&C	Internal Communication	Internal communication and reporting mechanisms support and encourage accountability and ownership of risk within the organisation
30		X	ISO	C&C	External Communication	External communication and reporting mechanisms engage appropriate external stakeholders, ensuring the organisation effectively exchanges risk information and provides clarity in risk disclosure
31		X	ISO	C&C	External confidence	The organisation utilises external communication of the organisation's risk management activities to build confidence in the organisation
32		X	Gates - IC 1	C&C	Language	There is an organisation-wide common language for communicating risks, risk management activities and monitoring efforts
33		X	Altuntas	CI	EA evaluation	The quality of the organisation's risk management process is regularly evaluated by external auditors or consultants with written assessments provided
34		X	Aon	CI	Human capital	The organisation incorporates risk management insights to develop its human capital processes and drive sustainable performance
35		X	Arena	CI	Performance reward	The organisation has a risk management performance process in place to identify and reward appropriate risk behaviour
36		X	IRM	CI	Insights	Insights on risk provided by employees are rewarded and encouraged in the organisation

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
37		X	IRM	CI	Whistleblower	The organisation has channels for confidential reporting of risk information i.e. "Whistleblower" hotlines
38		X	ISO	CI	Continual improvement	Based on results of monitoring and reviews, the organisation's risk management framework, policy and plan are continuously updated and improved
39		X	Woods	CI	IA evaluation	The quality of the organisation's risk management process is regularly evaluated by Internal Audit (IA) with written assessments provided
40		X	Woods	CI	Skills development	The risk management function is developing resources and skills to meet the organisation's objectives
41		X	Aon	EC	Value creation	The organisation intends to utilise risk management for value creation
42		X	Aon	EC	Stakeholders	The organisation considers a broad base of stakeholders such as customers and suppliers in establishing the context for risk management
43		X	COSO	EC	Understand objectives	Management and employees understand the organisation's risk management objectives and how they relate to and effect their job and tasks
44		X	ISO	EC	Risk model	The organisation has a common definition of the risk model used for assessing risks, including risk categories, definitions of probability (likelihood), impact (severity) and frequency
45		X	ISO	EC	Understand Internal	The organisation has an understanding of its internal context, including structure, roles, accountabilities and policies, objectives and strategies and how they relate to risk management
46		X	Paape	EC	Appetite decisions	A defined risk appetite is taken into account in conjunction with the organisation's objectives and decision-making processes
47		X	Paape	EC	Tolerance	The organisation explicates and/or quantifies risk tolerance, a measure that indicates excessively high or low risk in order to determine deviation from objectives and inform whether to take more or less risk
48		X	Paape	EC	Delegation	The accountability for identification, evaluation, assessment and management of risks lies with those employees in the organisation closest to the source of the risks

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
49		X	Woods	EC	Compliance	The organisation's risk management framework ensures compliance with legal and regulatory requirements
50		X	Altuntas	FD	Governance	The organisation utilises corporate governance issues, such as compliance to industry or listed-company codes, in developing the risk management framework design
51		X	Arena	FD	Framework Champion	The organisation utilises "risk champions" to carry the risk management framework into the operating units and functional areas to support achievement of objectives
52		X	ISO	FD	Resources	The organisation allocates appropriate resources for risk management by considering people, skills, experience and competence in following the processes for managing risk
53		X	ISO	FD	Process definition	The risk management policy, framework, processes and procedures of the organisation are clearly defined and documented in writing
54		X	ISO	FD	Timing	The organisation has an appropriate time plan for implementation of risk management
55		X	Shenkir	FD	Framework IA	The organisation's Internal Audit (IA) function is aligned with the risk management framework, giving input into the design of risk controls and/or auditing them
56		X	Altuntas	FM&R	Reporting Compliance	The organisation's ERM framework is regularly reviewed for compliance with new legal and regulatory requirements
57		X	Altuntas	FM&R	Reporting Committee	The organisation's risk committee meets regularly, reporting on progress of the organisation's risk management framework implementation
58		X	Altuntas	FM&R	Efficiency	The organisation regularly assesses the efficiency of the risk management process
59		X	IRM	FM&R	Boundaries	The organisation ensures boundaries set around the risk management framework i.e. following policies and procedures, are upheld
60		X	ISO	FM&R	Decision Making	Decision making in the organisation, including the development and setting of objectives, is aligned with the outcomes of the risk management process

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
61		X	ISO	FM&R	Periodic Review	The risk management framework, policy and plan are periodically reviewed for effectiveness and appropriateness given changes in the organisation's internal and external context
62		X	ISO	FM&R	Framework recording	To ensure traceability of its risk management activities, methods, tools and the overall risk management process are recorded and retained within the organisation
63		X	Paape	FM&R	EA	The organisation makes use of an external auditor or consultants to monitor and review the risk management framework
64		X	Gates - O1	FM&R	Written P&P	The organisation has established and regularly-updated written policy and procedure manuals that are consistent across major risks and the risk management framework
65		X	Woods	FM&R	IA	The organisation makes use of Internal Audit (IA) to monitor and review the risk management framework
66		X	Altuntas	M&C	Inspection Authority	The organisation's risk management department / function has the authority to inspect other departments and challenge risk information
67		X	ISO	M&C	Resources	The organisation allocates significant time/resources for risk management training or skills building
68		X	ISO	M&C	Performance indicators	The organisation incorporates risk management performance indicators in its overall performance indicators (i.e. KPIs)
69		X	S&P	M&C	Independent function	The organisation has an ERM function independent of profit centres, reporting directly to senior management
70		X	Shenkir	M&C	Risk budgeting	The organisation's planning, budgeting and capital allocation processes take into consideration risks and their treatment
71		X	Gates - IE2	M&C	Job description	The organisation incorporates accountability and responsibility for risk management into the job description of all managers
72		X	Woods	M&C	Training	Structured risk management training or risk management programmes are provided to the organisation's employees
73		X	Altuntas	RA	Assessment methods	The organisation utilises methods such as workshops, surveys, group discussions etc. to identify and assess risk

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
74		X	Altuntas	RA	Media risks	The organisation actively screens the media, including social media, for potential risks
75		X	Arena	RA	Evaluation method	The organisation evaluates risks using both qualitative (Rating scales, risk prioritisation, Heat Maps) and quantitative techniques (simulation, Monte Carlo analysis, Value At Risk)
76		X	Arena	RA	Overarching metric	The organisation ties risk quantification throughout the organisation to a common matrix or metric such as the capital budget or revenues
77		X	IRM	RA	Staff training	The organisation's employees are trained in utilising the risk assessment tools and outputs appropriate for their role in risk assessment
78		X	ISO	RA	Risk criteria	The organisation defines clear criteria reflecting the organisation's values, objectives and resources to evaluate the significance, nature and level of risk (i.e. a risk model, risk appetite definition)
79		X	Fraser	RA	Shared risks	Different functions in the organisation, such as marketing and technical, are cognisant that they share some key risks, for example product quality
80		X	Power	RA	Systemic risk	The organisation takes into account combinations of multiple risks and interdependencies of risks, the effect of which could be compounded or cumulative (systemic risk)
81		X	Gates - RR3	RA	Quantification	The organisation quantifies its key risks to the best extent possible
82		X	Altuntas	RM&R	Relevance data	The organisation examines the relevance and quality of data collected and utilised in the risk management process
83		X	Arena	RM&R	Prospective	The organisation utilises risk management analysis proactively for planning future actions such as budgeting and investment decisions
84		X	Arena	RM&R	KPIs	Key Performance Indicators (KPIs) are utilised throughout the organisation for measuring the risk-based performance of those accountable for specific risks
85		X	Arena	RM&R	Framework compensation	The organisation's management compensation is linked to risk management performance measures

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
86		X	IRM	RM&R	Outcomes challenged	The outputs of the risk management process are challenged within the organisation for example by stress testing or analysis of losses
87		X	Mikes	RM&R	Framework analysis	The organisation's risk monitoring and review process ensures that analysis and lessons learned from risk events such as near misses, losses and successes are incorporated in the risk management process
88		X	Mikes	RM&R	Framework KRIs	The organisation utilises Key Risk Indicators (KRIs), forward trend measurements, to monitor and report on risks
89		X	S&P	RM&R	Regular updates	Each area of the organisation is aware of and regularly updates and reviews the register of its top risks
90		X	Gates - P1	RM&R	Risk adjusted performance	Risk management allows the organisation to measure risk-adjusted performance among different operating / business units
91		X	Woods	RM&R	Framework IA	The organisation's audit committee / Internal Audit (IA) function is an integral part of the risk management process and linked to it to provide assessments
92		X	Woods	RM&R	RMIS SW	The organisation utilises a Risk Management Information System or similar IT system or Software (SW) to review and monitor risks and risk treatment in a comprehensive, structured and systematic way, providing a central repository from which to generate action plans and reports
93		X	Altuntas	RT	Treatment capital	Capital and/or budget is allocated to areas of the business based on successful outcomes of the risk treatment process
94		X	Aon	RT	Upside risk	The organisation's treatment of risk develops from focusing on risk avoidance and mitigation to leveraging risk and risk management options that extract value and focus on reward / upside
95		X	ISO	RT	Treatment Plans	Risk treatment plans of the organisation clearly document the implementation of treatment options including the reason for selection of the option and expected benefit to be gained
96		X	ISO	RT	Treatment accountability	Risk treatment plans of the organisation clearly document the individuals accountable for approving the plan, those responsible for implementing the plan and the expected outcome

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
97		X	King	RT	Mitigation writing	The organisation captures decided upon risk responses, treatments, mitigation actions and accountability in a risk register
98		X	King	RT	Treatment upside	Risk treatment also considers the identification and exploitation of opportunities for the organisation (opportunity or upside of risk)
99		X	King	RT	Black swans	The organisation scans its environment to plan in anticipation of emerging risks that could affect it in the future, and prepares for unpredictable, low likelihood/high impact risks - so-called "Black Swans" events (Risk resilience)
100		X	Purdy	RT	Mitigation	In mitigating risks, the organisation consciously pursues a variety of options, including avoiding, accepting, reducing or transferring risks
101		X	S&P	RT	Terminate risk	Risk controls are consistent with the the organisation's risk tolerances, and the risk treatment process ensures that if a risk is beyond the established risk appetite it is terminated or not taken
102		X	Power	RT	Framework BCP	The organisation's Business Continuity Planning (BCP) and/or Disaster Management (DM) is aligned with the risk management and risk mitigation process in preparation for crisis and unknown, emerging risks
103			Aon	C&C	Communication transparency	Communication regarding risk management must be transparent throughout the organisation
104			Arena	C&C	Ownership	Ownership of the risk management process is integrated, engaging people and systems across the organisation in a coordinated manner and promoting communication between risk specialists and the risk owners
105			Shenkir	C&C	External stakeholders	The organisation encourages open, bilateral communication with external stakeholders on risk
106			IRM	C&C	Expectations	Employees throughout the organisation are clear on what is expected to them in terms of risk management
107			IRM	C&C	Active discussion	Risk management issues are actively discussed in the organisation, for example between colleagues
108			IRM	C&C	Consistent delivery	Risk management messages are consistently delivered within the organisation

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
109			IRM	C&C	Speed communication	Leadership actively encourages information related to risk to travel quickly across the organisation
110			IRM	C&C	Format	Risk information is presented in a useful format that can be acted on within the organisation
111			IRM	C&C	Provide Direction	Direction is provided in the organisation as to how risk management contributes to the business objectives
112			ISO	C&C	Internal reporting	Internal reporting on the risk management framework, its effectiveness and the outcomes, is communicated appropriately upstream, downstream and across the organisation
113			ISO	C&C	Stakeholder Communication	The organisation clearly communicates its expectations for risk-taking (Risk Appetite) to appropriate stakeholders
114			ISO	C&C	Info & Training Sessions	The organisation conducts information and training sessions on risk management
115			ISO	C&C	External Governance	The organisation ensures external risk management communication and reporting mechanisms ensure compliance with legal, regulatory and governance requirements
116			ISO	C&C	Consultative stakeholders	The organisation adopts a consultative approach with regards to the risk management process, understanding and considering the interests of stakeholders
117			ISO	C&C	Consultative differences	A consultative approach with regards to the risk management process is utilised within the organisation, taking into consideration different areas of expertise and different views on risk
118			ISO	C&C	Internal Decisions	Internal communication and consultation takes place within the organisation, so that those responsible within for implementing the risk management process understand the basis on which decisions are made and why particular actions are required
119			ISO	C&C	External Decisions	External communication and consultation on risk management takes place so that the organisation's stakeholders (such as customers and suppliers) understand the basis on which decisions are made and why particular actions are required

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
120			ISO	C&C	Communication stakeholders	The organisation communicates the benefits of the risk management process to all stakeholders
121			King	C&C	Stakeholder disclosure	The organisation ensures complete, timely, relevant, accurate and accessible disclosure of risk to stakeholders
122			Paape	C&C	Report Frequency Internal	The organisation reports on risk to internal constituencies (stakeholders) 1=Never; 2=Ad Hoc; 3=Yearly; 4=Quarterly; 5=Monthly; 6= Weekly
123			Paape	C&C	Report Frequency External	The organisation reports on risk to external constituencies (stakeholders) 1=Never; 2=Ad Hoc; 3=Yearly; 4=Quarterly; 5=Monthly; 6= Weekly
124			Gates - IC 2	C&C	Board Informed	The Board and executive leadership of the organisation are regularly briefed on risk management issues
125			Gates- M3	C&C	Improved communication	Conducting formal, comprehensive risk management (ERM) improves an organisation's ability to communicate risk taking to the board and external stakeholders
126			Gates - OS3	C&C	Communicated risk appetite	The organisation clearly communicates expectations and willingness for risk-taking to its employees (Risk Appetite)
127			Gates - OS3	C&C	Communication Senior	The organisation should clearly communicate its expectations for risk-taking to senior managers
128			Altuntas	CI	RMIS Improvement	A Risk Management Information System (RMIS) or similar IT infrastructure and/or software (SW) is utilised to embed risk management into the organisation
129			Altuntas	CI	Suggestions opportunity	Employees have the opportunity to make suggestions for improvement regarding risk management in the organisation
130			Altuntas	CI	Suggestions improvement	Suggestions from employees are considered by leadership to improve risk management in the organisation
131			IRM	CI	Bad news	The organisation's leaders encourage 'Bad News' risk information to be communicated up the management chain

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
132			IRM	CI	Awareness	Risk awareness is recognised as a key competency within the organisation and is incorporated within employee criteria
133			ISO	CI	External feedback	External communication and reporting is utilised to elicit feedback on the organisation's implementation of risk management
134			ISO	CI	Ongoing Assessment	Risk assessment, treatment, monitoring and review occur on an ongoing basis within the organisation, leading to continual improvement
135			King	CI	Mgt Briefings	Management of the organisation receives regular briefings on changes in risks, laws and the environment to improve the risk management framework
136			King	CI	IA Assessments	Internal Audit provides written assessments of the organisation's risk management system
137			S&P	CI	Committed culture	A culture that demonstrates commitment to risk management permeates all levels of the organisation, with senior management taking the lead
138			King	CI	Sustainability	The organisation incorporates risk management into its sustainability process
139			McShane	CI	Risk Discussion	Employees have the opportunity to discuss risk issues with colleagues responsible for the risk management function
140			McShane	CI	Policy Behaviour	Employees look to the organisation's risk policy as part of everyday behaviour
141			Gates - P3	CI	Volatility	The organisation utilises risk management to improve earnings volatility over time
142			Gates - P4	CI	Profitability	The organisation utilises risk management to improve profitability over time
143			Altuntas	EC	Risk Decision	The organisation's employees consider risks in their decisions
144			Aon	EC	Risk Information	The organisation focuses on risk information in the decision-making processes

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
145			Arena	EC	Corporate view	Managers benefit from overall risk management analysis throughout the organisation and understand how risks in their areas relate to corporate strategy
146			S&P	EC	Management Compensation	The organisation's management and compensation is influenced by risk management
147			S&P	EC	Transparent Philosophy	The risk management philosophy is transparent across the organisation
148			Gates - ID1	EC	Risk Register	The organisation has established a comprehensive register of risks to be managed
149			Gates - ID2	EC	Workshops	Methods such as workshops and surveys are utilised to identify and map risks across the organisation
150			Gates - OS2	EC	Defined appetite	Clear tolerance levels or limits for all major risk categories are established across the organisation (Risk Appetite)
151			Gates - RR4	EC	Holism	The organisation has a process to integrate the effects of major risk types (i.e. strategic, operational, financial, hazard and legal)
152			Gates - RR5	EC	BU Level	The organisation's business / operational units identify and determine treatment strategies for risks as they are closest to the risks
153			Woods	EC	Methodologies	The organisation's risk model and risk assessment methodologies are clearly defined and communicated
154			Altuntas	FD	ERM function	The organisation has a separate / independent risk management department or function
155			Aon	FD	HC Process	The organisation's human capital process is integrated with risk management
156			Arena	FD	Localisation	The organisation addresses risks in a coordinated manner and aggregates them holistically, breaking the silo effect and localising risk classification
157			Arena	FD	Reporting function	The head of risk management in the organisation reports to finance

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
158			Hoyt	FD	Framework CRO	The organisation has a Chief Risk Officer (CRO) or senior manager dedicating an appropriate amount of time to risk management
159			ISO	FD	Accountability	The organisation ensures there is accountability, authority and appropriate competence for managing risk by facilitating individual responsibility and performance targets within job descriptions at all levels
160			ISO	FD	Process applied	The risk management policy and process are applied consistently throughout the organisation's functional areas and operating units
161			King	FD	Risk committee	The organisation has a risk committee that meets regularly to address risk management issues
162			Paape	FD	Retrospective Reporting	The organisation reports on retrospective (historical) risk issues such as general information on risks, the status of risk control activities, critical risk control indicators and incidents
163			Paape	FD	Prospective Reporting	The organisation reports on prospective (future) risk issues such as developments in the risk profile, significant internal changes, significant external changes and risk control improvements
164			Woods	FD	RMIS	A Risk Management Information System (RMIS) and/or other IT tools and Software are utilised to manage and report on information under the organisation's risk management framework
165			Arena	FM&R	Landscape Evaluation	Aspects of evaluating the ERM landscape – (1) Model and linkage to existing practices i.e. corporate governance, compliance, performance 92) Players (3) Technology i.e. ERM framework or process
166			ISO	FM&R	Reporting KPIs	Risk management performance indicators are regularly aligned with the performance indicators and values of the organisation
167			ISO	FM&R	Follow Framework	The organisation periodically reports on progress with the risk management plan and how well the risk management policy is being followed
168			King	FM&R	Compliance	The organisation's risk management framework is regularly updated to ensure legal and regulatory compliance

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
169			Gates- O2	FM&R	Monitor & Review	The risk management framework of the organisation is regularly and periodically monitored and reviewed by senior management
170			Gates - O3	FM&R	Reporting Metrics	The organisation has identified the key metrics required for reporting on risk management performance
171			Altuntas	M&C	Employee familiarity	The organisation's risk management policy, risk management framework and risk concepts have been communicated to employees to the point that they are familiar with them
172			Altuntas	M&C	Risk culture	The organisation's leadership specifically addresses the issue of risk management culture
173			Altuntas	M&C	Risk influence	The risk management function exerts an influence within the organisation
174			Aon	M&C	Board & Exec	The organisation's board and executive pay attention to risk management
175			COSO	M&C	Exec tone	The board and executive management set the organisation's tone and culture for risk management
176			IRM	M&C	Risk support	The organisation's leaders are supportive of those employees actively seeking to understand and manage risk issues
177			IRM	M&C	Embed risk culture	The organisation actively embeds a risk management culture aligned with the risk management policy
178			S&P	M&C	Strategic planning	Risk management is integrated into the organisation's core strategic planning process
179			Shenkir	M&C	Strategic objectives	The organisation has communicated clearly defined strategic objectives throughout the organisation, to which the risk management framework is aligned
180			Shenkir	M&C	RM focus objectives	The risk management framework influences the organisation to identify and focus on its objectives at all levels
181			McShane	M&C	Management Direction	Management of the organisation provides a clear sense of direction in relation to risk management

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
182			Gates - IE 3	M&C	Exec visibility	The organisation's leadership is visibly involved in the risk management process
183			Gates - OS 1	M&C	Risk and objectives	The organisation aligns its business risks with its goals and objectives
184			Altuntas	RA	Aggregation	The organisation aggregates risks into an overall risk assessment model for example through risk management software
185			Altuntas	RA	Interdependencies	In the risk assessment methodology, the organisation takes into account interdependencies of risks throughout the organisation
186			Aon	RA	Quantification	The organisation's objective, measurable risks are quantified in financial terms
187			Aon	RA	Analysis & Evaluation	Risk analysis and evaluation is utilised by the organisation to understand risk and demonstrate the value of risk management
188			COSO	RA	Appetite assess	The organisation assesses risk within clearly defined levels at which risk is acceptable or tolerable (risk appetite)
189			IRM	RA	Decision template	The organisation has a clear decision template for assessing risk
190			ISO	RA	Objective subjective	In risk assessment, the organisation considers both objective, measurable risk in combination with subjective, perceived risk
191			Mikes	RA	Interrelationship	The organisation's risk management framework takes into account the relationships between risks such as interdependence of risks
192			Power	RA	Risk modeling	The organisation models risks as they emerge for example through scenario analysis and decision trees
193			Paape	RA	Assessment frequency	The organisation conducts risk identification and assessment at regular intervals
194			Paape	RA	Assessment Level	The organisation conducts risk identification / assessment at various levels including senior management
195			Paape	RA	Quantitative Methods	The organisation quantifies risk with one or more of the following techniques: scenario analysis, sensitivity analysis, simulation, stress testing

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
196			Gates - RR2	RA	Root cause	The organisation formally analyses the root cause, impact and interrelationships of its risks
197			Aon	RM&R	Formal data collection	Formal collection and incorporation of operational and financial risk information into decision-making processes
198			Arena	RM&R	Report detail	Risk reports generated by the organisation include a detailed analysis of the risk management results
199			Arena	RM&R	IA	The organisation's Internal Audit (IA) function takes into consideration inputs from the risk management process in the planning of audit activities
200			IRM	RM&R	Thresholds	The organisation sets thresholds or trigger points at which to act on risk or opportunity
201			IRM	RM&R	Risks challenged	The organisation has an independent risk function that communicates and challenges risk information
202			IRM	RM&R	Individual accountability	All employees within the organisation are accountable for management of risk
203			IRM	RM&R	Employee decisions	The organisation's employees consider risks in their decision-making process
204			IRM	RM&R	RMIS	The organisation utilises a Risk Management Information System (RMIS), a software platform that captures risk registers, risk models etc., to coordinate risk management
205			ISO	RM&R	Updated risks	The organisation's risk monitoring and review process ensures that new, current information (e.g. changes in internal and external context), as well as identification of emerging risks, is integrated and continually improves risk assessment and treatment
206			King	RM&R	No Delegation	The accountability for identification, evaluation, assessment and management of risks within the organisation lies primarily with senior management
207			King	RM&R	Implementation distribution	Senior management of the organisation should be more accountable for risk management than the employees

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
208			King	RM&R	Board and exec accountability	The board and senior executives of the organisation should take the primary accountability for management of risk
209			King	RM&R	Function Authority	The organisation's risk management function (also via Internal Audit) has the authority to inspect other departments
210			S&P	RM&R	Risk controls	The organisation applies risk controls which effectively deliver the necessary effect on exposure and losses, clearly stating the control activity and owner
211			S&P	RM&R	Control testing	Risk controls are subject to metrics, stress-testing, validation or performance measurement
212			S&P	RM&R	Emerging risks	The organisation addresses emerging risks that could affect it in the future as a result of a changing environment such as government and regulation, the public, the environment etc.
213			S&P	RM&R	Environment Scan	The organisation scans the environment to anticipate and prepare for emerging risks
214			S&P	RM&R	Tolerance Analysis	The organisation identifies, analyses and keeps losses within the defined risk tolerance
215			S&P	RM&R	Models	The organisation utilises effective models which realistically provide insight into possible risks and support the risk management process
216			Gates - O2	RM&R	BU M&R	The organisation's business /operating units monitor and report on current status of managing key risks
217			ISO	RT	Treatment cycle	Risk treatment involves a cyclical process of assessing and generating risk treatments, deciding whether residual risk levels are tolerable, and assessing the effectiveness of those treatments
218			ISO	RT	Treatment stakeholders	Selecting the most appropriate risk treatment options, whether individually or in combination, the organisation considers the values and perceptions of various stakeholders
219			ISO	RT	Treatment monitoring	The organisation monitors risk treatments as an integral part of risk management to ensure that measures are met and remain effective

Item no.	Final items mean	Included content validity	Source	ERM dimension	Item alias	Statement
220			ISO	RT	Treatment Sustainability	When selecting risk treatment options, the organisation considers their costs and efforts of implementation against the benefits derived in terms of Sustainability (Social, Environmental & Economic)
221			ISO	RT	Treatment Residual	Decision makers and stakeholders are made aware of the nature and extent of the risk remaining after treatment (Residual risk)
222			S&P	RT	Data trends	The organisation analyses data trends, such as arising from losses, to improve the risk treatment process
223			S&P	RT	Similar risks	Similar risk types are treated in a coordinated and consistent manner across business units, functions and geographic locations
224			Shenkir	RT	Treatment appetite	The concept of risk appetite, the overall level of risk that the organisation is willing to accept given its capabilities and stakeholder expectations, is clearly addressed and communicated in the organisation's risk treatment process

List of sources used in Full ERM item pool	
Altuntas	Altuntas, M., Berry-Stölzle, T.R. & Hoyt, R.E. (2011). Implementation of enterprise risk management: Evidence from the German property-liability insurance industry. <i>The Geneva papers on risk and insurance – issues and practice</i> , 36 (3), 414-439.
Aon	Aon. (2015). <i>Global risk management survey 2015</i> . [Online] Available: www.aon.com/forms/2015/2015-global-risk-management-survey.jsp Accessed: date. 24 April 2016
Arena	Arena, M., Arnaboldi, M. & Azzone, G. (2010). The organizational dynamics of enterprise risk management. <i>Accounting, organizations and society</i> , 35 (7), 659-675.
COSO	Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2004). <i>Enterprise risk management – integrated framework</i> . [Online] Available: https://www.coso.org/Documents/COSO-ERM-Executive-Summary.pdf Accessed: 24 April 2016.
Fraser	Fraser, J. & Simkins, B. (2010). <i>Enterprise risk management: today's leading research and best practices for tomorrow's executives</i> . Hoboken, New Jersey, USA: John Wiley & Sons.
Gates	Gates, S., Nicolas, J. & Walker, P.L. (2012). Enterprise risk management: a process for enhanced management and improved performance. <i>Management accounting quarterly</i> , 13 (3), 28-38.
Hoyt	Hoyt, R.E. & Liebenberg, A.P. (2011). The value of enterprise risk management. <i>Journal of risk and insurance</i> , 78 (4), 795-822.
IRM	The Institute of Risk Management (IRM). (2012). <i>Risk culture: resources for practitioners</i> . United Kingdom.
ISO	International Standards Organization (ISO). (2009). <i>31000: 2009 Risk management – principles and guidelines</i> . International Organization for Standardization, Geneva, Switzerland.
King	King, M.E. (2009). <i>King report III on governance for South Africa</i> . King committee on corporate governance. Institute of Directors, Southern Africa.
McShane	McShane, M.K., Nair, A. & Rustambekov, E. (2011). Does enterprise risk management increase firm value? <i>Journal of accounting, auditing & finance</i> , 26 (4), 641-658.
Mikes	Mikes, A. (2011). From counting risk to making risk count: boundary-work in risk management. <i>Accounting, organizations and society</i> , 36 (4), 226-245.
Paape	Paape, L. & Speklé, R.F. (2012). The adoption and design of enterprise risk management practices: an empirical study. <i>European accounting review</i> , 21 (3), 533-564.
Power	Power, M. (2009). The risk management of nothing. <i>Accounting, organizations and society</i> , 34 (6), 849-855.
Purdy	Purdy, G. (2010). ISO 31000: 2009 setting a new standard for risk management. <i>Risk analysis</i> , 30 (6), 881-886.
Shenkir	Shenkir, W.G., Barton, T.L. & Walker, P.L. (2010). Enterprise risk management: lessons from the field. In Fraser, J. & Simkins, B.J. (eds.), <i>Enterprise risk management – today's leading research and best practices for tomorrow's executives</i> , Chapter 24, 441-463. Hoboken, NJ, USA: John Wiley & Sons.
S&P	Standard & Poor's (S&P). (2007). <i>Industry report card: enterprise risk management can help US commercial lines insurers ward off irrational pricing</i> , 30 April.
Woods	Woods, M. (2009). A contingency theory perspective on the risk management control system within Birmingham city council. <i>Management accounting research</i> , 20 (1), 69-81.

APPENDIX B:

FEEDBACK FROM THE EXPERT GROUP

Content validity	Survey instrument
At least one board member needs to be responsible for this area. Awareness of both civil and criminal consequences of failure to adequately address risk management issues. Lifetime training of Board members should also include risk management issues. This is not just an issue for senior management.	It's very hard to assign relative values - all of these things are important. Perhaps it might help to think in terms of maturity or what should be done first.
Senior management giving the correct example of how to behave in relation to risks/risk management	A large number of questions (too much?)
Need to break the "glass ceiling" between management and the board. Imperative to have meaningful Board commitment.	Time did not allow for a critique of whether the dimensions and their items were totally sufficient.
Comment: "...risks lies with those employees in the organisation closest to the source of the risks". I feel risk lies with all employees irrespective of rank and position. All employees need to understand and appreciate their role to reduce risk during planning, execution and business operations, be it strategic or functional lines.	Some of the items overlap, for example there are two consecutive items on risk management training which appear relatively similar
Consider information sharing (where not of a competitive nature) in industry organisations, and also in Risk Management organisations. Need for bench marking.	
Rather mitigate contributing factors for a risk than risk itself	
Establishing an organisation's true 'risk tolerance' is a huge milestone as it sets the base upon which risk performance of an organisation can be actively managed. Get this wrong, and the organisation may fail because its risk tolerance has been exceeded and the resources available to recover may not be sufficient. The business continuity management (BCM) plan needs to clearly define resources (inhouse, local, regional, national and international).	
Quality of risk resources and enthusiasm is a requirement for ensuring that risk management is embedded in the organisation.	
KRIs are the only true way to test risk management performance within an organisation as well from unit to unit. If you have KRIs that impact the 'pocket' you will receive the attention. If not, it is just another task that management will get to when resources allow. KRIs result in a sense of ownership which is a cornerstone of a successful RMS.	
Training of staff to use risk tools is very important. I maintain, no one knows the risks better than those who perform the job every day, therefore employees who understand and can use the risk tools will provide maximum value to the organisation. Failure to upskill employees in terms of risk management is a recipe for an unsuccessful RMS.	

Content Validity	Survey Instrument
<p>A well-documented RMS will go a long way to ensure a uniform and consistent application of the risk methodologies, tools and procedures. Employees come and go and therefore a well-documented ERM will be the point of call to ensure ERM objectives are met through proper risk management practices.</p>	
<p>Continual improvement needs to be measured in such a way that the employees and the organisation as whole understands that efforts made year on year reduce risks effectively. An important issue to acknowledge is that some risks will remain high, however mitigatory measures need to be intensified at those nodal points to ensure the risk tolerance level is maintained. Mitigatory measures should, at least, be preventative (procedures, training, signage), monitor and measure (financial performance monitoring, operational monitoring) and emergency preparedness and response (emergency plan, BCM plan, disaster management plan (DMP)).</p>	

APPENDIX C:

EXPERT GROUP CONTENT VALIDITY SURVEY



Content Validation of Enterprise Risk Management Dimensions and Items

This survey forms part of a PhD research project at the **University of Stellenbosch Business School (USB)** in South Africa investigating the effect of culture on **Enterprise Risk Management (ERM)** attitudes and behaviour.

This survey is being sent to risk management experts like you to assist in validating items measuring various components and aspects of an Enterprise Risk Management framework. These items can be viewed as measuring **ERM key success factors**, or indicators of ERM maturity. One expected outcome of the PhD research is the development of an ERM maturity index, which will assist organisations in assessing key success factors of ERM.

Key components of an **ERM framework**, recognisable from widely utilised standards such as COSO or ISO 31000, for example "Mandate & Commitment," "Risk Assessment" and "Monitoring & Reporting" have been labeled as "**dimensions**" in this survey. The individual questions / components that comprise each dimension are labeled "**items**."

Please score the items within each dimension on a scale of 1 to 4 (Less Important - Moderately Important - Very Important - Of Most Importance) as to how important you feel the items are to successful implementation of ERM **in the context of the other items in that dimension**. In other words how important is each item in measuring the dimension in question, in relation to the other items. **Each item should be scored.**

Please keep in mind, that most of these items will affect the specific dimension and ERM implementation as a whole. One objective of the survey is to **solicit expert opinion in differentiating between the items** and their relative importance. For this purpose it might assist to complete each item quickly with the first response that comes to mind. Please answer from **your personal perspective as a risk expert not** from the perspective of your organisation.

As a second element of the survey, please propose additional items for each dimension you believe are relevant to the dimension that have not been addressed in the available pool of items.

Finally, please indicate any additional dimensions you believe are important for a successful ERM framework or implementation that have not been included in this survey questionnaire.

The survey is expected to take approximately 20 minutes. There are 9 ERM dimensions in total.

If you are interested in receiving anonymous results from this research, or additional information on ERM, please indicate your email address in the space provided at the end of the questionnaire.

Thank you very much for your participation!



Mandate & Commitment (M&C)

This dimension of ERM measures the mandate and sustained commitment demonstrated by management of the organisation to introduce and ensure continued effectiveness of risk management. It addresses how management sets the tone for commitment to risk management in the organisation by means of alignment with strategic objectives, assigning risk management accountability, responsibility and performance measurement, and ensuring the necessary resources are available for risk management.

*** Mandate & Commitment**

For each of the following items, please indicate their **relative** importance to the above dimension of ERM **in the context of the other items in the pool**. Each item should be scored.

	Less Important	Moderately Important	Very Important	Of Most Importance
The organisation's leadership conveys the value proposition and benefits of risk management to employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation incorporates accountability and responsibility for risk management into the job description of all managers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Senior management clearly defines and endorses the organisation's risk management policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation incorporates risk management performance indicators in its overall performance indicators (i.e. KPIs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has an ERM function independent of profit centres, reporting directly to senior management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation allocates significant time/resources for risk management training or skills building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structured risk management training or risk management programmes are provided to the organisation's employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's risk management department / function exerts real authority derived from executive leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's risk management department / function has the authority to inspect other departments and challenge risk information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's planning, budgeting and capital allocation processes take into consideration risks and their treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has a visible risk management "sponsor" or "champion" in senior management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's governance structure reflects the influence of risk and risk management on decision-making across the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's leadership sets clear expectations and strategic direction for risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any additional items or components relevant to this dimension that you believe should be included for the measurement of this dimension?

Any comments on this dimension?



Framework Design (FD)

This dimension of ERM measures the design and establishment of the risk management framework within the organisation. Important components comprised in risk management framework design include establishing the risk management policy, ensuring accountability, authority, competency and controls for risk management throughout the organisation, effective and efficient integration of risk management into organisational processes and allocation of appropriate resources for risk management.

* **Framework Design**

For each of the following items, please indicate their **relative** importance to the above dimension of ERM **in the context of the other items in the pool**. Each item should be scored.

	Less Important	Moderately Important	Very Important	Of Most Importance
The risk management policy, framework, processes and procedures of the organisation are clearly defined and documented in writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's risk management policy clearly states objectives for, and commitment to, risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk management is embedded in the organisation's practices and processes in a way that is relevant, effective and efficient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation allocates appropriate resources for risk management by considering people, skills, experience and competence in following the processes for managing risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The risk management framework is tailored to the type of organisation, its industry or sector, its architecture (i.e. functional areas and operating units) and processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The risk management framework is holistic, taking a systemic view to integrate risk management within the organisation, countering the effects of silos (even possible silos of risk excellence such as the IT or insurance functions) in functions or operating units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's Internal Audit (IA) function is aligned with the risk management framework, giving input into the design of risk controls and/or auditing them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation utilises "risk champions" to carry the risk management framework into the operating units and functional areas to support achievement of objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation Integrates ERM with other existing practices and processes such as strategic planning, budgeting, audit etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation utilises corporate governance issues, such as compliance to industry or listed-company codes, in developing the risk management framework design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has an appropriate time plan for implementation of risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any additional items or components relevant to this dimension that you believe should be included for the measurement of this dimension?

Any comments on this dimension?



Establish Context (EC)

This dimension of ERM encompasses first step of risk management implementation; evaluating and understanding the organisation and its context and putting into practice elements of Framework Design. This includes measuring the organisation's articulation of its values, objectives and resources and taking cognisance of internal and external parameters when implementing risk management and defining risk criteria i.e. risk appetite, the risk model etc.

*** Establish Context**

For each of the following items, please indicate their **relative** importance to the above dimension of ERM **in the context of the other items in the pool**. Each item should be scored.

	Less Important	Moderately Important	Very Important	Of Most Importance
A defined risk appetite is taken into account in conjunction with the organisation's objectives and decision-making processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's risk management framework ensures compliance with legal and regulatory requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has an understanding of its internal context, including structure, roles, accountabilities and policies, objectives and strategies and how they relate to risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has an understanding of its external context, including the legal, regulatory, economic and competitive environment and the key drivers and trends impacting objectives and how they relate to risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation explicates and/or quantifies risk tolerance, a measure that indicates excessively high or low risk in order to determine deviation from objectives and inform whether to take more or less risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has a common definition of the risk model used for assessing risks, including risk categories, definitions of probability (likelihood), impact (severity) and frequency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation intends to utilise risk management for value creation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation considers a broad base of stakeholders such as customers and suppliers in establishing the context for risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation develops a risk management culture that influences employees and stakeholders to consider risk information in their decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management and employees understand the organisation's risk management objectives and how they relate to and effect their job and tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The accountability for identification, evaluation, assessment and management of risks lies with those employees in the organisation closest to the source of the risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's risk management framework spans across the organisation, and employees have a clear understanding of their roles and responsibilities with regards to risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any additional items or components relevant to this dimension that you believe should be included for the measurement of this dimension?

Any comments on this dimension?



Risk Assessment (RA)

This dimension of ERM measures the organisation's risk assessment framework as applied in practice, including risk identification, risk analysis and risk evaluation

*** Risk Assessment**

For each of the following items, please indicate their **relative** importance to the above dimension of ERM **in the context of the other items in the pool**. Each item should be scored.

	Less Important	Moderately Important	Very Important	Of Most Importance
Formal risk identification and assessment is conducted throughout the organisation on a regular basis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation quantifies its key risks to the best extent possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation utilises methods such as workshops, surveys, group discussions etc. to identify and assess risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation actively screens the media, including social media, for potential risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation defines clear criteria reflecting the organisation's values, objectives and resources to evaluate the significance, nature and level of risk (i.e. a risk model, risk appetite definition)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation takes into account combinations of multiple risks and interdependencies of risks, the effect of which could be compounded or cumulative (systemic risk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation evaluates risks using both qualitative (Rating scales, risk prioritisation, Heat Maps) and quantitative techniques (simulation, Monte Carlo analysis, Value At Risk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation ties risk quantification throughout the organisation to a common matrix or metric such as the capital budget or revenues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation takes into consideration a comprehensive range of risks from all relevant categories such as financial, operational and reputational	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Different functions in the organisation, such as marketing and technical, are cognisant that they share some key risks, for example product quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's employees are trained in utilising the risk assessment tools and outputs appropriate for their role in risk assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any additional items or components relevant to this dimension that you believe should be included for the measurement of this dimension?

Any comments on this dimension?



Risk Treatment (RT)

This dimension of ERM measures the organisation's process to select, prepare and implement treatment plans, mitigation measures and controls addressing risks, for example, by utilising the 4Ts: Tolerate, Treat, Transfer or Terminate, of risk response

*** Risk Treatment**

For each of the following items, please indicate their **relative** importance to the above dimension of ERM **in the context of the other items in the pool**. Each item should be scored.

	Less Important	Moderately Important	Very Important	Of Most Importance
In mitigating risks, the organisation consciously pursues a variety of options, including avoiding, accepting, reducing or transferring risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation develops and determines risk mitigation strategies within the business or operating unit level, closest to the risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation captures decided upon risk responses, treatments, mitigation actions and accountability in a risk register	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk treatment also considers the identification and exploitation of opportunities for the organisation (opportunity or upside of risk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Capital and/or budget is allocated to areas of the business based on successful outcomes of the risk treatment process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation scans its environment to plan in anticipation of emerging risks that could effect it in the future, and prepares for unpredictable, low likelihood/high impact risks - so-called "Black Swans" events (Risk resilience)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk treatment plans of the organisation clearly document the implementation of treatment options including the reason for selection of the option and expected benefit to be gained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk treatment plans of the organisation clearly document the individuals accountable for approving the plan, those responsible for implementing the plan and the expected outcome	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk controls are consistent with the the organisation's risk tolerances, and the risk treatment process ensures that if a risk is beyond the established risk appetite it is terminated or not taken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's treatment of risk develops from focusing on risk avoidance and mitigation to leveraging risk and risk management options that extract value and focus on reward / upside	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's Business Continuity Planning (BCP) and/or Disaster Management (DM) is aligned with the risk management and risk mitigation process in preparation for crisis and unknown, emerging risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any additional items or components relevant to this dimension that you believe should be included for the measurement of this dimension?

Any comments on this dimension?



Risk Monitoring & Review (RM&R)

This dimension of ERM measures the organisation's risk monitoring, control and review procedure for the operational components of the risk management process including risk assessment and risk treatment

*** Risk Monitoring & Review**

For each of the following items, please indicate their **relative** importance to the above dimension of ERM **in the context of the other items in the pool**. Each item should be scored.

	Less Important	Moderately Important	Very Important	Of Most Importance
Risk management allows the organisation to measure risk-adjusted performance among different operating / business units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Key Performance Indicators (KPIs) are utilised throughout the organisation for measuring the risk-based performance of those accountable for specific risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's management compensation is linked to risk management performance measures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's audit committee / Internal Audit (IA) function is an integral part of the risk management process and linked to it to provide assessments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's risk monitoring and review process ensures that analysis and lessons learned from risk events such as near misses, losses and successes are incorporated in the risk management process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Action plans relating to risks and their treatment are distributed and assigned to individual owners in the organisation and systematically followed up on	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation utilises a Risk Management Information System or similar IT system or Software (SW) to review and monitor risks and risk treatment in a comprehensive, structured and systematic way, providing a central repository from which to generate action plans and reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Each area of the organisation is aware of and regularly updates and reviews the register of its top risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation utilises risk management analysis proactively for planning future actions such as budgeting and investment decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation utilises Key Risk Indicators (KRIs), forward trend measurements, to monitor and report on risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation examines the relevance and quality of data collected and utilised in the risk management process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The outputs of the risk management process are challenged within the organisation for example by stress testing or analysis of losses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any additional items or components relevant to this dimension that you believe should be included for the measurement of this dimension?

Any comments on this dimension?



Framework Monitoring & Review (FM&R)

This dimension of ERM measures the organisation's monitoring and review process for the risk management framework in both an internal and external context, ensuring that the risk management plans and policies are being followed and that risk management continues to be appropriate, effective and supportive of organisational performance

* Framework Monitoring & Review

For each of the following items, please indicate their **relative** importance to the above dimension of ERM **in the context of the other items in the pool**. Each item should be scored.

	Less Important	Moderately Important	Very Important	Of Most Importance
The organisation has established and regularly updated written policy and procedure manuals that are consistent across major risks and the risk management framework	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's ERM framework is regularly reviewed for compliance with new legal and regulatory requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation's risk committee meets regularly, reporting on progress of the organisation's risk management framework implementation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation regularly assesses the efficiency of the risk management process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decision making in the organisation, including the development and setting of objectives, is aligned with the outcomes of the risk management process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The risk management framework, policy and plan are periodically reviewed for effectiveness and appropriateness given changes in the organisation's internal and external context	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To ensure traceability of its risk management activities, methods, tools and the overall risk management process are recorded and retained within the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation makes use of Internal Audit (IA) to monitor and review the risk management framework	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation makes use of an external auditor or consultants to monitor and review the risk management framework	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation ensures boundaries set around the risk management framework i.e. following policies and procedures, are upheld	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any additional items or components relevant to this dimension that you believe should be included for the measurement of this dimension?

Any comments on this dimension?



Communication & Consultation (C&C)

This dimension of ERM measures all aspects of the organisation's internal and external consultation, communication and reporting around risk management, and the iterative process conducted to provide, share or obtain information and engage in dialogue with stakeholders regarding the organisation's management of risk.

*** Communication & Consultation**

For each of the following items, please indicate their **relative** importance to the above dimension of ERM **in the context of the other items in the pool**. Each item should be scored.

	Less Important	Moderately Important	Very Important	Of Most Importance
The organisation regularly communicates with all stakeholders on risk management performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There is an organisation-wide common language for communicating risks, risk management activities and monitoring efforts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal communication and reporting mechanisms support and encourage accountability and ownership of risk within the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External communication and reporting mechanisms engage appropriate external stakeholders, ensuring the organisation effectively exchanges risk information and provides clarity in risk disclosure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation utilises external communication of the organisation's risk management activities to build confidence in the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resources and information on risk management are readily accessible to all employees, for example on the organisation's Intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The risk management function of the organisation builds and sustains relationships across all areas of the organisation including executive leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transparency on risk information both positive and negative is rewarded within the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk information is communicated timeously within the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality risk information is demanded as part of the decision-making process within the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has an accessible forum for communication around risk issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has a clearly defined chain of accountability and escalation for risk management issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any additional items or components relevant to this dimension that you believe should be included for the measurement of this dimension?

Any comments on this dimension?



Continual Improvement (CI)

This dimension of ERM measures the organisation's process for continual improvement of the risk management policy, plan and framework.

* Continual Improvement

For each of the following items, please indicate their **relative** importance to the above dimension of ERM **in the context of the other items in the pool**. Each item should be scored.

	Less Important	Moderately Important	Very Important	Of Most Importance
Based on results of monitoring and reviews, the organisation's risk management framework, policy and plan are continuously updated and improved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The quality of the organisation's risk management process is regularly evaluated by external auditors or consultants with written assessments provided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The quality of the organisation's risk management process is regularly evaluated by Internal Audit (IA) with written assessments provided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation learns from experience and adjusts its risk management practices to improve its ability to measure and manage risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation incorporates risk management insights to develop its human capital processes and drive sustainable performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In the organisation, all employees take responsibility for improving risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insights on risk provided by employees are rewarded and encouraged in the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The risk management function is developing resources and skills to meet the organisation's objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has channels for confidential reporting of risk information i.e. "Whistleblower" hotlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The organisation has a risk management performance process in place to identify and reward appropriate risk behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are there any additional items or components relevant to this dimension that you believe should be included for the measurement of this dimension?

Any comments on this dimension?



The ERM dimensions surveyed were as follows:

- Mandate & Commitment**
- Framework Design**
- Establish Context**
- Risk Assessment**
- Risk Treatment**
- Risk Monitoring & Review**
- Framework Monitoring & Review**
- Communication & Consultation**
- Continual Improvement**

Please indicate below any additional dimensions (components) that you believe are key success factors for an ERM framework or implementation that have not been included in this survey along with a brief description thereof.

Are there any other comments or feedback you would like to provide?

If you are interested in receiving selected research results and additional information on ERM and the ERM maturity index, please type your email address in the space below. Thanks!

APPENDIX D: PRE-STUDY (PILOT) RISK MANAGEMENT VALUES AND CULTURE SURVEY – TELECOMS MULTI-NATIONALS



Survey of culture and risk management

This survey forms part of academic research at the University of Stellenbosch Business School (USB) in South Africa. The purpose of this research is to understand life and work experiences of managers, with a particular emphasis on enterprise risk management.

Your participation in this survey is voluntary, and the information you provide will be kept completely confidential. No individual respondent will be identified to any other person. Some organisations participating in this study have requested aggregated anonymous data to be provided for informational purposes. You have the opportunity to request selected anonymous results and additional information at the end of the survey.

The survey is expected to take approximately 15 minutes. On the following pages, you are asked to respond to a number of statements that reflect your observations of cultural or societal experiences, values, and views on risk management practices.

Please note, this is not a test and there are no "right" or "wrong" answers. You are requested to answer all of the questions as openly and honestly as possible. You should not think too much about each question and answer quickly, because usually, the first response that comes to mind is the most applicable. The questions are not designed to judge whether an answer is good or bad, they are designed to observe different values and experiences.

For the purpose of this survey, please consider your nation / country as representing your society and your company as your organisation.

Thank you very much for your time and consideration.

Section 1 - The way things are in your society

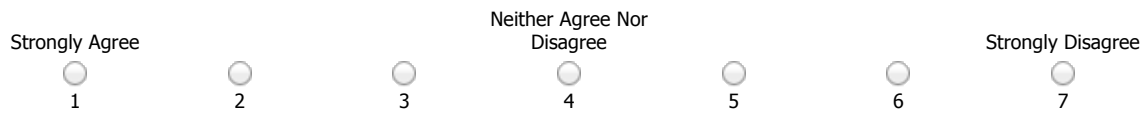
In this section of the survey we are interested in your beliefs about the norms, values, and practices in your society. In other words, we are interested in the way your society is - not the way you think it should be.

There are no right or wrong answers, and answers don't indicate goodness or badness of the society.

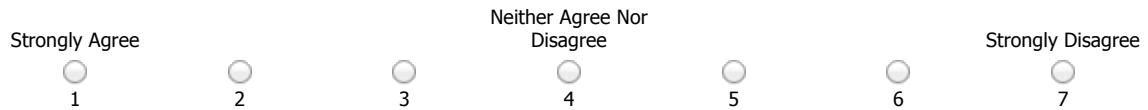
Please respond to the questions by selecting the point in the scale that most closely represents your observations about your society.

Please consider your nation / country as representing your society.

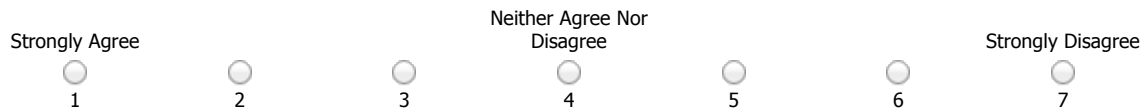
In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation



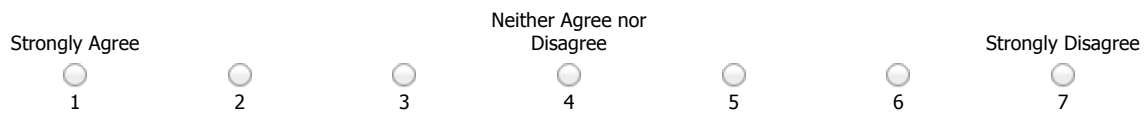
In this society, societal requirements and instructions are spelled out in detail so citizens know what they are expected to do



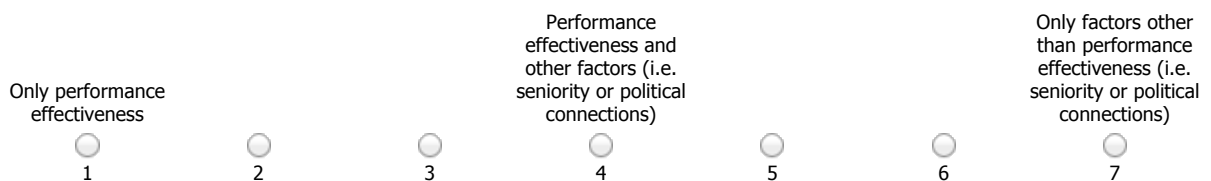
In this society, most people lead highly structured lives with few unexpected events



In this society, teen-aged students are encouraged to strive for continuously improved performance



In this society, major rewards are based on:



In this society, the accepted norm is to:



In this society, more people:



for the future

 1

 2

 3

 4

 5

 6

present

 7

In this society, followers are expected to:

Obey their leader without question

 1

 2

 3

 4

 5

 6

Question their leaders when in disagreement

 7

In this society, power is:

Concentrated at the top

 1

 2

 3

 4

 5

 6

Shared throughout society

 7

The way to be successful in this society is to:

Plan ahead

 1

 2

 3

 4

 5

 6

Take life events as they occur

 7

In this society, a person's influence is based primarily on:

One's ability and contribution to the society

 1

 2

 3

 4

 5

 6

The authority of one's position

 7

In this society, leaders encourage group loyalty even if individual goals suffer.

Strongly Agree

 1

 2

 3

Neither Agree Nor Disagree

 4

 5

 6

Strongly Disagree

 7

In this society, social gatherings are:

Planned well in advance (2 or more weeks in advance)

 1

 2

 3

 4

 5

 6

Spontaneous (Planned less than an hour in advance)

 7

The economic system in this society is designed to maximise:



Section 2 - How important is...

In this section, you will be asked how important certain things are to you, and whether you agree or disagree with certain statements.

Please read the statement carefully and select the one response to each item that most closely represents your view.

Please think of an ideal job, disregarding your present job. In choosing an ideal job, how important would it be to you to...

Have sufficient time for your personal or home life

- Of utmost importance
- Very important
- Of moderate importance
- Of little importance
- Of very little or no importance

Have a boss (direct superior) you can respect

- Of utmost importance
- Very important
- Of moderate importance
- Of little importance
- Of very little or no importance

Get recognition for good performance

- Of utmost importance
- Very important
- Of moderate importance
- Of little importance
- Of very little or no importance

Have security of employment

- Of utmost importance
- Very important
- Of moderate importance
- Of little importance

- Of little importance
- Of very little or no importance

In your private life, how important is each of the following to you:

Keeping time free for fun

- Of utmost importance
- Very important
- Of moderate importance
- Of little importance
- Of very little or no importance

Moderation: Having few desires

- Of utmost importance
- Very important
- Of moderate importance
- Of little importance
- Of very little or no importance

Doing a service to a friend

- Of utmost importance
- Very important
- Of moderate importance
- Of little importance
- Of very little or no importance

Thrift (Not spending more than is needed)

- Of utmost importance
- Very important
- Of moderate importance
- Of little importance
- Of very little or no importance

General questions:

How often do you feel nervous or tense?

- I always feel this way
- I usually feel this way
- I sometimes feel this way
- I seldom feel this way
- I never feel this way

- Strongly agree
- Agree
- Undecided
- Disagree
- Strongly disagree

Persistent efforts are the surest way to results

- Strongly agree
- Agree
- Undecided
- Disagree
- Strongly disagree

An organisational structure in which certain subordinates have two bosses should be avoided at all costs

- Strongly agree
- Agree
- Undecided
- Disagree
- Strongly disagree

A company's or organisation's rules should not be broken - not even when the employee thinks breaking the rule would be in the organisation's best interest

- Strongly agree
- Agree
- Undecided
- Disagree
- Strongly disagree

Developing a risk management culture that influences employees and stakeholders to consider risk information in their decisions

Of very little or no importance



1



2

Of moderate importance



3



4

Of utmost importance



5

Giving employees across the organisation a clear understanding of their roles and responsibilities with regards to risk management

Of very little or no importance



1



2

Of moderate importance



3



4

Of utmost importance



5

Embedding risk management in practices and processes in a way that is relevant, effective and efficient.

Of very little or no importance



1



2

Of moderate importance



3



4

Of utmost importance



5

Tailoring risk management to the type of organisation, its industry or sector, its structure (i.e. functional areas and operating units) and processes

Of very little or no importance



1



2

Of moderate importance



3



4

Of utmost importance



5

A corporate risk management policy clearly stating objectives for, and commitment to, risk management

Of very little or no importance



1



2

Of moderate importance



3



4

Of utmost importance



5

Leadership conveying the value proposition and benefits of risk management to employees

Of very little or no importance



1



2

Of moderate importance



3



4

Of utmost importance



5

A corporate governance structure reflecting the influence of risk and risk management on decision-making across the organisation

Of very little or no importance Of moderate importance Of utmost importance

1 2 3 4 5

A risk management department / function exerting real authority derived from executive leadership

Of very little or no importance Of moderate importance Of utmost importance

1 2 3 4 5

Senior management clearly defining and endorsing the risk management policy

Of very little or no importance Of moderate importance Of utmost importance

1 2 3 4 5

Taking into consideration a wide, comprehensive range of risks to the organisation, such as financial, operational, reputational etc.

Of very little or no importance Of moderate importance Of utmost importance

1 2 3 4 5

Formal risk identification and assessment conducted throughout the organisation on a regular basis

Of very little or no importance Of moderate importance Of utmost importance

1 2 3 4 5

Action plans relating to risks and their treatment distributed to individual owners and systematically followed up on

Of very little or no importance Of moderate importance Of utmost importance

1 2 3 4 5

Developing and determining risk mitigation strategies within the business or operating unit level, closest to the risks

Of very little or no importance Of moderate importance Of utmost importance

1 2 3 4 5

1 2 3 4 5

Understanding the organisation's external context, including the legal, regulatory, economic and competitive environment, key drivers and trends, and how they relate to risk management

Of very little or no importance



Of moderate importance



Of utmost importance



Taking a holistic, systematic view to integrate risk management within the organisation - countering the effects of silos

Of very little or no importance



Of moderate importance



Of utmost importance



Leadership setting clear expectations and strategic direction for risk management

Of very little or no importance



Of moderate importance



Of utmost importance



A visible risk management "sponsor" or "champion" in senior management

Of very little or no importance



Of moderate importance



Of utmost importance



Demanding quality risk information as part of the decision-making process of the organisation

Of very little or no importance



Of moderate importance



Of utmost importance



Integrating risk management with other existing practices and processes such as strategic planning, budgeting etc.

Of very little or no importance



Of moderate importance



Of utmost importance





Section 4 - Demographic questions

*The following questions are about background information for statistical purposes. Questions with a red * are required for a valid survey response.*

These questions are NOT used to identify any individual, though you have the opportunity to provide an email address if you would like to be contacted for additional information or selected survey results.

Are you?

- Male
 Female

*What is your nationality?

- South African
 South African and other(s)
 Other(s) - Please specify

*In which country are you employed?

- South Africa
 Other (Please specify)

*What organisation do you work for?

This information will be kept strictly confidential; some organisations participating in the study have requested anonymous, aggregated results for informational purposes

- MTN
 Other (Please specify)

*In which industry are you currently employed?

- Telecommunications or Information and Communications Technology (ICT)
 Other (Please specify)

In which country were you born?

- South Africa
 Other (please specify)

What is your age?

- (<25)
 (26-35)
 (36-45)
 (46-55)

(>55)

What is your level of formal education?

- Did not complete school
- Completed school
- Some formal coursework beyond school i.e. university/technicon, professional certifications etc.
- Completed first university / technicon degree (i.e. Bachelors, Engineering Diploma)
- Completed additional tertiary university degree(s) (i.e. Masters, PhD)

Please indicate the function you are employed in:

- Sales / Marketing
- Technical / Support
- Finance / Accounting
- Planning / Purchasing
- Human Resources / Personnel
- Audit / Risk Management
- Administration
- Operations
- Other (Please specify)

How many years of full-time work experience do you have?
In years:

How many people report to you in total?
Number of people:

How many levels of management are there between you and the chief executive of your organisation?

- None, I am the CE
- One, I report to the CE
- Two, my manager reports to the CE
- Three, my manager's manager reports to the CE
- Four or more, there are three or more managers between me and the CE

What is the approximate size of your organisation *in your country*?

- Less than 10 employees
- 10 to 100 employees
- 100 to 500 employees
- 500 to 1000 employees
- > 1000 employees

What is your ethnicity i.e. tribe or cultural grouping?
Please specify:

Would you be interested in receiving information regarding selected survey results or risk management?

If so please specify your email address here:

If you have indicated your interest in receiving information by including your email address above, you can expect feedback within a few weeks of completing the survey.

Thank you very much for your time and consideration in completing this survey!

APPENDIX E:
FULL IRMSA RISK MANAGEMENT VALUES AND CULTURE SURVEY



Survey of risk management and culture

This survey forms part of academic research at the University of Stellenbosch Business School (USB) in South Africa. The purpose of this research is to understand life and work experiences of managers, with a particular emphasis on risk management and cultural values.

Your participation in this survey is voluntary, and the information you provide will be kept completely confidential. No individual respondent will be identified to any other person. Some organisations participating in this study have requested aggregated anonymous data to be provided for informational purposes. You have the opportunity to request selected anonymous results and additional information at the end of the survey. The survey is expected to take less than 15 minutes.

On the following pages, you are asked to respond to a number of statements that reflect your observations of cultural or societal experiences, values, and views on risk management practices. Please note, this is not a test and there are no "right" or "wrong" answers. You are requested to answer all of the questions as openly and honestly as possible. You should not think too much about each question and answer quickly, because usually, the first response that comes to mind is the most applicable. The questions are not designed to judge whether an answer is good or bad, they are designed to observe different values and experiences.

For the purpose of this survey, please consider your own nation / country as representing your society and your company as your organisation.

Thank you very much for your time and consideration.

Section 1 - The way things are in your society

In this section of the survey we are interested in your beliefs about the norms, values, and practices in your society. In other words, we are interested in the way your society is - not the way you think it should be.

There are no right or wrong answers, and answers don't indicate goodness or badness of the society.

Please respond to the questions by selecting the point in the scale that most closely represents your observations about your society.

Please consider your nation / country as representing your society.

The way things are in your society

	Strongly Agree			Neither Agree Nor Disagree			Strongly Disagree
	1	2	3	4	5	6	7
In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In this society, societal requirements and instructions are spelled out in detail so citizens know what they are expected to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In this society, most people lead highly structured lives with few unexpected events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In this society, teen-aged students are encouraged to strive for continuously improved performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In this society, leaders encourage group loyalty even if individual goals suffer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In this society, rank and position in the hierarchy have special privileges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In this society, being accepted by the other members of the group is very important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In this society, major rewards are based on:

Only performance effectiveness	Performance effectiveness and other factors (i.e. seniority or political connections)	Only factors other than performance effectiveness (i.e. seniority or political connections)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7		

In this society, the accepted norm is to:

Plan for the future	Accept the status quo
<input type="radio"/>	<input type="radio"/>
1	2
<input type="radio"/>	<input type="radio"/>
3	4
<input type="radio"/>	<input type="radio"/>
5	6
<input type="radio"/>	<input type="radio"/>
7	

In this society, more people:

Live for the present than live for the future	Live for the future than live for the present
<input type="radio"/>	<input type="radio"/>

1 2 3 4 5 6 7

In this society, followers are expected to:

Obey their leader without question

1

2

3

4

5

6

7

Question their leaders when in disagreement

In this society, power is:

Concentrated at the top

1

2

3

4

5

6

7

Shared throughout society

The way to be successful in this society is to:

Plan ahead

1

2

3

4

5

6

7

Take life events as they occur

In this society, a person's influence is based primarily on:

One's ability and contribution to the society

1

2

3

4

5

6

7

The authority of one's position

In this society, social gatherings are:

Planned well in advance (2 or more weeks in advance)

1

2

3

4

5

6

7

Spontaneous (Planned less than an hour in advance)

The economic system in this society is designed to maximise:

Individual interests

1

2

3

4

5

6

7

Collective interests

In this society, being innovative to improve performance is generally:Substantially
rewarded
1
2
3Somewhat
rewarded
4
5
6

Not rewarded

7**This society has rules or laws to cover:**Almost all
situations
1
2
3

Some situations

4
5
6Very few
situations
7**In this society, people in positions of power try to:**Increase their
social distance
from less
powerful
individuals
1
2
3
4
5
6Decrease their
social distance
from less
powerful people
7**In this society, people place more emphasis on:**Solving current
problems
1
2
3
4
5
6Planning for the
future
7**In this society:**Group cohesion
is valued more
than
individualism
1
2
3Group cohesion
and
individualism are
equally valued
4
5
6Individualism is
valued more
than group
cohesion
7



Section 2 - How important is...

In this section, you will be asked how important certain things are to you, and whether you agree or disagree with certain statements.

Please read the statement carefully and select the one response to each item that most closely represents your view.

Please think of an ideal job, disregarding your present job. In choosing an ideal job, how important would it be to you to...

	Of utmost importance	Very important	Of moderate importance	Of little importance	Of very little or no importance
Have sufficient time for your personal or home life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have a boss (direct superior) you can respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Get recognition for good performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have security of employment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have pleasant people to work with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do work that is interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be consulted by your boss in decisions involving your work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Live in a desirable area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have a job respected by your family and friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have chances for promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In your private life, how important is each of the following to you:

	Of utmost importance	Very important	Of moderate importance	Of little importance	Of very little or no importance
Keeping time free for fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moderation: Having few desires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doing a service to a friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thrift (Not spending more than is needed)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To what extent do you agree or disagree with the following statements?

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
One can be a good manager without having precise answers to every question that subordinates may raise about their work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Persistent efforts are the surest way to results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An organisational structure in which certain subordinates have two bosses should be avoided at all costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A company's or organisation's rules should not be broken - not even when the employee thinks breaking the rule would be in the organisation's best interest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

General questions:**How often do you feel nervous or tense?**

- I always feel this way
- I usually feel this way
- I sometimes feel this way
- I seldom feel this way
- I never feel this way

Are you a happy person?

- Always
- Usually
- Sometimes
- Seldom
- Never

Do other people or circumstances ever prevent you from doing what you really want to do?

- Yes, always
- Yes, usually
- Sometimes
- No, seldom
- No, never

All in all, how would you describe the state of your health these days?

- Very good
- Good
- Fair
- Poor
- Very Poor

How proud are you to be a citizen of your country?

- Not proud at all
- Not very proud
- Somewhat proud
- Fairly proud
- Very proud

How often, in your experience, are subordinates afraid to contradict their boss?

- Never
- Seldom
- Sometimes
- Usually
- Always



Section 4 - Demographic questions

The following questions are about background information for statistical purposes.

These questions are NOT used to identify any individual, though you have the opportunity to provide an email address if you would like to participate in the prize raffle for 3x R500 Exclusive Books vouchers or be contacted for additional information or selected survey results.

Are you?

- Male
- Female

What is your nationality?

- South African
- Zimbabwean
- Botswanan
- Zambian
- Namibian
- Swazi
- Basotho
- UK
- Kenyan
- Other(s) or more than one - Please specify

In which country are you employed?

- South Africa
- Zimbabwe
- Botswana
- Namibia
- Zambia
- UK
- Lesotho
- Swaziland
- Kenya
- Other (Please specify)

In which country were you born?

- Country of nationality

Other (please specify)

What is your age?

- (<25)
- (26-35)
- (36-45)
- (46-55)
- (>55)

What is your level of formal education?

- Did not complete school
- Completed school
- Some formal coursework beyond school i.e. university/technicon, professional certifications etc.
- Completed first university / technicon degree (i.e. Bachelor's, Engineering Diploma)
- Completed additional tertiary university degree(s) (i.e. Master's, PhD)

In which sector are you currently employed?

- Government
- State Owned Enterprise (SOE)
- Private Sector
- Other (Please specify)

In which industry are you currently employed?

- National, Provincial or Municipal Government
- Energy (Oil, Gas & Coal)
- Materials (Chemicals, Packaging, Metals, Paper)
- Industrials (Capital Goods & Services Including Transport)
- Consumer Discretionary (Retail, Travel, Automotive)
- Consumer Staples (Food, Beverage, Household Products)
- Health Care
- Financials
- Information Technology
- Utilities
- Other (Please specify)

Please indicate the function you are employed in:

- Audit / Risk Management
- Technical / Support
- Finance / Accounting
- Planning / Purchasing
- Human Resources / Personnel
- Sales / Marketing

Administration

Operations

Other (Please specify)

How many years of full-time work experience do you have?

In years:

How many people report to you in total?

Number of people:

How many levels of management are there between you and the Chief Executive (CE) of your organisation?

None, I am the CE

One, I report to the CE

Two, my manager reports to the CE

Three, my manager's manager reports to the CE

Four or more, there are three or more managers between me and the CE

What is the approximate size of your organisation *in your country*?

Less than 10 employees

10 to 100 employees

100 to 500 employees

500 to 1000 employees

> 1000 employees

In relation to similar organisations, would you say your organisation's performance is

In the top 10% of performance

In the top 25% of performance

In the middle 50% of performance

In the bottom 25% of performance

In the bottom 10% of performance

What is your race?

Black African

Black Indian/Asian

Black Coloured

White

Other (Please specify)

What is your home language, ethnicity, tribal or cultural grouping i.e. English, Afrikaans, Zulu, Xhosa?

Please specify:

Are you interested in:

- Participating in the prize raffle
- Receiving information about the culture and risk management study
- Both

Then please enter your email address below so you can be contacted:

If you have indicated your interest to participate in the prize raffle or receive information about the study, you can expect feedback within a few weeks of the survey closing date.

Thank you very much for your time and consideration in completing this survey!

APPENDIX F: DESCRIPTIVE STATISTICS FOR THE MAIN STUDY

Variable	Obs	Mean	Std. Dev.	Min	Max
responses	327				
rm_cc_02	326	6.45092	.9840493	1	7
rm_cc_10	324	6.487654	.9125045	1	7
rm_cc_21	324	6.537037	.9286555	1	7
rm_ci_13	326	6.340491	1.027627	1	7
rm_ci_14	323	6.386997	.9532966	1	7
rm_ec_01	321	6.529595	.8440395	1	7
rm_ec_16	321	6.548287	.7974599	1	7
rm_ec_15	320	6.528125	.8261913	1	7
rm_fd_06	325	6.489231	.8410977	1	7
rm_fd_05	322	6.481366	.8360793	1	7
rm_fd_07	323	6.417957	.8750791	1	7
rm_fd_17	322	6.481366	.8285937	1	7
rm_fd_22	325	6.572308	.8417185	1	7
rm_mc_12	324	6.441358	.9857904	1	7
rm_mc_08	324	6.391975	.9330849	1	7
rm_mc_19	325	6.516923	.9012285	1	7
rm_mc_18	325	6.369231	.955317	1	7
rm_mc_20	323	6.588235	.8080251	1	7
rm_mc_11	321	6.367601	.9820626	1	7
rm_ra_03	323	6.551084	.7760129	1	7
rm_ra_04	324	6.469136	.8303294	1	7
rm_rm_09	325	6.461538	.8727161	1	7
rm_rt_23	325	6.52	.8733362	1	7
Risk_1_Org	326	6.463937	.698044	1	7
Risk_2_Mec	326	6.508078	.6746341	1	7
ERMVS_1	326	6.463937	.698044	1	7

Variable	Obs	Mean	Std. Dev.	Min	Max
g_uai_01_re	319	4.112853	1.849645	1	7
g_uai_19_re	315	3.853968	1.785721	1	7
g_uai_16_re	316	3.693038	1.777482	1	7
g_po_15_re	312	4.365385	1.862082	1	7
g_col_07_re	316	4.734177	1.90544	1	7
g_pdi_27_re	315	6.050794	1.437872	1	7
g_col_29_re	317	5.504732	1.485417	1	7
g_po_18_re	326	3.033742	1.478699	1	7
g_fo_04_re	324	3.283951	1.862018	1	7
g_fo_30	324	2.416667	1.451752	1	7
g_pdi_13_re	323	5.235294	1.640063	1	7
g_pdi_34_re	326	6.177914	1.125482	1	7
g_fo_03_re	321	5.090343	1.946455	1	7
g_pdi_05	324	5.04321	1.790407	1	7
g_fo_08_re	325	4.575385	1.543008	1	7
g_col_12	318	2.761006	1.682941	1	7
g_po_20_re	322	4.003106	1.36146	1	7
g_uai_24_re	324	4.987654	1.43804	1	7
g_pdi_26_re	324	5.123457	1.748119	1	7
g_fo_31	327	2.834862	1.491368	1	7
g_col_35_re	324	4.141975	1.930262	1	7
g_uai_agg	309	4.167476	1.131415	1	7
g_fo_agg	313	3.630671	.9707675	1	7
g_pdi_agg	305	5.550164	.9174523	1	7
g_col_agg	302	4.253311	.9732667	1	7
g_po_agg	306	3.784314	1.151839	1	7
h_idv_01	327	4.345566	.6782128	2	5
h_pdi_02	325	4.372308	.8957216	1	5
h_mas_03	325	4.464615	.7429568	1	5
h_idv_04	326	4.233129	.8669703	1	5
h_mas_05	324	3.996914	.9091842	1	5
h_idv_06	326	4.5	.6551571	2	5
h_pdi_07	325	4.403077	.6671224	2	5
h_mas_08	326	4.06135	.8991843	1	5
h_idv_09	325	3.513846	1.153614	1	5
h_mas_10	327	4.366972	.7870955	2	5

Variable	Obs	Mean	Std. Dev.	Min	Max
h_ivr_11	324	4.108025	.793197	1	5
h_ivr_12	323	3.479876	.8049135	1	5
h_lto_13	323	3.879257	.8004095	1	5
h_lto_14	322	3.850932	.9420014	1	5
h_uai_21	324	4.095679	1.041007	1	5
h_lto_22	323	4.19195	.8192162	1	5
h_pdi_23	323	3.563467	1.265217	1	5
h_uai_24	322	3.310559	1.269022	1	5
h_uai_15	326	2.819018	.7850959	1	5
h_ivr_16	325	4.076923	.5417078	2	5
h_ivr_17	326	2.932515	.7815475	1	5
h_uai_18	325	4.092308	.8300505	1	5
h_lto_19	326	3.432515	1.237883	1	5
h_pdi_20	326	3.54908	.9025003	1	5
h_pdi_agg	323	-28.77709	49.39202	-180	95
h_mas_agg	321	-23.94081	46.32392	-180	130
h_uai_agg	321	70.42056	65.21043	-160	235
h_lto_agg	317	-18.01262	56.65373	-170	185
h_ivr_agg	321	-67.8972	54.04731	-230	105
sex					
nationality					
countryemp					
born					
age					
educationlevel					
sector					
industry					
function					
yearsworked					
numberreports					
levelsofmgt					
orgsize					
performance					
rsagrouping					
ethnicity					
mainculture					
subculture					

APPENDIX G:**CFA LOADING OF VARIABLES ON THE TWO-FACTOR ERMV MODEL**

		OIM				
Standardized	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Measurement						
rm_cc_02_escalation <-						
ERMVS_1_Organic	.6890051	.0316356	21.78	0.000	.6270005	.7510098
_cons	6.947834	.2919031	23.80	0.000	6.375714	7.519953
rm_cc_10_relationships <-						
ERMVS_1_Organic	.6890523	.0315397	21.85	0.000	.6272356	.7508691
_cons	7.52167	.3150881	23.87	0.000	6.904108	8.139231
rm_ci_13_employeesimproving <-						
ERMVS_1_Organic	.6872135	.0317097	21.67	0.000	.6250637	.7493633
_cons	6.392369	.2695331	23.72	0.000	5.864093	6.920644
rm_ci_14_learnings <-						
ERMVS_1_Organic	.7429498	.0270603	27.46	0.000	.6899126	.795987
_cons	6.883343	.2893019	23.79	0.000	6.316322	7.450364
rm_ec_15_understandroles <-						
ERMVS_1_Organic	.7285387	.0283852	25.67	0.000	.6729048	.7841727
_cons	7.968804	.3331967	23.92	0.000	7.31575	8.621858
rm_fd_06_embedded <-						
ERMVS_1_Organic	.8421907	.017904	47.04	0.000	.8070995	.877282
_cons	7.958657	.3327854	23.92	0.000	7.306409	8.610904
rm_fd_07_tailored <-						
ERMVS_1_Organic	.7480812	.026633	28.09	0.000	.6958814	.800281
_cons	7.431343	.3114342	23.86	0.000	6.820943	8.041743
rm_mc_12_mgtcommunication <-						
ERMVS_1_Organic	.8106704	.0210954	38.43	0.000	.7693241	.8520166
_cons	6.600518	.2779063	23.75	0.000	6.055831	7.145204

		OIM				
Standardized	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
rm_mc_08_governance <-						
ERMVS_1_Organic	.869821	.015328	56.75	0.000	.8397787	.8998633
_cons	6.91121	.2904258	23.80	0.000	6.341986	7.480434
rm_mc_11_rmauthority <-						
ERMVS_1_Organic	.6125727	.0373071	16.42	0.000	.5394522	.6856932
_cons	6.414424	.2704197	23.72	0.000	5.884411	6.944437
rm_mc_20_execendorsement <-						
ERMVS_1_Organic	.7544678	.0260539	28.96	0.000	.7034032	.8055325
_cons	8.341912	.3483314	23.95	0.000	7.659195	9.024629
rm_ra_03_comprehensiveness <-						
ERMVS_1_Organic	.6997398	.0306579	22.82	0.000	.6396514	.7598282
_cons	8.816838	.3676232	23.98	0.000	8.09631	9.537366
rm_rm_09_actionplans <-						
ERMVS_1_Organic	.8225502	.0198388	41.46	0.000	.7836669	.8614336
_cons	7.593315	.3179874	23.88	0.000	6.970071	8.216559
rm_rt_23_bumitigation <-						
ERMVS_1_Organic	.8048887	.0214993	37.44	0.000	.7627509	.8470266
_cons	7.615225	.3188742	23.88	0.000	6.990243	8.240207
rm_mc_19_direction <-						
ERMVS_1_Organic	.8285151	.0193894	42.73	0.000	.7905126	.8665177
_cons	7.379516	.3093384	23.86	0.000	6.773223	7.985808
rm_mc_18_execsponsor <-						
ERMVS_1_Organic	.69344	.0311718	22.25	0.000	.6323444	.7545357
_cons	6.749309	.2838989	23.77	0.000	6.192877	7.30574
rm_fd_22_integration <-						
ERMVS_1_Organic	.8247364	.0196465	41.98	0.000	.78623	.8632427
_cons	7.94655	.3322947	23.91	0.000	7.295264	8.597835

		OIM				
Standardized	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
rm_ec_01_riskculture <-						
ERMVS_2_Mechanistic	.784563	.0241339	32.51	0.000	.7372614	.8318647
_cons	7.737335	.3238182	23.89	0.000	7.102663	8.372007
rm_fd_05_policy <-						
ERMVS_2_Mechanistic	.7562333	.0265186	28.52	0.000	.7042577	.8082089
_cons	7.678876	.321451	23.89	0.000	7.048843	8.308908
rm_fd_17_frameworkholistic <-						
ERMVS_2_Mechanistic	.8264941	.0197348	41.88	0.000	.7878147	.8651735
_cons	8.048413	.3364243	23.92	0.000	7.389034	8.707793
rm_ra_04_regularbasis <-						
ERMVS_2_Mechanistic	.7043957	.030543	23.06	0.000	.6445325	.7642589
_cons	7.756285	.3245857	23.90	0.000	7.120109	8.392462
rm_ec_16_understandexternal <-						
ERMVS_2_Mechanistic	.7692575	.0254979	30.17	0.000	.7192826	.8192324
_cons	8.428461	.3518449	23.96	0.000	7.738857	9.118064
rm_cc_21_quality <-						
ERMVS_2_Mechanistic	.6620768	.0339702	19.49	0.000	.5954964	.7286572
_cons	7.554988	.3164363	23.88	0.000	6.934784	8.175192

APPENDIX H:

OUTPUTS OF THE MODIFICATION INDICES (MI) FOR THE CFA OF THE ERMV MODEL

Measurement	MI	df	P>MI	EPC	Standard EPC
cov(e.rm_cc_02_escalation,e.rm_cc_10_relationships)	39.441	1	0.00	.1587387	.3763689
cov(e.rm_cc_02_escalation,e.rm_ci_13_employeesimproving)	9.131	1	0.00	.0881431	.1810599
cov(e.rm_cc_02_escalation,e.rm_ci_14_learnings)	8.036	1	0.00	.0715415	.1708347
cov(e.rm_cc_02_escalation,e.rm_fd_06_embedded)	5.867	1	0.02	-.0441466	-.149096
cov(e.rm_cc_02_escalation,e.rm_fd_07_tailored)	4.371	1	0.04	.0485916	.1260858
cov(e.rm_cc_02_escalation,e.rm_mc_12_mgtcommunication)	9.466	1	0.00	-.0722515	-.1876382
cov(e.rm_cc_02_escalation,e.rm_mc_20_execendorsement)	7.151	1	0.01	-.0563755	-.1614101
cov(e.rm_cc_02_escalation,e.rm_mc_19_direction)	8.008	1	0.00	-.0577806	-.1734087
cov(e.rm_cc_02_escalation,e.rm_fd_22_integration)	16.628	1	0.00	-.0787723	-.2496061
cov(e.rm_cc_02_escalation,e.rm_ec_01_riskculture)	12.183	1	0.00	.0750416	.2129183
cov(e.rm_cc_02_escalation,e.rm_ra_04_regularbasis)	5.354	1	0.02	-.0556785	-.1393537
cov(e.rm_cc_02_escalation,e.rm_ec_16_understandexternal)	23.537	1	0.00	.09856	.2950076
cov(e.rm_cc_02_escalation,e.rm_cc_21_quality)	52.292	1	0.00	.1897835	.4336617
cov(e.rm_cc_10_relationships,e.rm_mc_12_mgtcommunication)	5.009	1	0.03	-.0487474	-.1364896
cov(e.rm_cc_10_relationships,e.rm_rt_23_bumitigation)	5.271	1	0.02	-.0443779	-.1398234
cov(e.rm_cc_10_relationships,e.rm_fd_22_integration)	6.610	1	0.01	-.0460675	-.1573802
cov(e.rm_cc_10_relationships,e.rm_cc_21_quality)	58.923	1	0.00	.1868594	.4603426
cov(e.rm_ci_13_employeesimproving,e.rm_ci_14_learnings)	56.518	1	0.00	.2030941	.4529932
cov(e.rm_ci_13_employeesimproving,e.rm_ec_15_understandroles)	5.362	1	0.02	.0563765	.13929
cov(e.rm_ci_13_employeesimproving,e.rm_ra_03_comprehensiveness)	5.682	1	0.02	-.0547974	-.1429645
cov(e.rm_ci_13_employeesimproving,e.rm_rm_09_actionplans)	8.979	1	0.00	-.0639586	-.1832792
cov(e.rm_ci_13_employeesimproving,e.rm_mc_19_direction)	11.246	1	0.00	-.0732953	-.2054667
cov(e.rm_ci_13_employeesimproving,e.rm_ec_01_riskculture)	16.255	1	0.00	.0927834	.2458995
cov(e.rm_ci_13_employeesimproving,e.rm_ra_04_regularbasis)	5.314	1	0.02	-.0593724	-.1388007
cov(e.rm_ci_13_employeesimproving,e.rm_cc_21_quality)	10.393	1	0.00	.0905674	.1933041
cov(e.rm_ci_14_learnings,e.rm_mc_20_execendorsement)	10.959	1	0.00	-.0646475	-.2009799
cov(e.rm_ci_14_learnings,e.rm_rm_09_actionplans)	15.111	1	0.00	-.0718351	-.2392956
cov(e.rm_ci_14_learnings,e.rm_mc_18_execsponsor)	3.965	1	0.05	-.0505609	-.1200529
cov(e.rm_ci_14_learnings,e.rm_ec_01_riskculture)	10.608	1	0.00	.0648855	.1999029
cov(e.rm_ci_14_learnings,e.rm_fd_05_policy)	16.946	1	0.00	-.0860263	-.2512209
cov(e.rm_ci_14_learnings,e.rm_ra_04_regularbasis)	8.368	1	0.00	-.0644715	-.1752099
cov(e.rm_ci_14_learnings,e.rm_cc_21_quality)	17.972	1	0.00	.1030441	.255668

					Standard
Measurement	MI	df	P>MI	EPC	EPC
cov(e.rm_ec_15_understandroles,e.rm_fd_07_tailored)	5.207	1	0.02	.044267	.1381571
cov(e.rm_ec_15_understandroles,e.rm_mc_12_mgtcommunication)	20.063	1	0.00	-.0878241	-.2743319
cov(e.rm_ec_15_understandroles,e.rm_mc_08_governance)	14.383	1	0.00	-.0607142	-.237411
cov(e.rm_ec_15_understandroles,e.rm_mc_11_rmauthority)	4.763	1	0.03	-.0573195	-.1306094
cov(e.rm_ec_15_understandroles,e.rm_ra_03_comprehensiveness)	8.683	1	0.00	-.0528204	-.177452
cov(e.rm_ec_15_understandroles,e.rm_rt_23_bumitigation)	4.524	1	0.03	-.0370087	-.1300861
cov(e.rm_ec_15_understandroles,e.rm_mc_18_execsponsor)	4.979	1	0.03	-.0510614	-.1343008
cov(e.rm_ec_15_understandroles,e.rm_ec_01_riskculture)	24.939	1	0.00	.0896439	.3059283
cov(e.rm_ec_15_understandroles,e.rm_fd_05_policy)	9.929	1	0.00	.0593375	.1919471
cov(e.rm_ec_15_understandroles,e.rm_ec_16_understandexternal)	28.533	1	0.00	.0905996	.326172
cov(e.rm_ec_15_understandroles,e.rm_cc_21_quality)	6.177	1	0.01	.0544429	.149631
cov(e.rm_fd_06_embedded,e.rm_mc_20_execendorsement)	3.923	1	0.05	-.027959	-.1229346
cov(e.rm_fd_06_embedded,e.rm_ec_01_riskculture)	4.839	1	0.03	.0317133	.138186
cov(e.rm_fd_06_embedded,e.rm_cc_21_quality)	15.959	1	0.00	-.0701246	-.246079
cov(e.rm_fd_07_tailored,e.rm_mc_12_mgtcommunication)	5.859	1	0.02	-.0485076	-.1486388
cov(e.rm_fd_07_tailored,e.rm_mc_19_direction)	11.255	1	0.00	-.0584687	-.2070426
cov(e.rm_fd_07_tailored,e.rm_fd_22_integration)	5.016	1	0.03	-.0369287	-.138068
cov(e.rm_fd_07_tailored,e.rm_fd_05_policy)	6.859	1	0.01	.0504022	.1599415
cov(e.rm_mc_12_mgtcommunication,e.rm_mc_08_governance)	32.005	1	0.00	.093816	.3601782
cov(e.rm_mc_12_mgtcommunication,e.rm_mc_20_execendorsement)	10.949	1	0.00	.0601548	.203389
cov(e.rm_mc_12_mgtcommunication,e.rm_mc_19_direction)	48.547	1	0.00	.1228865	.4355224
cov(e.rm_mc_12_mgtcommunication,e.rm_fd_22_integration)	3.919	1	0.05	.0330283	.1235905
cov(e.rm_mc_12_mgtcommunication,e.rm_fd_05_policy)	12.561	1	0.00	-.0689691	-.2190463
cov(e.rm_mc_12_mgtcommunication,e.rm_ec_16_understandexternal)	4.762	1	0.03	-.0382575	-.1352281
cov(e.rm_mc_12_mgtcommunication,e.rm_cc_21_quality)	6.897	1	0.01	-.0593956	-.1602744
cov(e.rm_mc_08_governance,e.rm_mc_19_direction)	11.033	1	0.00	.047951	.2127416
cov(e.rm_mc_08_governance,e.rm_fd_22_integration)	8.635	1	0.00	.0401223	.1879459
cov(e.rm_mc_08_governance,e.rm_ec_01_riskculture)	8.087	1	0.00	-.0431579	-.1810242
cov(e.rm_mc_08_governance,e.rm_ec_16_understandexternal)	11.290	1	0.00	-.0481538	-.2130732
cov(e.rm_mc_11_rmauthority,e.rm_mc_20_execendorsement)	11.407	1	0.00	.0822115	.202768
cov(e.rm_mc_11_rmauthority,e.rm_ra_03_comprehensiveness)	10.408	1	0.00	.0800154	.1925271
cov(e.rm_mc_11_rmauthority,e.rm_mc_19_direction)	7.234	1	0.01	-.0633852	-.1638715
cov(e.rm_mc_11_rmauthority,e.rm_mc_18_execsponsor)	44.737	1	0.00	.2117797	.3989412
cov(e.rm_mc_11_rmauthority,e.rm_ra_04_regularbasis)	11.074	1	0.00	.092466	.1993606
cov(e.rm_mc_20_execendorsement,e.rm_rt_23_bumitigation)	5.376	1	0.02	-.0374069	-.1423227
cov(e.rm_mc_20_execendorsement,e.rm_mc_19_direction)	24.600	1	0.00	.0784191	.3064033

Measurement	MI	df	P>MI	EPC	Standard EPC
cov(e.rm_mc_20_execendorsement,e.rm_mc_18_execsponsor)	8.268	1	0.00	.0609843	.1736197
cov(e.rm_mc_20_execendorsement,e.rm_ec_01_riskculture)	3.889	1	0.05	-.0328224	-.1212452
cov(e.rm_ra_03_comprehensiveness,e.rm_rm_09_actionplans)	6.520	1	0.01	.0401303	.1563666
cov(e.rm_ra_03_comprehensiveness,e.rm_ec_01_riskculture)	20.310	1	0.00	-.0763654	-.2751959
cov(e.rm_ra_03_comprehensiveness,e.rm_ra_04_regularbasis)	39.131	1	0.00	.1186255	.3770882
cov(e.rm_rm_09_actionplans,e.rm_rt_23_bumitigation)	48.608	1	0.00	.1065297	.4343008
cov(e.rm_rm_09_actionplans,e.rm_fd_05_policy)	9.922	1	0.00	.0520614	.1953261
cov(e.rm_rm_09_actionplans,e.rm_ra_04_regularbasis)	36.501	1	0.00	.1064326	.3716084
cov(e.rm_rm_09_actionplans,e.rm_cc_21_quality)	10.073	1	0.00	-.0609539	-.1943008
cov(e.rm_rt_23_bumitigation,e.rm_ec_01_riskculture)	4.245	1	0.04	-.0339291	-.1279282
cov(e.rm_rt_23_bumitigation,e.rm_fd_17_frameworkholistic)	12.008	1	0.00	.050179	.2178998
cov(e.rm_rt_23_bumitigation,e.rm_ra_04_regularbasis)	13.626	1	0.00	.0679563	.2260177
cov(e.rm_rt_23_bumitigation,e.rm_cc_21_quality)	9.307	1	0.00	-.0612319	-.1859314
cov(e.rm_mc_19_direction,e.rm_fd_22_integration)	25.986	1	0.00	.0739966	.3199816
cov(e.rm_mc_19_direction,e.rm_fd_05_policy)	6.879	1	0.01	-.0443941	-.1629373
cov(e.rm_mc_18_execsponsor,e.rm_cc_21_quality)	8.731	1	0.00	-.0780204	-.1772725
cov(e.rm_fd_22_integration,e.rm_ec_01_riskculture)	7.010	1	0.01	-.0404356	-.16531
cov(e.rm_fd_22_integration,e.rm_fd_05_policy)	5.677	1	0.02	-.0381506	-.1478393
cov(e.rm_fd_22_integration,e.rm_fd_17_frameworkholistic)	12.303	1	0.00	.0471185	.2218547
cov(e.rm_fd_22_integration,e.rm_ec_16_understandexternal)	11.628	1	0.00	-.0491914	-.2121517
cov(e.rm_ec_01_riskculture,e.rm_ra_04_regularbasis)	12.854	1	0.00	-.0692585	-.2236439
cov(e.rm_ec_01_riskculture,e.rm_ec_16_understandexternal)	24.520	1	0.00	.081613	.3151706
cov(e.rm_fd_05_policy,e.rm_ra_04_regularbasis)	7.517	1	0.01	.0553749	.1694925
cov(e.rm_ra_04_regularbasis,e.rm_cc_21_quality)	9.368	1	0.00	-.071466	-.185851

EPC = Expected Parameter Change

APPENDIX I: CULTURE DIMENSIONS AND HYPOTHESES

Culture Dimension	Author	Details	Hypothesis	Hypothesis Description	Reasoning Behind Hypothesis	Related ERM Pillars
Uncertainty Avoidance (UAI-H)	Hofstede	Measure of a culture's attitudes towards time, future, uncertainty and anxiety and the extent to which the members of institutions and organizations within a society feel threatened by uncertain, unknown, ambiguous, or unstructured situations. - summed up as ambiguity i.e. Ambiguity perturbs members of high UAI cultures	H1	A high UAI-H score will indicate an ERM framework that is central to the company's strategic objectives	High UAI-H societies will fear the ambiguity that comes in taking risks, therefore would emphasise a more mature ERM framework central to the organisations's strategic objectives; in effect making risks known and mitigating them.	M&C, FD
Uncertainty Avoidance (UAI-G)	GLOBE	A measure of a culture's preference to exist in a structured system stressing formalised procedures, orderliness and consistency	H2	High UAI-G cultures will demonstrate an ERM framework that is well-structured throughout the organisational processes	The greater the UAI-G score, the more likely a culture will wish to gain more control over management of risk, hence a more formalised approach with ERM structured and integrated throughout the organisational processes.	FD, FM&R
Power Distance (PDI-H)	Hofstede	Indicates a culture's perceptions on human inequality in domains of prestige, wealth and power and the extent to which the less powerful members of institutions and organizations within a society expect and accept that power is distributed unequally	H3	Cultures scoring high in PDI-H will be emphasise engaging in ERM for reasons of audit/compliance rather than strategic vision	High PDI-H cultures will expect mandates to come from a position of authority and respect these; in the case of ERM these are in the form of corporate governance regulations placed on firms by government	M&C, FD, EC, C&C
Power Distance (PDI-G)	GLOBE	This dimension reflects the extent to which a culture accepts and endorses authority, power distances and status privileges.	H4	In a high PDI-G culture, ERM will be pursued via a top-down approach driven by board of directors and senior management	In a high PDI-G culture one would expect that the majority of strategic management issues including ERM will be left to those in a position of authority and seniority i.e. An Ivory Tower / Silo approach to ERM	M&C, EC, FM&R
Performance Orientation (PO)	GLOBE	Reflects the extent to which the culture encourages and rewards innovation, high standards and performance improvement i.e. The drive for success	H5	High PO cultures will emphasise means of measuring ERM performance such as KPIs throughout the organisation	One of the best measures of performance in the realm of ERM is through KPIs; one would expect high PO cultures then to emphasise KPIs and more comprehensively implement them than lower PO cultures	FD, RM&R, CI
Future Orientation (FO)	GLOBE	A culture's prioritisation of past, present and future - in particular how a culture encourages and rewards future-orientated behaviours such as planning and delaying of gratification	H6	Cultures high in FO will emphasise quantifying risk within the ERM framework	A culture high in FO would reward a future-orientated behaviour such as ERM - sophistication of risk quantification in particular is one of the indicators of a high level of ERM maturity and as such one would expect emphasis thereon to be high in a high FO culture	FD, RA, RT, RM&R
Long Term Orientation (LTO)	Hofstede	Long term orientation stands for a society which fosters virtues orientated towards future rewards, in particular adaptation, perseverance and thrift. Short term orientation stands for a society which fosters virtues related to the past and present, in particular respect for tradition, preservation of "face," and fulfilling social obligations	H7	High LTO cultures will emphasise spending time, training and resources on ERM implementation	A culture high in LTO would value future rewards and adaptation of the ERM framework and proactively invest in its future success	M&C, RT, RM&R, FM&R, CI
Monumentalism (MON)	Hofstede	Monumentalism stands for a society which rewards people who are metaphorically speaking like monuments: proud and unchangeable. The opposite pole, Self-Effacement, stands for a society which rewards humility and flexibility	H8	Low MON cultures will emphasise continual ERM framework improvement	A culture with a low MON would demonstrate humility and flexibility with regards to managing risk and follow a deferent process of continued analysis and improvement, as opposed to proud, unchangeable high MON cultures which would tend to disregard risk (something not necessarily in their control) and believe the ERM framework in place does not need adaptation	M&C, EC, FM&R, CI
Collectivism 1 (COL)	GLOBE	Assesses whether group loyalty is emphasized at the expense of individual goals, whether the economic system emphasizes individual or collective interests, whether being accepted by other group members is important, and whether individualism or group cohesion is valued more in the society.	H9	High collectivist cultures will emphasise clear communication of the ERM framework and the company's risk appetite to all employees throughout the organisation.	A high collectivist culture will expect all employees of a company to be informed of issues of collective interest such as the ERM framework and risk appetite	M&C, EC, C&C
Null Hypothesis:			Culture values as measured by cultural dimensions do not demonstrate a statistically significant relationship with ERM values			

APPENDIX J:
RELIABILITY SCORES OF GLOBE CULTURE DIMENSIONS BY MAIN
CULTURE

Main-Culture	Frequency	Percent	Cumulative
Black	164	52.06	52.06
Coloured	25	7.94	60.00
Indian/Asian	28	8.89	68.89
White	98	31.11	100.00
Total	315	100.00	

by mc: alpha g_uai_01_re g_uai_16_re g_uai_19_re g_uai_24_re, asis item label							
-> mc = Black							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_uai_01_re	160	+	0.6507	0.3024	.5981106	0.4391	
g_uai_16_re	159	+	0.7083	0.3911	.427053	0.3416	
g_uai_19_re	161	+	0.7539	0.4527	.3090549	0.2660	
g_uai_24_re	161	+	0.3886	0.0545	1.110278	0.6063	
Test scale			.6124044	0.5083		mean(unstandardized items)	
-> mc = Coloured							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_uai_01_re	25	+	0.4129	0.0260	1.072503	0.6269	
g_uai_16_re	25	+	0.7581	0.4490	.2537879	0.2340	
g_uai_19_re	23	+	0.8245	0.6138	.1316667	0.1215	
g_uai_24_re	25	+	0.5429	0.1674	.7500534	0.5146	
Test scale			.5461648	0.4815		mean(unstandardized items)	
-> mc = Indian/Asian							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_uai_01_re	26	+	0.6108	0.1805	1.009866	0.6487	
g_uai_16_re	24	+	0.7482	0.4594	.4071212	0.3260	
g_uai_19_re	23	+	0.8184	0.6124	.2490717	0.2119	
g_uai_24_re	28	+	0.5962	0.1568	.9631803	0.5654	
Test scale			.6474798	0.5296		mean(unstandardized items)	

-> mc = White							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_uai_01_re	97	+	0.6996	0.3878	.8192655	0.6204	
g_uai_16_re	97	+	0.8008	0.5801	.5569874	0.4690	
g_uai_19_re	97	+	0.8148	0.6123	.5268471	0.4459	
g_uai_24_re	98	+	0.4394	0.1723	1.319767	0.7199	
Test scale							
				.8057166	0.6514	mean(unstandardized items)	
-> mc = .							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_uai_01_re	11	+	0.8102	0.6384	.7757576	0.4795	
g_uai_16_re	11	+	0.7963	0.5785	.7757576	0.5052	
g_uai_19_re	11	+	0.8487	0.5984	.5909091	0.4859	
g_uai_24_re	12	+	0.2393	0.0107	2.1	0.7869	
Test scale							
				1.060606	0.6697	mean(unstandardized items)	
. by mc: alpha g_fo_03_re g_fo_04_re g_fo_08_re g_fo_30 g_fo_31, asis item label							
-> mc = Black							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_fo_03_re	160	+	0.6863	0.3543	.3189737	0.3474	
g_fo_04_re	163	+	0.7087	0.4105	.2751905	0.3018	
g_fo_08_re	162	+	0.4420	0.1256	.6159241	0.4909	
g_fo_30	162	+	0.5341	0.2749	.4915365	0.4145	
g_fo_31	164	+	0.4293	0.1284	.6373106	0.5000	

Test scale								.4675102	0.4768	mean(unstandardized items)					
-> mc = Coloured															
Test scale = mean(unstandardized items)															
item-test item-rest interitem															
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label								
g_fo_03_re	25	+	0.3543	0.0651	.8525	0.6412									
g_fo_04_re	25	+	0.8071	0.6019	.2741667	0.3313									
g_fo_08_re	25	+	0.5430	0.2455	.6411111	0.5643									
g_fo_30	25	+	0.8235	0.6444	.2580556	0.3097									
g_fo_31	25	+	0.4511	0.1558	.7483333	0.6055									
Test scale												.5548333	0.5726	mean(unstandardized items)	
-> mc = Indian/Asian															
Test scale = mean(unstandardized items)															
item-test item-rest interitem															
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label								
g_fo_03_re	26	+	0.4403	-0.0049	.185073	0.2512									
g_fo_04_re	28	+	0.7714	0.3913	-.1478209	.									
g_fo_08_re	28	+	0.5694	0.1958	.0090108	0.0144									
g_fo_30	27	+	0.4586	0.0739	.093562	0.1324									
g_fo_31	28	+	0.1537	-0.2448	.3394518	0.3867									
Test scale												.0965126	0.1724	mean(unstandardized items)	
-> mc = White															
Test scale = mean(unstandardized items)															
item-test item-rest interitem															
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label								
g_fo_03_re	98	+	0.6237	0.2604	.4166322	0.5024									
g_fo_04_re	97	+	0.7085	0.4246	.2942528	0.3784									
g_fo_08_re	98	+	0.5206	0.2529	.4790158	0.4871									
g_fo_30	98	+	0.4907	0.2006	.5296294	0.5255									
g_fo_31	98	+	0.5998	0.3680	.4152312	0.4391									

Test scale	.4268163	0.5254	mean(unstandardized items)				
-							
-> mc = .							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
-							
g_fo_03_re	12	+	0.7074	0.4747	2.165481	0.8715	
g_fo_04_re	11	+	0.8926	0.8308	1.914141	0.7877	
g_fo_08_re	12	+	0.9145	0.8394	1.685244	0.7804	
g_fo_30	12	+	0.7535	0.6376	2.33531	0.8381	
g_fo_31	12	+	0.7503	0.5998	2.208696	0.8450	
-							
Test scale	2.060502	0.8559	mean(unstandardized items)				
.							
. by mc: alpha g_pdi_05 g_pdi_13_re g_pdi_26_re g_pdi_27_re g_pdi_34_re, asis item label							
-							
-> mc = Black							
Test scale = mean(unstandardized items)							
-							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
-							
g_pdi_05	161	+	0.6514	0.3127	.3959706	0.4404	
g_pdi_13_re	163	+	0.7525	0.5092	.2526657	0.2991	
g_pdi_26_re	162	+	0.4703	0.0877	.6696955	0.5890	
g_pdi_27_re	159	+	0.4997	0.2508	.546283	0.4796	
g_pdi_34_re	163	+	0.5822	0.3779	.4601032	0.4199	
-							
Test scale	.4652486	0.5103	mean(unstandardized items)				
-							
-> mc = Coloured							
Test scale = mean(unstandardized items)							

item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_pdi_05	25	+	0.7234	0.4740	.7038889	0.6115	
g_pdi_13_re	25	+	0.8169	0.6315	.5425	0.5236	
g_pdi_26_re	25	+	0.3776	0.0498	1.280278	0.7955	
g_pdi_27_re	25	+	0.6864	0.5509	.8619444	0.6064	
g_pdi_34_re	25	+	0.7975	0.6755	.6813889	0.5435	
Test scale					.814	0.6793	mean(unstandardized items)
-> mc = Indian/Asian							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_pdi_05	28	+	0.2798	-0.1909	.5783834	0.6365	
g_pdi_13_re	28	+	0.6608	0.3272	.0987363	0.1659	
g_pdi_26_re	28	+	0.6820	0.4066	.0686292	0.1129	
g_pdi_27_re	25	+	0.5983	0.2222	.1682099	0.2684	
g_pdi_34_re	28	+	0.5488	0.3448	.179682	0.2376	
Test scale					.2181627	0.3623	mean(unstandardized items)
-> mc = White							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_pdi_05	98	+	0.6837	0.4675	.4350278	0.5090	
g_pdi_13_re	95	+	0.7590	0.5627	.3558554	0.4555	
g_pdi_26_re	97	+	0.5512	0.1868	.6108225	0.6721	
g_pdi_27_re	95	+	0.4910	0.1352	.662484	0.6831	
g_pdi_34_re	98	+	0.7911	0.6766	.3950822	0.4534	

Test scale	.4920885	0.6149	mean(unstandardized items)				
-> mc = .							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_pdi_05	12	+	0.8337	0.6332	.3059289	0.4464	
g_pdi_13_re	12	+	0.6716	0.4183	.6517787	0.6282	
g_pdi_26_re	12	+	0.6485	0.3480	.5635046	0.6200	
g_pdi_27_re	11	+	0.7388	0.6148	.6300505	0.5689	
g_pdi_34_re	12	+	0.4086	0.3149	.9284585	0.6745	
Test scale							
.6160658 0.6540 mean(unstandardized items)							
.							
. by mc: alpha g_col_07_re g_col_12 g_col_29_re g_col_35_re, asis item label							
-> mc = Black							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_col_07_re	158	+	0.6003	0.0699	.0546649	0.0562	
g_col_12	158	+	0.4377	-0.0153	.2335352	0.1942	
g_col_29_re	159	+	0.5021	0.1187	.001824	0.0016	
g_col_35_re	162	+	0.5677	0.0501	.0595121	0.0607	
Test scale							
.0878498 0.1064 mean(unstandardized items)							
-> mc = Coloured							
Test scale = mean(unstandardized items)							

item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_col_07_re	25	+	0.4651	0.0783	.435	0.2731	
g_col_12	25	+	0.5691	0.1214	.3161111	0.2281	
g_col_29_re	25	+	0.4705	0.0978	.4	0.2519	
g_col_35_re	25	+	0.6994	0.2339	.0522222	0.0478	
Test scale				.3008333	0.2648	mean(unstandardized items)	
-> mc = Indian/Asian							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_col_07_re	25	+	0.7332	0.3799	.1053457	0.1129	
g_col_12	27	+	0.6217	0.3375	.2572222	0.2125	
g_col_29_re	25	+	0.5178	0.1968	.4585589	0.3445	
g_col_35_re	28	+	0.5739	0.1991	.6346287	0.4852	
Test scale				.3615877	0.3667	mean(unstandardized items)	
-> mc = White							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_col_07_re	97	+	0.6805	0.2822	.2900489	0.2589	
g_col_12	97	+	0.5576	0.1713	.501787	0.3696	
g_col_29_re	96	+	0.5047	0.1604	.5835161	0.3976	
g_col_35_re	97	+	0.6313	0.2264	.3634111	0.3024	
Test scale				.4349464	0.4050	mean(unstandardized items)	
-> mc = .							
Test scale = mean(unstandardized items)							

item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_col_07_re	11	+	0.7479	0.4034	1.099198	0.5926	
g_col_12	11	+	0.8208	0.6251	.5727273	0.3737	
g_col_29_re	12	+	0.4477	0.1279	1.765278	0.7289	
g_col_35_re	12	+	0.8025	0.6287	.6121528	0.3663	
Test scale				1.006994	0.6099	mean(unstandardized items)	
.							
. by mc: alpha g_po_15_re g_po_18_re g_po_20_re, asis item label							
-> mc = Black							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_po_15_re	157	+	0.7268	0.2245	.625854	0.4673	
g_po_18_re	164	+	0.6974	0.3039	.4256005	0.2754	
g_po_20_re	161	+	0.6536	0.2839	.5727993	0.3412	
Test scale				.5428696	0.4544	mean(unstandardized items)	
-> mc = Coloured							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_po_15_re	25	+	0.7771	0.2621	.5362319	0.4522	
g_po_18_re	24	+	0.7938	0.5795	.2216667	0.1530	
g_po_20_re	25	+	0.6228	0.1575	1.094203	0.6586	
Test scale				.6119466	0.5286	mean(unstandardized items)	
-> mc = Indian/Asian							
Test scale = mean(unstandardized items)							

item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_po_15_re	24	+	0.8912	0.6279	.5740741	0.4800	
g_po_18_re	28	+	0.8206	0.5342	1.090909	0.6006	
g_po_20_re	27	+	0.6626	0.4380	1.853261	0.7276	
Test scale				1.149583	0.7157	mean(unstandardized items)	
-> mc = White							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_po_15_re	95	+	0.7905	0.3811	.8609321	0.6440	
g_po_18_re	98	+	0.7431	0.4610	.8011897	0.4770	
g_po_20_re	97	+	0.7624	0.4983	.762374	0.4462	
Test scale				.8085587	0.6130	mean(unstandardized items)	
-> mc = .							
Test scale = mean(unstandardized items)							
item-test item-rest interitem							
Item	Obs	Sign	corr.	corr.	cov.	alpha	Label
g_po_15_re	11	+	0.7479	0.4558	1.227273	0.6213	
g_po_18_re	12	+	0.8758	0.5075	.6909091	0.5672	
g_po_20_re	12	+	0.7500	0.5140	.9454545	0.4824	
Test scale				.9625668	0.6548	mean(unstandardized items)	

APPENDIX K:
CORRELATION TABLES FOR ERMV CONSTRUCTS & CULTURE
DIMENSIONS

Risk_1~c	Risk_2~c	g_po_agg	g_col_~g	g_pdi_~g	g_fo_agg	h_ivr_~g	
Risk_1_Org~c	1.0000						
163							
Risk_2_Mec~c	0.9185	1.0000					
0.0000							
163	163						
g_po_agg	-0.0052	-0.0089	1.0000				
0.9493	0.9127						
153	153	154					
g_col_agg	-0.0048	-0.0173	0.3352	1.0000			
0.9537	0.8340	0.0000					
149	149	146	149				
g_pdi_agg	0.1006	0.0877	-0.3385	-0.1539	1.0000		
0.2175	0.2827	0.0000	0.0656				
152	152	147	144	153			
g_fo_agg	-0.0427	-0.0224	0.4210	0.2785	-0.5127	1.0000	
0.5991	0.7826	0.0000	0.0007	0.0000			
154	154	149	144	147	155		
h_ivr_agg	-0.2043	-0.2001	-0.2033	-0.0378	0.0464	-0.0832	1.0000
0.0096	0.0112	0.0123	0.6506	0.5725	0.3063		
160	160	151	146	150	153	161	
h_lto_agg	-0.0122	-0.0406	0.2090	-0.0200	-0.1982	0.1158	-0.1533
0.8782	0.6099	0.0103	0.8110	0.0154	0.1556	0.0545	
160	160	150	146	149	152	158	

h_uai_agg	0.2086	0.1900	0.1106	-0.0855	-0.2004	0.1604	-0.3662
0.0079	0.0158	0.1751	0.3032	0.0136	0.0476	0.0000	
161	161	152	147	151	153	159	
h_mas_agg	-0.0317	-0.0807	0.0374	-0.1543	0.0360	-0.0609	0.0279
0.6907	0.3104	0.6484	0.0630	0.6622	0.4562	0.7279	
160	160	151	146	150	152	158	
h_pdi_agg	0.0455	0.0594	0.0115	-0.0036	-0.0765	-0.0223	0.0727
0.5666	0.4542	0.8881	0.9652	0.3504	0.7841	0.3609	
161	161	152	147	151	154	160	
h_lto~g	h_uai~g	h_mas~g	h_pdi~g				
h_lto_agg	1.0000						
160							
h_uai_agg	0.1808	1.0000					
0.0225							
159	162						
h_mas_agg	0.0704	0.0496	1.0000				
0.3809	0.5349						
157	159	161					
h_pdi_agg	0.0451	-0.0348	-0.0074	1.0000			
0.5724	0.6622	0.9263					
159	160	159	162				
-> mc = Coloured							
Risk_1~c	Risk_2~c	g_po_agg	g_col~g	g_pdi~g	g_fo_agg	h_ivr~g	
Risk_1_Org~c	1.0000						
25							

Risk_2_Mec~c	0.9900	1.0000						
0.0000								
25	25							
g_po_agg	0.4436	0.4534	1.0000					
0.0299	0.0261							
24	24	24						
g_col_agg	0.5566	0.5476	0.3838	1.0000				
0.0039	0.0046	0.0641						
25	25	24	25					
g_pdi_agg	0.2386	0.2069	-0.0893	0.1633	1.0000			
0.2506	0.3211	0.6783	0.4353					
25	25	24	25	25				
g_fo_agg	0.2041	0.2331	0.5809	0.0955	-0.5906	1.0000		
0.3277	0.2622	0.0029	0.6499	0.0019				
25	25	24	25	25	25			
h_ivr_agg	-0.0973	-0.1202	-0.4861	0.0407	0.1506	-0.3624	1.0000	
0.6589	0.5850	0.0218	0.8537	0.4929	0.0893			
23	23	22	23	23	23	23		
h_lto_agg	0.3791	0.3511	0.3422	0.1553	0.1309	-0.0235	-0.1289	
0.0677	0.0925	0.1100	0.4687	0.5421	0.9132	0.5577		
24	24	23	24	24	24	23		
h_uai_agg	-0.3457	-0.2615	0.7424	0.2151	-0.1719	0.3261	-0.3783	
0.1151	0.2398	0.0001	0.3363	0.4444	0.1385	0.0825		
22	22	21	22	22	22	22		
h_mas_agg	-0.1132	-0.1200	-0.2524	-0.3517	-0.1014	0.0007	0.0035	
0.5900	0.5677	0.2342	0.0847	0.6296	0.9975	0.9873		
25	25	24	25	25	25	23		
h_pdi_agg	-0.1551	-0.1058	-0.3409	0.1173	0.3445	-0.3839	0.3818	
0.4692	0.6227	0.1114	0.5851	0.0993	0.0640	0.0795		
24	24	23	24	24	24	22		

h_lto_~g h_uai_~g h_mas_~g h_pdi_~g
h_lto_agg 1.0000
24
h_uai_agg 0.3409 1.0000
0.1205
22 22
h_mas_agg -0.1414 0.0195 1.0000
0.5100 0.9315
24 22 25
h_pdi_agg -0.1224 -0.1814 -0.5167 1.0000
0.5779 0.4313 0.0097
23 21 24 24
-> mc = Indian/Asian
Risk_1~c Risk_2~c g_po_agg g_col_~g g_pdi_~g g_fo_agg h_ivr_~g
Risk_1_Org~c 1.0000
28
Risk_2_Mec~c 0.9749 1.0000
0.0000
28 28
g_po_agg 0.0402 0.0440 1.0000
0.8556 0.8418
23 23 23
g_col_agg 0.1049 0.1227 0.1602 1.0000
0.6256 0.5678 0.4878
24 24 21 24

g_pdi_agg	0.0098	0.0184	-0.2411	0.1012	1.0000		
0.9630	0.9304	0.2798	0.6379				
25	25	22	24	25			
g_fo_agg	-0.0366	-0.0312	0.3031	-0.3094	-0.5449	1.0000	
0.8622	0.8824	0.1818	0.1508	0.0072			
25	25	21	23	23	25		
h_ivr_agg	-0.1929	-0.1969	0.1917	0.2275	0.3701	-0.2730	1.0000
0.3254	0.3152	0.3808	0.2850	0.0686	0.1867		
28	28	23	24	25	25	28	
h_lto_agg	-0.1371	-0.0876	-0.0103	-0.2718	-0.0149	-0.0450	0.1855
0.4952	0.6638	0.9637	0.2097	0.9451	0.8346	0.3543	
27	27	22	23	24	24	27	
h_uai_agg	0.0107	0.0584	0.2726	0.1539	-0.4138	-0.0483	-0.4090
0.9571	0.7680	0.2083	0.4728	0.0398	0.8187	0.0307	
28	28	23	24	25	25	28	
h_mas_agg	-0.4309	-0.4440	0.1631	-0.0308	-0.4078	0.1270	0.2385
0.0280	0.0231	0.4683	0.8889	0.0479	0.5543	0.2406	
26	26	22	23	24	24	26	
h_pdi_agg	0.0092	-0.0379	-0.3881	-0.0942	0.4359	-0.3050	0.0201
0.9630	0.8481	0.0673	0.6616	0.0294	0.1381	0.9190	
28	28	23	24	25	25	28	
h_lto_~g	h_uai_~g	h_mas_~g	h_pdi_~g				
h_lto_agg	1.0000						
27							
h_uai_agg	0.0768	1.0000					
0.7034							
27	28						

h_mas_agg	0.0976	0.0491	1.0000
0.6425	0.8117		
25	26	26	
h_pdi_agg	0.0868	-0.4551	-0.2691 1.0000
0.6668	0.0150	0.1837	
27	28	26	28
-> mc = White			
Risk_1~c	Risk_2~c	g_po_agg	g_col_~g g_pdi_~g g_fo_agg h_ivr_~g
Risk_1_Org~c	1.0000		
98			
Risk_2_Mec~c	0.8887	1.0000	
0.0000			
98	98		
g_po_agg	-0.0552	0.0089	1.0000
0.5970	0.9321		
94	94	94	
g_col_agg	-0.1670	-0.1049	-0.0407 1.0000
0.1076	0.3143	0.7014	
94	94	91	94
g_pdi_agg	0.1535	0.1339	-0.4631 0.0332 1.0000
0.1464	0.2056	0.0000	0.7576
91	91	88	89 91
g_fo_agg	-0.0114	-0.0224	0.4626 -0.1110 -0.4033 1.0000
0.9121	0.8274	0.0000	0.2896 0.0001
97	97	93	93 90 97
h_ivr_agg	0.0023	-0.0499	-0.1155 0.0856 0.0949 0.1166 1.0000
0.9821	0.6275	0.2703	0.4144 0.3738 0.2580
97	97	93	93 90 96 97

h_lto_agg	-0.2376	-0.1421	0.2574	-0.0171	-0.1064	0.0699	-0.1685
0.0204	0.1696	0.0138	0.8722	0.3212	0.5034	0.1045	
95	95	91	91	89	94	94	
h_uai_agg	-0.1864	-0.1535	0.0968	0.0238	0.0076	0.0338	-0.1051
0.0662	0.1312	0.3535	0.8201	0.9429	0.7422	0.3055	
98	98	94	94	91	97	97	
h_mas_agg	-0.1012	-0.0881	0.1475	0.0826	-0.1366	0.0341	0.1917
0.3242	0.3909	0.1582	0.4310	0.1993	0.7416	0.0613	
97	97	93	93	90	96	96	
h_pdi_agg	0.1674	0.1455	-0.1329	0.0462	0.1503	-0.1730	0.1323
0.0995	0.1529	0.2015	0.6586	0.1550	0.0901	0.1965	
98	98	94	94	91	97	97	
h_lto~g	h_uai~g	h_mas~g	h_pdi~g				
h_lto_agg	1.0000						
95							
h_uai_agg	0.2053	1.0000					
0.0460							
95	98						
h_mas_agg	-0.0125	0.0536	1.0000				
0.9050	0.6024						
94	97	97					
h_pdi_agg	-0.1718	-0.2577	0.0232	1.0000			
0.0959	0.0104	0.8217					
95	98	97	98				
-> mc = .							
Risk_1~c	Risk_2~c	g_po_agg	g_col~g	g_pdi~g	g_fo_agg	h_ivr~g	
Risk_1_Org~c	1.0000						

12
Risk_2_Mec~c 0.7776 1.0000
0.0029
12 12
g_po_agg 0.0447 -0.1536 1.0000
0.8961 0.6521
11 11 11
g_col_agg 0.1494 -0.1468 0.6903 1.0000
0.6804 0.6857 0.0271
10 10 10 10
g_pdi_agg -0.3590 -0.2478 -0.4240 -0.3545 1.0000
0.2782 0.4626 0.1938 0.3149
11 11 11 10 11
g_fo_agg -0.0820 -0.2727 0.7226 0.5913 -0.5399 1.0000
0.8105 0.4172 0.0182 0.0718 0.1072
11 11 10 10 10 11
h_ivr_agg -0.4733 -0.2720 0.0649 0.1544 0.4382 -0.0060 1.0000
0.1201 0.3924 0.8497 0.6703 0.1777 0.9861
12 12 11 10 11 11 12
h_lto_agg -0.1828 -0.0353 -0.2062 -0.1196 0.2351 -0.1150 -0.4802
0.5906 0.9180 0.5677 0.7593 0.5131 0.7518 0.1350
11 11 10 9 10 10 11
h_uai_agg 0.4024 0.4097 0.1286 -0.1799 -0.2995 -0.2729 -0.5698
0.2198 0.2108 0.7233 0.6432 0.4005 0.4455 0.0672
11 11 10 9 10 10 11
h_mas_agg 0.1204 0.0266 -0.2019 -0.4335 -0.0674 -0.0665 -0.4004
0.7094 0.9347 0.5517 0.2107 0.8439 0.8459 0.1971
12 12 11 10 11 11 12

h_pdi_agg	-0.6675	-0.5726	0.0835	0.4426	0.1437	0.0629	0.3457
0.0248	0.0656	0.8187	0.2329	0.6921	0.8631	0.2977	
11	11	10	9	10	10	11	
h_lto_~g h_uai_~g h_mas_~g h_pdi_~g							
h_lto_agg 1.0000							
11							
h_uai_agg 0.2983 1.0000							
0.3730							
11	11						
h_mas_agg 0.0008 0.4030 1.0000							
0.9980 0.2191							
11	11	12					
h_pdi_agg 0.2569 -0.2147 -0.3794 1.0000							
0.4737 0.5515 0.2499							
10	10	11	11				