Assessment of Construct Validity of Mishra and Mishra's Trust Scale in the Context of Merger and Acquisition in India

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ABSTRACT

The role of trust in merger and acquisition has increasingly been recognized by scholars and practitioners. However, empirical research in this area has been faced with different conceptualization of trust construct, inadequate dimensions and a lack of validated trust scale. This limitation is addressed in this paper by theoretically and empirically validating Mishra and Mishra's (1994) trust scale in the context of merger and acquisition in India. This scale used four trust dimensions, namely; openness, competency, caring and reliability. The items of the scale proved to be content valid among 25 subject matter experts. Additionally, in a sample of 100 respondents of key acquired employees, the scale exhibited adequate levels of reliability, convergent validity, discriminate validity and nomological validity.

Key words: construct Validity, Mishra and Mishra's (1994) scale of trust, merger and acquisition.

1. INTRODUCTION

There has been a recent dramatic resurgence of scholarly interest of trust in management discipline, specifically in cooperative strategies (Inkpen & Currall, 2004; Rousseau, Sitkin, Burt, & Camerer, 1998; Zaheer & Harris, 2006). Long ago, trust was the subject of discussion among philosophers and politicians. It became the center of focus during the Cold War (Deutsch, 1958). During 1970, trust was researched in the context of individual personality traits (Rotter, 1967). In the 1980s, with alarming divorces and radical changes in American society, research on trust shifted to interpersonal relationships. In the 1990s, trust continued as a subject of study among sociologist (Coleman, 1990), economists (Fukuyama, 1995) and organizational scientists (Gambetta, 1988; Kramer & Taylor, 1996). Though the importance of trust is widely recognized in different fields, it still remains a complex phenomenon. This is why Hosmer (1995) commented that "there appears to be widespread agreement on the importance of trust in human conduct, but unfortunately there also appears to be an equally widespread lack of agreement on a suitable definition of the construct." According to Child (2001) "trust remains an under-theorized, under-researched and, therefore, poorly understood phenomenon." This problem appears to be more severe in organizational trust (Zaheer & Harris, 2006). There is an immense need among the researchers for theoretically and

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empirically rigorous instrument to measure a complex unobservable construct like trust. It is because instrument construction is important in advancing research by bringing rigor to the process of scientific enquiry, improving the replicability and trustworthiness of research findings, and permitting confirmatory research (Straub, 1989). In management discipline one such area that has attracted significant interest among scholars, but has received little attention to scale development or validation, is the 'trust' in corporate mergers and acquisitions (M&As).

Why is trust important in M&As? Researchers in this field are trying to explain the performance variance from different perspectives and recent advances in research into M&As concerns the role of trust. Though scholars emphasize that trust is of critical importance to the success of M&As, few attempts have been made so far to understand the role of trust mainly in terms of case studies (Buono, Bowditch, & Lewis, 1985; Cartwright & Cooper, 1992) and interviews (Napier, Simmond, & Stratton, 1989; Schweiger, Ivancevich, & Power, 1987). In understanding the importance of trust in M&As, the definition of Mayer, Davis, & Schoorman (1995, p.712) would be appropriate. They viewed trust as "the willingness of a party [trustor] to be vulnerable to the actions of another party [trustee] based on the expectations of the other [trustee] will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party [trustee]". According to this definition, risk and vulnerability are the two ingredients of trust. Risk connotes the likelihood of experiencing negative outcomes if the other party is untrustworthy. This risk must be present for trust to operate, and the trustor must be willing to be vulnerable (Stahl & Sitkin, 2004). Researchers applied the trustor's vulnerability of dependency in various types of business combinations, namely, strategic alliances (Currall & Judge, 1995; Inkpen & Currall, 1997) and M&As (Stahl & Sitkin, 2004). In M&As, the sources of risks are numerous, especially for those employees in the acquired firm. Researchers have often described mergers as a major life change and considerable attention has been given to employees' reactions in this situation. One such reaction is uncertainty (Marks, 1982; Sineter, 1981). The manifestation of such uncertainty can be traced to various issues such as concern about job security (Mace & Montgomery, 1963), fear of decline in status or career prospects (Stewart, Wingate, & Smith, 1963), feelings of being sold out (Black & Mouton, 1985) and a sense of loss, both in a general sense and a specific loss of control over ones' career, autonomy and organization identity (Napier, 1989). The greater the uncertainty, the more distrustful would be the employees (Cartwright & Cooper, 1992, p. 200; Lines, Selart, Espedal, & Johansen, 2005). Several other researchers have opined that trust is a central factor in enhancing an organization's long-term success and survival, especially as environments become increasingly uncertain (Gambetta, 1988). Experts also say that building trust among the employees of the combining organizations is the necessary step to foster co-operation and to make a post-combination team (Devine, 2003, p.171; Marks & Mirvis, 1998, p. 245) during integration to achieve synergistic potential of a deal. Sitkin and Roth (1993) argued that when cultural incompatibility exists and employees' belief and value systems differs between the merging firms, distrust is engendered. Shirley's (1973) contention was that in mergers the degree of trust in top management is a significant factor affecting initial employee reactions to plan for the change.

Research on trust in the context of M&As is beginning to emerge. However, conflicting conceptualization of trust construct (Mayer et al., 1995), inadequate understanding of the relationship between trust, its antecedents and consequents (Rousseau et al., 1998), and poor and invalidated scales (Bhatterjee, 2002) are becoming hindrances to the researchers. We address this problem by validating Mishra and Mishra's (1994) scale in the M&As setting in India mainly for the following reasons. First, to the best of our knowledge there has been no study on trust that has been conducted in India in the context of M&As. A previously validated scale is, therefore, unavailable. Second, this scale was applied in the context of organizational downsizing. The environment circumventing downsizing strategy is very similar to that M&As where headcounts are not uncommon. So we believe that this scale would be appropriate to be used in the context of M&As. Finally, the scale was constructed almost a decade ago and was administered in US. The reliability and validity of this scale were not reported in the original study and the usefulness of this scale in other countries is unknown. Therefore, the objective of this paper is to validate the above mentioned scale of trust in an Indian M&A context via exploratory as well as confirmatory modes to demonstrate its psychometric properties which include content validity, dimensionality, reliability, convergent validity, discriminant validity and nomological validity.

2. THEORETICAL UNDERPINNINGS

2.1 Conceptualizing Trust in M&As

Though trust is a multifaceted concept which has been examined in several disciplines, certain commonalities can be drawn from the multiplicity of trust conceptualizations. First, trust can be viewed at the individual level, or at the group level or at the organizational level. Specifying the referent, that is, trust in who is important because trust in a different referent may be caused by different factors (Dirks & Parks, 2003). Individual level trust is seen in most of the work relationships (for instance an employee can trust his supervisor). We argue that in M&As, an acquired employee's trustworthiness on the acquirer's top management team members is very crucial during the integration period. Interpersonal trust is stronger when acquired employees feel confident that each of the members of the top management team of the acquirer will act in a fair, competent, caring and reliable manner in potentially uncertain and stressful situations. Our contention, however, does not mean that group or organizational level trust do not exist during M&As. At the group level, acquired employees trust may foster cooperation and commitment and may enhance the performance of the various task forces of the integration team. Even at the organizational level, the acquired employees may have a lower amount of trust with the acquiring company, where the cultures of the two companies are substantially different. We, however, expect that an individual level of trust of the employees of the acquired firm is critical in shaping the integration outcome in most M&As. Second, trust can be based on a personality trait or domain-specific psychological state (Mayer et al., 1995). Personalities are

characteristics which are shaped by factors extraneous to a given context and are independent of situational stimuli. It is also known as dispositional trust. Psychological traits include cognitive and affective elements that change with situations and may be influenced by the person's interaction with the situation (Bhattacherjee, 2002). Scholars argue that a psychological state is more predictive of specific behavior than the personality traits because of its inability to distinguish between situational differences. It is possible that in M&As, a target firm employee, who is relatively trusting in his personal life, may show less trust to the acquiring firm managers. So, trust in the context of M&As can be viewed as a domain-specific psychological state. Third, scholars have conceptualized trust in various ways, such as belief, attitude, intention and behavior. Trust as intention (Fishbein & Ajzen, 1975) is based on the person's cognitive beliefs about the other person (Bromiley & Cummings, 1995). This belief forms a construct that is known as trusting beliefs. Beliefs about the other person means that trustor's perception of trustees' attributes that may influence trustee's behavior. These beliefs are often referred to trust itself. Such beliefs form the core of the cognitive concept that is manifested in intention to trust, which in turn is manifested in trusting behavior (McKnight, Cummings, & Chervany, 1996). Mishra and Mishra's (1994) measure of trust is based on this foundation.

The extant review of literature identified several dimensions (belief) of trust which includes benevolence (Bromily & Cummings,1995; Jarvenapaa, Knoll, & Leidner, 1998; Larzelre & Huston, 1980; Mayer et al., 1995), honesty (Cummings & Bromiley, 1996; Larzelre & Huston, 1980), competence (Dobing, 1993; Mishra, 1993; Sitkin & Roth, 1993), predictability (Sheppard & Sherman, 1998; Zaheer, McEvily, & Perrone, 1998), and others. However, one clear theme is that trust is a multidimensional construct. In the next section we describe the dimensions of trust conceptualized by Mishra and Mishra (1994) to explain how these dimensions are affected in the context of M&As in influencing the trust of acquired employees.

2.2 Trust Dimensions

Openness as a construct of trust means flow of information. Information is shared either to get a job done or it may be personal between trustor and trustee (Mishra, 1996). Butler and Cantrell (1984) see openness as mental accessibility, or the willingness to share ideas and information freely with others. This openness signals reciprocal trust, a confidence that neither the information nor the individual will be exploited, and recipients can feel the same confidence in return. In the context of M&As, failure of the acquirer to share critical information with the employees of the acquired firm may adversely affect the perception of openness (Stahl & Sitkin, 2004) and consequently the trust (Napier et al., 1989). Critical information may encompass how decisions are made in the acquiring company, the strategic goals of the company, the new management team, the rationale of the acquisition including the synergies behind the deal, as well as the company's values and expectations explaining what are required to be successful within the new organization.

Competency is the ability, at both technical and managerial levels (Bews and

Uys, 2002) to make some positive difference for the trustor (Mayer et al., 1995). Butler and Cantrell (1984) opine that competence is the technical and interpersonal skill required to perform a job. In the context of M&As, the acquired employees' perception of the acquirer's competency is based on the belief of whether the top managers of the acquirer are competent (in terms of experience, skill etc.) enough to perform the intended behavior of action in areas where the acquired firm has superior knowledge or experience. Where the target firm is smaller or more successful, this belief is often manifested in individual resistance (Haunschield, Moreland, & Murrell, 1994), rejection and non-compliance towards an acquirer's actions (Marks & Mirvis, 1985) as they abandon their old organizational identity and interact with the members of the acquirer to learn new ways of doing things and possibly new cultural expectations.

Caring is another common facet of trust. It is the confidence that one's well being or something one cares about will be protected and not harmed by the trusted party (Butler & Cantrell, 1984; Cummings & Bromily, 1996; Gambetta, 1988; Mishra, 1996). Trust is the assurance that others will not exploit one's vulnerability or take advantage even when the opportunity is available. (Cummings & Bromily, 1996). Mishra (1996) describes caring as the balancing of one's self–interest with other's interests, whether as a team, or at an organizational or societal level. Marks and Mirvis (1998; p 45) commented that in M&As the survivor syndrome (mostly experience by the acquired staff) may erode trust and increase cynicism as the employees feel that their leaders are not doing anything to reduce stress or prevent cultural clash, and they are not cared for. Lines et al., (2005) opined that organizational change, which leads to removal of autonomy and job loss, will create an impression of non-benevolence. In other words, employees of the acquired firm pay close attention as to how they have been treated during the difficult times. If they feel that they are uncared for, their trust of the acquirer suffers. That is why the practitioners suggest that the acquirer management should demonstrate empathy with the employees who have lost their jobs and share the concerns and needs of those who are still surviving.

Reliability means predictability. In other words, there must be a consistency of behavior and knowing what to expect from others (Butler & Cantrell, 1984). However, in the context of trust, reliability specifically means that there is a sense of predictability that one's need would be met in positive ways. When there is a degree of interdependence, something is required from a trustee, he is expected to supply it. Daniel and Metcalf (2001) prescribed that in merger communication, consistency will generate credibility. However, inconsistence information (Stahl & Sitkin, 2004) and behavior provided by the acquirer can adversely affect the target firm members' perception about the acquirer's integrity and reliability.

Though the literature reveals many dimensions, some of which may even be overlapping, we expect that the above four trust dimensions are conceptually distinct as they tap different aspects of individual trust. Yet, collectively they represent a comprehensive dimension for trust formation. Following Mayer et al., (1995), we expect these four factors to vary independently, although they are not unrelated.

3. METHODS

In order to validate the instrument, we adopt a two phase research design. In the first phase we assess the content validity of each item of the proposed scale among a group of experts. The main objective is to identify poorly scaled items and to assess the content validity of the scales. The second (main) phase consists of three distinct steps. The first step is the exploratory stage where the trust scale is submitted for an in-depth item analyses and an exploratory factor analysis to extract an interpretable factor structure. In the second step, using the same sample, some priori models are put to a confirmatory factor analysis (CFA). A critical aspect of the increased rigor of CFA is to test for construct validity of the sub-scales of trust including unidimensionality, convergent validity and discriminant validity. The third step calls for nomological validity where the constructs of trust are examined to determined whether they behave as expected in the theoretically derived nomological net.

3.1 The Trust Scale

Mishra and Mishra's (1994) trust scale is based on sixteen items. These items capture four dimensions of trust: openness, competence, caring and reliability. This instrument was developed to explore the relationship between mutual trust and downsizing strategies. As reported in the original study, the number of respondents was 511 representing 43 firms from the North American automotive industry. For the current study, the wordings of each item were not changed but put to the context of acquisitions to tap the responses from target firms' employees on the perceived trustworthiness of acquiring firms' top management team members during integration. The response type was, however, changed to a 5 point Likert-type system, with responses ranging from 1(= strongly disagree) to 5 (= strongly agree). All items of this scale are positively loaded. Each dimension (factor) has four items. So each factor score ranges from 4 to 20 (high scores indicating higher level of trust). The items of the scale are given in the Appendix. When administered, items were given to the respondents in a random fashion irrespective of their scales.

3.2 Sample of the Main Study

Sampling of companies presented some unique problems for this study. First a target sample base was created which comprised of 160 acquired companies across India, taken from a list of acquisitions provided by the Securities and Exchange Board of India (SEBI), Prowess database of M&As, various business articles and internet search engines. Two conditions were imposed in selecting firms. First, all partial acquisitions were excluded. Second, we allowed a minimum integration period of one year from the date of announcement of the deal. Letters of request were then sent to those organizations but the responses were disappointing and finally thirty-eight responses were obtained, giving a response rate of 23.75

percent. Realizing the importance of the sample size in scale development process (Hinkin, 1995), a sample size of thirty-eight was considered to be inadequate. Therefore, in the second stage, the remaining 122 firms were contacted again. Thirty-six firms rejected participation out right and most of them cited confidentiality and a policy of non-participation in surveys as reasons for non-participation. A second lot of questionnaires were again sent to eighty-six firms. Of them, seventy-nine firms responded - though quite a number of responses were received by e-mails and after third and final reminder - thus making a total sample of 117 firms. A thorough screening was done before the sample was subjected to final analyses. Seventeen responses had to be rejected because of missing information, lack of source of responses and unreliability. This left a total of 100 usable responses for this study and all the responses were obtained within one stipulated year of the integration. The sampling process was non-random by design. The decision to use this procedure was not unjustified as a low response rate is typical of M&A research (Marks, 1982), and firm level survey research in India has typically indicated a very low response rate, ranging from 6 percent to 12 percent (Roy, 2003).

In this study key informants were only requested to provide data. Key respondents were those business unit heads or the senior managers of the acquired firms who took an active part in the acquisition process. They were asked to provide their perceived trustworthiness with the top management team members of the acquiring firms. Using key respondent for data collection would enable the researcher to ensure that these executives were adequately knowledgeable about acquisitions. Out of 100 respondents, 22 percent belonged to top managerial level carrying the titles of Vice President or President and 78 percent belonged to middle level having designations of various operational and administrative managers.

3.3 Non-response Bias and Sample Representativeness

The sample, thus obtained, was subjected to a test of non-response bias. For this, the total number of respondents were categorized into two groups viz. 'respondents' (N=64) and 'late respondents' (N=36). The late respondents were those respondents who responded after the third reminder. The rationale of treating late respondents as a proxy of non-respondents is that the late respondents could have been categorized as non-respondents, had they not been reminded further (Armstrong & Overton, 1977). An independent sample t-test was done among 'respondents' and 'late-respondents' along 'age' and 'years of experience'. For both these variables no significant mean differences were found between the two groups along age (t= -1.88, p = 0.06) and years of experience (t = .28, p = 0.78), ruling out any significant response bias. The above results, while by no means definitive, give some evidence that the sample represents the population.

4. RESULTS

4.1 Phase 1: Assessment of content validity

In this study content validity was assessed by fifteen subject matter experts (SMEs), seven of who were faculty experts and the remainder were managers. Each SME was given a content validity questionnaire to complete two tasks. They classified each item of the scale along any one of the four dimensions (openness, competency, caring, reliability). A choice of classifying items as 'unidentifiable' was also given among the construct classification options. Apart from this, the SMEs rated the extent to which each item matched the given definition of constructs. The response scale was as follows: 1= does not match with the definition; 4= matches the definition almost exactly. Table 1 shows the following results: how each item was classified, the mean rating of the extent to which the SMEs thought the items matched with the given definition of the respective constructs, and a content validity ratio (CVR). Though the table is organized by scales, items were randomly presented to the SMEs. To assess the content validity of each item, we calculated a CVR for each item (Lawshe, 1975) based on the following formula:

$$CVR = (n_e - N/2) / (N/2)$$

where ne is the number of experts who correctly classified each item as to its dimensionality and who also rated it as 4 (matches the construct definition almost correctly) and N is the total number of SMEs. A CRV of 1.0 indicates that the item is perfectly content valid according to SMEs. With a panel of fifteen experts, a minimum CRV value of 0.49 (p<0.05) is required to conclude that an item is content valid. Additionally, Hinkin (1998) has recommended that a minimum correct item classification of 75% be required to provide evidence of content validity. The results showed that the minimum CVR and correct classification ratio in our case were 0.60 and 80% respectively, thereby satisfying both the minimum criteria for all items. Moreover, in all cases the mean rating for each item was much above 3 (matches major part of the definition). Therefore, at this stage we conclude that none of the items are poorly constructed and there is no possibility of dropping items for further statistical analyses. It is also evident that the items are content valid.

4.2 Phase 2: Main study

(1) Data screening

The mean, standard deviation and the first order correlations among the items comprising the trust scale are given in Table 2. To detect univariate outliers and normality of distributions of items, z-scores were generated for all variables of the study. No z-scores exceeded the recommended threshold of 3, which may indicate the potential outliers (Hair, Anderson, Tatham, & Black, 1995). To examine the normality of items, the skewness and kurtosis of the z-scores were thoroughly investigated. According to Curran, West, & Finch, (1996), skewness ranging from 2 to 3 and, kurtosis between 7 and 21 indicate moderately non-normal distributions.

Skewness and kurtosis above 3 and 21 indicate extremely non-normal distributions. In our dataset skewness ranged from -0.62 to -0.34 and kurtosis ranged from -1 to -0.24, suggesting no serious departures from normality.

Table 1. *Results of classification of items by experts and corresponding content validity ratio*

Trust items	Number of subject matter experts identifying trust items as					% Identified Correctly [a]	Mean Rating [b]	CVR
	openness	competence	caring	reliability	unidentifiable			
I trust that the acquirer's top management team members								
Openness								
1. Are completely honest with me	12	0	0	3	0	80	3.87	0.6
2. Express their true feelings about important issues	13	2	2	0	0	86	3.87	0.6
3. Share important information with me	15	0	0	0	0	100	3.87	0.6
4. Would acknowledge their own mistakes	15	0	0	0	0	100	4	0.6
Competence								
5. Are competent in performing their jobs	0	15	0	0	0	100	4	1
6. Can contribute to the success of our organization	0	12	3	0	0	80	3.8	0.6
7. Can help solve important problems in our organization	0	15	0	0	0	100	4	1
8. Can help our organization to survive through bad times	0	15	0	0	0	100	3.87	0.87
Caring								
9. Place our organization's interests above their own	3	0	12	0	0	80	3.67	0.6
10. Care about my well being	0	1	14	0	0	93	4	0.87
11. Care about the future of our organization	0	0	15	0	0	100	4	1
12. Would make personal sacrifices for our organization	0	0	15	0	0	100	3.87	0.87
Reliability								
13. Will keep the promises they make	2	0	0	13	0	86	3.8	1
14. Can be relied upon	0	0	0	15		100	4	1
15. Actions are consistence with their words	1	0	0	14	0	93	3.87	0.87
16. Have consistent expectations of me	1	0	0	14	0	93	4	0.87

Notes. A: % of SME's agree that the item is correctly classified.

B: Rating of the extent to which a scale item matches the definition of the scale (1=does not match the definition; 2= matches some part of the definition; 3= matches most part of the definition; 4= matches the definition almost exactly).

C: Data in this table are based on judgments of 15 subject matter experts (SMEs).

D: With 15 judges, a CVR of 0.49 or more is needed to conclude that the item is relevant to the construct at the 0.05 level.

Table 2. *Means, standard deviations and correlations of trust items*

Items	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	3.54	1.13	1															
2	3.61	1.14	0.86	1														
3	3.50	1.24	0.79	0.85	1													
4	3.53	1.18	0.83	0.82	0.84	1												
5	3.64	1.03	0.43	0.48	0.45	0.42	1											
6	3.55	1.13	0.49	0.54	0.51	0.50	0.87	1										
7	3.55	1.18	0.42	0.50	0.46	0.46	0.84	0.84	1									
8	3.55	1.11	0.46	0.54	0.53	0.47	0.84	0.89	0.79	1								
9	3.44	1.17	0.48	0.52	0.55	0.53	0.27	0.33	0.31	0.35	1							
10	3.55	1.23	0.48	0.54	0.53	0.53	0.37	0.40	0.40	0.42	0.76	1						
11	3.51	1.17	0.46	0.55	0.53	0.53	0.36	0.45	0.42	0.45	0.73	0.89	1					
12	3.45	1.15	0.51	0.52	0.53	0.54	0.33	0.38	0.33	0.32	0.74	0.86	0.85	1				
13	3.41	1.21	0.47	0.48	0.47	0.51	0.50	0.53	0.63	0.52	0.37	0.34	0.37	0.31	1			
14	3.39	1.19	0.46	0.51	0.50	0.49	0.52	0.51	0.56	0.52	0.37	0.43	0.48	0.37	0.86	1		
15	3.40	1.16	0.47	0.52	0.52	0.50	0.48	0.48	0.48	0.50	0.40	0.41	0.47	0.39	0.80	0.88	1	
16	3.43	1.16	0.52	0.53	0.51	0.53	0.50	0.50	0.55	0.53	0.38	0.41	0.43	0.38	0.84	0.84	0.83	1

Note. All correlations are significant at .01 level.

(2) Item level analysis

Discriminatory power, corrected item-total correlation and Cronbach alpha (if deleted) measures were generated for all items (Table 3). The discriminatory power determines the discriminating function of each item. The measure involves three steps (Lin, Wang, Li, & Huang, 2007). First, an overall score for a respondents' answer is computed by adding the points of all items within a scale or domain. Second, the mean score of each item is calculated for those respondents whose overall score is in the first quartile and for respondents whose overall score is in the last quartile. In the last step, the discriminatory power for each item is calculated by subtracting the mean scores in the first quartile from the mean scores in the last quartile. The higher the power, the better would be the item in distinguishing the differences among responses. All the items showed adequate power (>2), thus ruling out any possibility of elimination at this stage. Item-total correlation was obtained to determine how each item was related to other items in a scale. It was tested by corrected item-total correlations. A correlation higher than 0.2 (Kline, 1993) is suggestive of the indication that each item has a good correlation with the domain. Corrected item-total correlations were all very respectable (>0.78). It was also found that dropping any one of the respecting items of the scales would not raise alpha significantly higher than their present values.

(3) Exploratory factor analysis

As none of the items could be deleted in the previous step, all sixteen items were retained for factor analysis to determine the underlying factor structure of the data. First the inter-correlations among pairs of variables were examined thoroughly to look for high coefficients (>0 .90) that may indicate multicoliniarity. All the correlations were significant at 0.01 level, but none of them exceeded the threshold (see Table 2). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett test of sphericity were also examined to decide whether

factor analysis would be appropriate for the variables. KMO is a statistic that compares full and partial correlation coefficients and Bartlett's procedure tests the hypothesis that the population correlation matrix is an identity matrix. A threshold for KMO measure was fixed at 0.50 and the minimum significance level of 0.05 was considered for Bartlett test. The KMO index was 0.90 and the significance level of Bartlett test was 0.001 for the items, indicating factorability of the data.

Next, to extract factors, a latent root criterion with eigen values greater than one was considered significant (Rummel, 1970). Moreover, a factor loading greater than ± 0.40 (Hinkin, 1995) was considered sufficiently high to assume a strong relationship between a variable and a factor, which was above the recommended minimum of 0.30 (Kline, 1994), erring on the side of caution in an effort to reduce the spurious loading due to non-normality of any items, if any, and to avoid multiple loadings. In order to give each factor a clear and distinct meaning, varimax rotation was used to minimize the number of variables that have high loadings on more than one factor. A maximum likelihood method with varimax rotation extracted four factors, each with an eigen value greater than unity, which altogether explained 86.60 percent of the variation in the data. Table 4 presents the findings where it was found that all specific items purporting to measure openness, competence, caring and reliability were subsumed in respective factors. Moreover, all the item loadings were greater than 0 .70 and there were no cases of cross-loadings for any of these items. For further cross-validation, the scree-plot was examined which showed that the curve was flattened out after five factors, suggesting the existence of four factors in the data set. It can be seen that the item-level analyses and exploratory factor analysis do not indicate any possibility of dropping any item and all the items are, therefore, retained for confirmatory phase of the study.

Table 3. *Discriminatory power, item-total correlation and cronbach alpha of items of trust scale*

Variables	Discriminatory power	Item-total correlation	Cronbach alpha (if deleted)
Domain: Openness			**0.95**
Item 1	2.56	0.88	(0.94)
Item 2	2.63	0.90	(0.93)
Item 3	2.71	0.87	(0.94)
Item 4	2.74	0.88	(0.94)
Domain: Competence			**0.96**
Item 5	2.02	0.90	(0.94)
Item 6	2.41	0.92	(0.93)
Item 7	2.43	0.86	(0.95)
Item 8	2.17	0.88	(0.94)
Domain: Caring			**0.94**
Item 9	2.39	0.78	(0.95)
Item 10	2.76	0.91	(0.91)
Item 11	2.63	0.89	(0.92)
Item 12	2.63	0.87	(0.92)
Domain: reliability			**0.95**
Item 13	2.89	0.87	(0.95)
Item 14	2.85	0.91	(0.93)
Item 15	2.62	0.89	(0.94)
Item 16	2.77	0.88	(0.94)

Table 4. *Results of factor analysis of the trust items*

Items	Factor loadings			
I trust that the acquirer's top management team members	openness	competency	caring	reliability
Are completely honest with me	.83	-	-	-
Express their true feelings about important issues	.80	-	-	-
Share important information with me	.77	-	-	-
Would acknowledge their own mistakes	.79	-	-	-
Are competent in performing their jobs	-	.85	-	-
Can contribute to the success of our organization	-	.89	-	-
Can help solve important problems in our organization	-	.79	-	-
Can help our organization to survive through bad times	-	.84	-	-
Place our organization's interests above their own	-	-	.71	-
Care about my well being	-	-	.89	-
Care about the future of our organization	-	-	.87	-
Would make personal sacrifices for our organization	-	-	.85	-
Will keep the promises they make	-	-	-	.81
Can be relied upon	-	-	-	.86
Take actions that are consistence with their words	-	-	-	.83
Have consistent expectations of me	-	-	-	.80
Note. Variance explained.	21.54%	21.12%	21.07%	19.87%

(4) Confirmatory factor analysis (CFA)

Despite the rigor of our previous analyses (item level and factor analysis), a confirmatory factor analysis was adopted because it permits a priori specifications of a factor structure using a hypothesis testing framework, as opposed to the post-hoc labeling of extracted factors that occurs in exploratory factor analysis. CFA enables the researchers to make a priori specification and test its adequacy against observations. Therefore, it is considered as the gold standard method for the evaluation of construct validity (Hu & Bentler, 1999). In addition, CFA enables the measurement error associated with the scales to be explicitly modeled resulting in 'error-free' latent variables. Though, CFA is more of a confirmatory technique, it can also be used for exploratory purpose (Schreiber, Stage, King, & Barlow., 2006) to eliminate items which cause poor model-data fit. Based on logic and theory, four plausible alternative rival models were tested using confirmatory factor analysis (Hinkin, 1995).

Model 1: One first-order factor (overall trust)

This model reflects a single first–order factor, namely the overall trust, which underlies the observed variables and that the covariations among observed variables could be adequately explained by a single construct of trust. In other words, this model assumes that trust is a unidimensional concept.

Model 2: Four first-order uncorrelated factor (openness, competency, caring and reliability) model.

This model reflects four uncorrelated first order factors. In other words, it is

hypothesized that each trust dimension is separate and independent of each other. Inclusion of this uncorrelated model enables comparison of the increase in fit between uncorrelated and correlated models.

Model 3: Four first-order correlated factor (openness, competency, caring and reliability) model.

It is the same as before except that the four first-order factors are correlated. This model is of our interest as we want to see if the four correlated constructs explain the covariations among observed variables and if the model shows significant improvement in the model fit data over the previous models.

Model 4: Four first-order factors (openness, competency, caring and reliability) and one second-order factor of general trust.

This model assumes that the first four order factors would be explained fully by their regression on the second-order factor of general trust.

AMOS 6.0 software was used to test the measurement model as well as the overall fit indices. Maximum Likelihood (ML) estimation was used to estimate the parameters. There is no single fit criterion in CFA. Instead, several indices exist which access the fit of the model from different perspectives. In fact, the structural equation modeling approach suggests the use of multiple indices to decide about the global fit of a proposed model (Jöreskog & Sörbom, 2001). Accordingly, the following indices are chosen: (1) χ^2 statistic ;(2) χ^2 / d.f. ratio or normed χ^2 ; (3) Goodness of Fit Index (GFI); (4) Adjusted Goodness of Fit Index (AGFI) ;(5) Normed Fit Index (NFI); (6) Incremental Fit Index (IFI) ; (7) Comparative Fit Index (CFI); (8) Tucker-Lewis Index (TLI) and (9) Root Mean Square Error of Approximation (RMSEA). The adequacy of CFA model to account for the observed covariance matrix is usually evaluated using χ^2 statistic. However, it is sensitive to the sample size and considered as an over stringent criterion (Bentler, 1990). Given its sensitivity to sample size, normed-χ^2 is also to be examined. Although, there is no absolute cut-off value for evaluating goodness-of-fit based on this ratio, a value less than 3 is considered favorable (Kline, 1998). The GFI, an absolute fit index, is a proportion of sample covariances explained by the model implied covariances, resulting an index similar to R2. The AGFI, a parsimony index, penalizes for model complexity as regards to the additional parameters by adjusting the degrees of freedom (Byrne, 2001). Though GFI value of 0 .90 or above is preferred, there is no threshold limit for AGFI. Along with the above absolute fit indices, comparative indices were also used to evaluate the model fit mainly because they provide a reliable basis of fit as simulation studies have shown that they are least influenced by the sample size (Fan, Thompson, & Wang, 1999). Bentler (1990) recommended that the indices should exceed 0.90 for an acceptable fit, although, values approaching to 0 .95 are considered preferable (Hu & Bentler, 1999). RMSEA recognizes the error of approximation in the population which indicates the extent of fit, had the model been estimated in the population (Hair et al., 1995). A value of RMSEA between 0.06 to 0.08 is considered acceptable (Schreiber et al., 2006). Table 5 presents the findings of the overall model fit

indices of various models used in this study.

Table 5. *Fit indices of various models*

Fit indices	Acceptable range	Reported Values			
		Model 1	Model 2	Model 3	Model 4
Absolute Fit Indices		Single first-order factor	Four first-order uncorrelated factors	Four first-order correlated factors	Single second order & four first order factors
χ^2 (df)		999.71(104)	278.90(104)	142.3((98)	146.07(100)
Normed χ^2	<3	9.61	2.68	1.45	1.46
GFI	>0.90	0.38	0.74	0.86	0.86
AGFI	>0.90	0.19	0.65	0.81	0.81
RMSEA	0.06 to 0.08	0.30	0.13	0.07	0.07
Comparative Fit Indices					
NFI	>0.90	0.49	0.88	0.93	0.93
IFI	0 to 1	0.51	0.91	0.98	0.98
CFI	> 0.90	0.51	0.90	0.98	0.98
TLI	>0.90	0.43	0.90	0.97	0.97

5. ANALYSIS AND DISCUSSION

As the main objective of the paper is to establish construct validity, a framework described by Venkatraman and Grant (1986) is adopted here, which is expected to provide a stronger basis for the interpretation of substantive research results. They propose five components for the assessment of construct validity: content validity, internal consistency of operationalization, convergent validity, discriminant validity and nomological validity. Content validity of the scale has already been assessed. So, the remaining validity components are analyzed and interpreted within the above framework.

5.1 Internal Consistency of Operationalization

Unidimensionality and reliability are both considered as internal consistency of a scale (Venkatraman and Grant, 1986). The former examines whether the indicators form a single underlying latent variable. The item-total correlations ranged from 0 .87 to 0 .90 for openness, 0.86 to 0.92 for competence, 0.78 to 0.91 for caring and 0.87 to 0.91 for reliability and all were sufficiently high. The factor analysis also revealed that each item loaded appropriately under its specific latent construct and there was no evidence of cross-loadings. Thus, under the traditional method, the item-total correlations (corrected) and results of factor analysis provide strong support to the unidimensionality of the trust constructs. However, confirmatory factor analysis provides a more rigorous and precise test of unidimensionality and it can be assessed by the overall measurement model fit and its components (Garver & Mentzer, 1999).The following observations are subsequently made about the four models based on several fit indices.

χ^2-statistic of Model 3 (142.35, df = 98) is lower than the other three models, though it was significant. Given that non-significance is rarely achieved and its sensitivity to sample size, this value must be read with caution. The normed - χ^2

values of Model 2 and 3 and 4 are all within the threshold limit of 3. When judged from GFI and AGFI, again Model 3 and 4 yield a better fit than other rival models, where the values of the indices are 0.86 and 0.81 respectively. Though the GFI is below the recommended value of 0.90, it is above the acceptable minimum value of 0.80. Based on this GFI, the AGFI of 0.81 seems to be fairly consistent. RMESA of Model 3 and 4 both yield a value of 0.07 which is well in the suggested range, indicating a satisfactory fit the model. Next looking at the comparative fit indices, all the values of Model 3 and 4 are equal and cross the 0.90 mark, whereas in case of Model 2, only IFI and CFI achieve this threshold. When comparing Model 3 and 4, the former provides a better fit when judged from the χ^2 index. Analyzing the results so far, it is clear that Model 3 provides a better fit to the data than any other model. Though, Model 4 provides adequate goodness of fit and improvement over Model 1 and 2, it is still little worse off as compared to Model 3. Having sufficient evidence of adequate model fit, we explore Model 3 further to locate any possible misfit by looking at the standardized residuals and modification indices. None of the standardized residuals exceed the critical threshold of 2.58 to be considered as substantially large (highest in our case being 1.43 between item 7 and 13). The only correlated error variance (between item 7 and 13) of 14.96 appears to be large. Expecting that this correlated error variance is purely random and it does not have any substantive theoretical rationale, Model 3 provides the best fit to data among all the models tested here. Moreover, strong evidence of unidimensionality is suggested in Model 3 as all its parameter estimates are statistically significant ($p< .01$) and all standardized loadings are greater than 0 .70 (Table 6).

As each construct of trust is found to be unidimentional in Model 3, their reliabilities are to be assessed next. Reliability refers to the consistency with which an instrument measures a scale. Though, reliability can be measured in a number of ways, the most common measure is Cronbach alpha. This is shown in Table 3 for each of the sub-scales and the values were found to be sufficiently above the recommended minimum of 0.70 (Nunnally, 1978). Now we proceed to evaluate the convergent and discriminant validity of Model 3.

5.2 Convergent and Discriminant Validity

Using the classical approach, convergent and discriminant validity are established using exploratory factor analysis with varimax rotation (Bagozzi & Phillips, 1982). The results (Table 3) indicate that all the items demonstrate high factor loadings which ranges from 0.71 to 0.89, much higher than the value of 0.50 on a very conservative cut-off (Hair et al., 1995) and converge on the respective latent factors as expected. Again, discriminant validity can be shown by comparing the factor loadings of each item within its own domain (intra-factor) with the correlation of each item with other domains (inter-factor) (Straub, 1989). Each item of the trust scale exhibits higher loadings (>0.70) within its own domain (see Table 4) which is greater than the loadings of that item in other domains (not reported). This shows the discriminant validity of the scale. In CFA, convergent validity examines whether the items in a scale converge together in respective constructs in the measurement model. Convergent validity of the four trust constructs is evaluated using three criteria as suggested by Fornell and Larcker (1981): (i) all

standardized parameter estimates must be significant and exceed 0.70, (ii) construct reliabilities must exceed 0.80, and (iii) average variance extracted (AVE) by each construct must exceed the variance due to measurement error for that construct (AVE should exceed 0.50). As evident from Table 6, all indicator factor loadings are significant (lowest critical ratio being 10.85) and the lowest loading is 0.80. Composite reliabilities of constructs range between 0.94 and 0.96 and the values are same as Cronbach alpha. AVE (Table 8) ranges from 0.74 to 0.85 for the four constructs. Therefore, all the three conditions are met for convergent validity.

Following Bagozzi, Yi and Phillips (1991) the discriminant validity of the four trust construct is evaluated by conducting the following three tests (i) estimate the standard measurement model where all factors are allowed to covary, (ii) estimate a new measurement model identical to the previous one, except the correlation between any two factors is fixed at one, and (iii) compute the chi-square difference between (i) and (ii). As seen from the Table 7, the resulting changes in the chi-square values are all significant at p<0.05 level, except one (openness-caring is significant at p<.06) which demonstrate adequate discriminant validity for the four trust scales. As a stronger test of discriminant validity, Fornell and Larcker (1981) suggest that the AVE for each construct should exceed the squared correlation between that and any other construct. As seen from the factor correlation matrix (Table 8), the lowest AVE of the trust scales is 0.74, which exceeds the largest squared correlation between any pair of constructs (0.46 between openness and caring). Hence the latter test of discriminant validity is also met. As a complementary test of discriminant validity, the 95% confidence intervals around the pairs of correlations between the various trust constructs are also calculated. As seen from Table 9, none of the confidence level include 1. This also attests to the evidence of discriminant validity (Anderson & Gerbing, 1988). Overall, the results offer support for discriminant validity among the constructs to explain that they are indeed separate but part of the overall trust scale.

Table 6. *Factor loadings & composite reliabilities of Model 3*

Constructs & items of trust	Standardized loadings	Critical ratios	Composite reliability
Openness			0.95
item 1	0.91	14.42	
item 2	0.94	15.72	
item 3	0.90	14.25	
item 4	0.91	1*	
Competence			0.96
item 5	0.92	15.94	
item 6	0.96	18.45	
item 7	0.88	14.20	
item 8	0.92	1*	
Caring			0.94
item 9	0.80	10.85	
item 10	0.95	16.53	
item 11	0.94	16.10	
item 12	0.91	1*	
Reliability			0.95
item 13	0.90	14.14	
item 14	0.96	16.19	
item 15	0.88	15.18	
item 16	0.92	1*	

Note.*: Not tested for significance.

Table 7. *Chi-square difference test of discriminant validity of trust scales*

Variables constrained	χ^2	DF	$\Delta \chi^2$	p
None	142.35	98		
Openness-competence	147.23	99	4.88	0.05
Competence-caring	152.01	99	9.66	0.01
Caring-reliability	150.44	99	8.10	0.01
Openness-caring	145.86	99	3.51	0.06
Competence-reliability	147.09	99	4.74	0.05
Openness-reliability	146.28	99	3.93	0.05

Table 8. *Factor correlations & AVE among trust scales*

Constructs	AVE	Openness	Competence	Caring	Reliability
Openness	0.83	1			
Competence	0.85	0.63	1		
Caring	0.81	0.68	0.48	1	
Reliability	0.74	0.66	0.64	0.52	1

Table 9. *Confidence intervals of factor correlations of trust scales*

Constructs	Correlation	95% confidence interval
Openness, competence	0.63	0.50-0.74
Openness, caring	0.68	0.56-0.78
Openness, reliability	0.66	0.53-0.77
Competence, caring	0.48	0.31-0.62
Competence, reliability	0.64	0.51-0.75
Caring, reliability	0.52	0.37-0.66

5.3 Nomological Validity

Nomological validity examines the predictive ability of the focal scale within the nomological network of antecedent and consequent variables (Bhattacherjee, 2002). We establish the nomological network of trust by introducing the variable of 'employee satisfaction. Prior works on trust (Lagace, 1991; Rich, 1997; Flaherty &Pappas, 2000; Lines et al, 2005) have indicated that in a manager-subordinate relationship, trust was a major predictor of employee satisfaction. In M&As, it is expected that if the acquired employees feel safer, positive, and believe that the acquiring firm managers are trustworthy, there will be a less psychologically distressing situation and therefore an enhanced satisfaction level. Thus, acquired employees' trust and their satisfaction would expected to be positively related. Admittedly, the nomological association that is presented here is a simplistic view. Other antecedents and consequent variables of trust in the context of M&As could not be incorporated, because our purpose is to establish the predictive validity of the trust scale, rather than to develop a complete model of trust. To test this relationship, employee satisfaction was measured by a three-item unidimentional scale from the original six-item scale of Homburg and Stock (2004). The same scale was used by Matzler and Renzl (2006) and showed adequate reliability and validity. In this study, however, we selected those three items which had maximum

loadings in Matzler and Renzl's (2006) study. This decision was taken in order to keep the questionnaire as brief as possible and to reduce respondent fatigue. The three-item scale of employee satisfaction showed a respectable reliability of 0.79 (> 0.70) in this study.

Nomological validity of the trust constructs is established in two ways. First, the correlations of the trust scales with the employee satisfaction scale are examined in detail. The correlations range from 0.58 to 0.71 and are all positive and significant (p<0.01). Second, a structural model is fitted with employee satisfaction as an endogenous variable and four trusts constructs as predictors. The model converges satisfactorily with a χ2 of 199.15 (df =142, p=.001). All other fit indices (GFI=0.84, AGFI=0.79, RMSEA=0.06, NFI=0.91, IFI=0.97, CFI=0.97 and TLI=0.97) are indicative of adequate model fit and comparable to the previous four-factor correlated model of CFA. Item loadings in the measurement model are almost similar to those of the CFA. Our greatest interest for nomological validity is the four regression coefficients. The standardized regression coefficients are 0.31 (p<.01), 0.21 (p<.05), 0.42 (p<.01) and 0.17 (p<.05) for openness, competence, reliability and caring, respectively. These effects demonstrate that the sixteen-item scale does indeed measure what it purports to measure and predicts the theorized variable (employee satisfaction), thereby satisfying the nomological validity of the scale.

5.4 Common Method Bias

A common method bias could pose a serious problem for findings when both independent and outcome variables are colleted from the same source, as in this study. So we conduct a Harmon's one-factor test to assess whether a single latent factor would account for all the observed variables in our study. The single-factor model, considering all items of trust and employee satisfaction, converges to a solution with a χ^2 of 1060.53 (df =152). We also fit the data with a five-factor correlated model (which included a four-factor model of trust and employee satisfaction construct) and compare the result with the previous model to assess the impact of common method variance (Ramani & Kumar, 2008). A significant difference between the χ^2 values of the two models ($\Delta \chi^2$ =861.38, Δdf =10, p<.01) indicates that one-factor model's fit is significantly worse than the five-factor correlated model. Moreover, to assess the impact of a common method bias in our study we fit the data to a model where items are allowed to load on their respective theoretical constructs as well as on an unmeasured common method variance factor (Podsakoff, Mckanzie, Lee & Podsakoff, 2003). The model does converge to a solution. When we compare this model with the previous five-factor correlated model, the trait loadings are again all found to be significant, ranging from 0.67 to 0.94 with all (except one) non-significant method loadings The above two tests give evidence that our measurement model, comprising predictor and dependent variables, was indeed robust for common method variance.

6. CONCLUSION AND LIMITATIONS

The purpose of this study was to validate Mishra and Mishra's (1994) trust scale for its use in future M&A empirical research. The sixteen-item domain specific scale was content validated and then administered among 100 respondents of acquired firms. Subsequent tests demonstrated adequate psychometric properties and predictive ability of the focal scale.

Validation of the trust scale in this paper is part of a large-scale study to examine the dynamics of trust in M&As (to be reported elsewhere). Given the evidence of precision of the scale obtained, researchers are now being expected to address a numbers of issues in M&A research. Trust is context specific and the trustor's perception and the interpretation of the context affects the evaluation of trustworthiness (Mayer et al., 1995). Does trust mediate the relationship between key contextual variables [relative size of firms (Rentsch & Schneider, 1991), speed of integration (Feldman, 1995), communication (Schweiger & DeNisi, 1991; Bastien, 1987), cultural difference (Datta, 1991)] and employee related outcomes (uncertainties, stress, low morale, top executive turnover) in acquisitions? Researchers could also undertake a longitudinal study to examine how trust evolves during the various phases of a deal (negotiation, pre-integration, post-integration). For instance, it is not uncommon to find that openness and competence would form relatively early in the deal and that caring would take more time to develop among the acquired staff. A promising research area would be to examine the temporal effect of trust on the criterion variable.

However, this study is not without limitations. A convenient sampling strategy was used in this study. Random sampling strategy is required to validate the measurement further. Moreover, it would have been a better research design if the exploratory and confirmatory phases of scale validation could have been applied in different samples to enhance the robustness of the results. Considering the model complexity, a ratio of minimum 5:1 (sample size to number of free parameters) is frequently suggested in the literature (Kline, 1998), though there is no absolute standard in this regard. So the results of the confirmatory analysis should be read with caution as our sample size falls short of this minimum threshold. Mayer et al. (1995), in their seminal article, argued that there could be a possibility of overlap in various constructs of trust in the literature. According to them, a three factor model could be constructed which would explain the majority portion of trustworthiness. These three factors are: ability (competence); benevolence (caring and openness) and integrity (reliability and openness). In order to find a more parsimonious model, researchers can examine the three-factor model with openness being a part of either benevolence or integrity. Lastly, the criterion variable of employee satisfaction based on respondent's perception was used to establish the nomological validity of the study. The validity evidence would be much stronger had some objective measure (like firm performance) been used. Despite the above limitations, we hope that our effort will encourage more scholars to embark on substantive research addressing the construct of trust and the role it plays in M&As.

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Appendix: Items of trust and employee satisfaction scales

Item No	Trust scale I trust that the acquirer's top management team members
	Openness
1	Are completely honest with me
2	Express their true feelings about important issues
3	Share important information with me
4	Would acknowledge their own mistakes
	Competence
5	Are competent in performing their jobs
6	Can contribute to the success of our organization
7	Can help solve important problems in our organization
8	Can help our organization to survive through bad times
	Caring
9	Place our organization's interests above their own
10	Care about my well being
11	Care about the future of our organization
12	Would make personal sacrifices for our organization
	Reliability
13	Will keep the promises they make
14	Can be relied upon
15	Actions are consistence with their words
16	Have consistent expectations of me
	Employee satisfaction scale
1	Overall I am quite satisfied with my job
2	I like my job
3	I like my job more than many employees of other companies