# BMC JOURNAL
## OF SCIENTIFIC RESEARCH
### A Multidisciplinary Peer Reviewed Research Journal

# Contents

# Impact of Intellectual Capital on Firms' Performance: With Perspective of Commercial Banks in Chitwan

## Udaya Kumar Shrestha

Department of Management, Birendra Multiple Campus
E-mail: udaysrestha@gmail.com

## Abstract

*Intellectual Capital (IC) is a term that refers to a firm's strategic assets that assist to enhance the performance. The main purpose of this research is to examine the impact of Intellectual Capital on firms' performance in with perspective of banking sectors. To assess the many aspects that can potentially have an impact on the performance of the firm, previous research and necessary documentation relating intellectual capital and its associated factors were reviewed. Similarly, descriptive and casual comparative research design were used. The population of this study is employees of commercial banks in Chitwan who hold the position of branch manager and/or above. To meet the objectives of this study, google form questionnaire was administered and sent to 75 branch managers. Out of which 48 responses were completed which were taken as sample that included tick mark questions, multiple-choice questions, and 5-point Likert scale questionnaires. The approach of non-probability purposive sampling was used. The dependent variable is firm performance, while the independent variable is Intellectual Capital (human, structural and customer capital). Data was analyzed using descriptive statistics (percentage, mean, and SD) and inferential statistics (correlation coefficient, multiple regression). The finding showed that customer capital was one of the most important determinants of a firm's performance, but structural capital and human capital were not statistically significant predictors at the 5% level of significance. This study may be a valuable piece of research works for academicians, practitioners, and the management body of any concerned organizations.*

***Keywords:*** *human capital, structural capital, customer capital, firm performance, banking sectors.*

## 1. Introduction

The variety of factors influence a firm's performance, including organizational factors like size, history, and structure; environmental factors like socioeconomic background and technical infrastructure; and human factor like personality characteristics, motivation, and skills (Kourtzidis & Tzeremes, 2020). The term "intellectual capital" refers to the intangible assets, which comprise employee expertise, organizational procedures, and the total body of information held by the organization. Intellectual capital refers to the worth of a firm's employee knowledge, skills, business training, or any personal information that can give the organization a competitive advantage. Many scholars mainly define intellectual capital from three perspectives: intangible assets, knowledge and ability, and enterprise value (Andriessen, 2001). Intellectual capital as the sum of knowledge, information, intellectual property and experience

held by everybody in a company, put to use to create a competitive edge and, ergo, wealth (Stewart, 1997).

The financial industry is the global economy's backbone, providing funding for innovation, infrastructure, job growth, and overall prosperity. The banking industry must invest in the development of its intellectual capabilities to maintain a competitive edge that is both sustainable and long-lasting. The majority of previous the study had focused on bank financial performance. There is lesser emphasis on non-financial performance i.e. intellectual capital, such as human, social, structural, and customer capital. So, this study is concerned with intellectual capital on firm's performance with perspective of banking industry in Chitwan and intended to determine the association between the intellectual capital with the firms' performance.

## 2. Literature review

### 2.1 Conceptual review

Intellectual capital is characterized as encompassing: human capital; structural capital; and relational capital, according to Edvinsson and Malone (1997), Sveiby (1997), Roos and Roos. (1997), Bontis (1999), Sällebrant, Hansen, Bontis and Hofman-Bang (2007), Curado and Bontis (2007). Notwithstanding, Bueno et al. (2006) proposed an Intellectual Model which comprised of five components: human capital, technological capital, business capital, social capital and organizational capital. Khalique, Shaari and Isa (2011) extended this further by developing the integrated intellectual capital model (IICM) which was comprised of six components as follows: human capital, customer capital, structural capital, social capital, technological capital and spiritual capital.

### 2.2 IC and its components

IC has been defined as an intangible asset made up of three components: human, structural, and customer or relational capital (Clarke, Seng and Whiting 2011; Riahi-Belkaoui, 2003; Bontis 1999). Many researchers have separated intellectual capital into multiple components to better understand it. For example, Stewart (1997) suggested that intellectual capital is made up of three components: human capital, customer capital, and structural capital. Intellectual capital, according to Bueno et al. (2006), included human capital, organizational capital/structural capital, technology capital, social capital, and business capital/customer capital.

### a) Human capital

Human capital is defined as an organization's individual knowledge stock as represented by its employees (Li-Chang and Chao-Wang, 2012; Bontis, 1999); the availability of employees' skills, talents, and knowhow required to perform the day-to-day tasks required for the firm's strategy (Rezaei and Mousavi, 2015); or the processes related to training and education to increase the levels of knowledge, skills, abilities, values, and social assets (Radulovich, Javalgi and Scherer, 2018; Marimuthu, Arokiasamy and Ismail, 2009). Human capital has both direct and indirect influences on firm performance (Hitt, Bierman, Shimizu and Kochhar, 2001).

**b) Structural capital**

Structural capital in terms of organizational and technological capital refers to a company's whole system and procedures for solving challenges and innovating (Chu et al., 2006). It refers to all non-human knowledge stores in businesses, such as databases, organizational charts, process manuals, strategies, procedures, and anything else with a higher worth to the company than its material value (Kamukama, 2013; Li-Chang and Chao-Wang, 2012). The results of a positive association between structural capital and performance are documented by Li-Chang and Chao-Wang (2012), who measure structural capital in terms of IT investment (information technology expense ratio).

**c)  Relational or customer capital**

Relational capital refers to a company's relationships with third parties like customers and suppliers (Clarke et al., 2011 and Bontis, 1999). It takes into account a company's franchise value as well as its continuous ties with the people or organizations to which it sells (Riahi-Belkaoui, 2003). According to Siddiqui and Asadi (2014), it encompasses both internal and external organizational relationships, including those with customers, employees, suppliers, strategic alliance partners, stakeholders, and industry allies. In Malaysia, relational capital was found to have a positive relationship with both financial and non-financial metrics of performance in emerging economies (Tayles, Pike and Sofian, 2007).

**2.3 Empirical review**

Many researchers agree that intellectual capital is the most important strategic asset for the success of an organization. Mondal and Ghosh (2012), have found intellectual capital has a significant impact on a bank's performance and helps the banks to obtain a competitive advantage over one another. Khalique et al. (2013), have concluded that all three components of intellectual capital are significantly contributing to enhance the performance of Islamic Banks in Malaysia. The regression model is found to meet the goodness of fit requirements, indicating that it is valid, and the fourth research hypothesis is also supported. The findings demonstrated that intellectual capital has a substantial impact on Malaysia's Islamic banking sector's performance. Mention and Bontis (2013), have indicated that human capital contributes both directly and indirectly to business performance in the banking sector. Structural and relational capital are positively related to business performance, though results are not statistically significant. Surprisingly, relational capital has been evidenced to negatively moderate the effect of structural capital on performance.

Dhungana, Phuyal and Regmi (2017), have found that mostly respondents stated that they have idea on the concepts of intellectual capital, gender does have much effect on learning and education and innovation and creation for improving organizational performance. This study examines that there is positive relationship between all independent IC variables and organizational performance under human, relational, and structural capital. Tiwari and Vidyarthi (2018), have found that the results of the

study provide evidence of positive association between IC and performance of banks; however, only human capital and structural capital have shown instances of significant positive linkage with banks performance. The results also indicate that the IC efficiency of private sector banks is better than public sector banks in India.

## 2.4 IC and firm performance

Prior research on the impact of intellectual capital on financial institution performance has generally found consistent empirical findings, implying that the positive relationship improves company performance. Al-Musali and Ismail (2016) investigated the link between intellectual capital investment and the performance of publicly traded commercial banks in Gulf countries, finding a positive correlation. Irsyahma and Nikmah (2017) found a positive relationship between intellectual capital and firm performance in the Indonesian banking sector, meaning that banks with greater levels of intellectual capital efficiency would perform better. According to Tiwari and Vidyarthi's (2018) research, there is a positive relationship between intellectual capital and firm performance in Indian public and private banks, implying that banks with higher intellectual capital efficiency perform better. Investigated by Tran and Vo (2020) on Thailand listed banks, Ousama, Hammami and Abdulkarim (2019) on Islamic banks of Gulf countries and Soewarno and Tjahjadi (2020) on Indonesian banks reported similar results, a positive and significant association between intellectual capital and firm performance.

## 2.5 Research gap

In Nepal, limited studies were conducted in this area. Dhungana, Phuyal and Regmi (2017), presented a paper on commercial banks where the findings revealed that mostly respondents stated that they have idea on the concepts of intellectual capital, gender does have much effect on learning and education and innovation and creation for improving organizational performance. Gautam (2015) conducted an empirical investigation of the relationship between IC and organizational performance in the Nepalese pharmaceutical industry. This study surveyed in 2023 and focused on the impact of intellectual capital on the firm's performance with perspective of commercial banks in Chitwan. There are many factors that influence firm's performance, after reviewing existing literature, this study is focused on the new findings in the banking sector and examines fresh findings.

## 3. Methodology

## 3.1 Research design

Descriptive and casual comparative research design were used in this study to achieve the research objective. The descriptive research design was used to identify the status of intellectual capital. Similarly, the causal comparative research design was used to investigate the relationship between dependent and independent variables.

## 3.2 Population and sample

The population of this study is total employees of commercial banks in Chitwan who hold the position of branch manager and/or above. The questionnaire was distributed to 75

senior executives of commercial banks in Chitwan district. Purposive sampling method was used but final usable questionnaires were collected from only 48 respondents with a response rate of 64 percent. (BM-39, Province Chief-5, HOD-3, DCEO-1)

### 3.3 Nature and sources of data

This study is based on primary sources of data. The data and information collected from a structured questionnaire survey which contains respondent related information through tick mark questions, multiple-choice questions, and 5-point Likert scale questionnaires. To gather data on Google forms and delivery and collect type of questionnaire, a modified questionnaire were utilized. Executive officers, department heads, province heads and branch managers were taken the survey's target respondents.

### 3.4 Data analysis tools

The collected data were entered into MS Excel software and converted into the Statistical Package of Social Science (SPSS-22) for further analysis. Descriptive statistics and inferential analysis (correlation and multiple regression) were used to analyze data. For data dependability, Cronbach's alpha was utilized and alpha values less than 0.6 was modified by eliminating the questionnaire. Data were analyzed using percentages, mean and standard deviation, minimum and maximum. Pearson's correlation analysis was performed on the collected data to analyze the correlation between dependent (firm's performance) and independent variable (human, structural and customer capital). Regression analysis was formulated in a linear model with equation as below.

$$FP = \beta0 + \beta1HC + \beta2SC + \beta3CC + \varepsilon$$

- FP = Firm's Performance
- $\beta0$ = Regression constant
- HC = Human Capital
- SC = Structural Capital
- CC = Customer Capital

This study is focused to explore the impact of intellectual capital on firm's performance. Three components of intellectual capital namely, human capital, structural capital and customer capital were considered as independent variables while firm's performance was used as a dependent variable. The research framework was depicted here, based on empirical evidence.

Intellectual capital

| Human Capital |
| Structural Capital | → Firm's Performance |
| Customer Capital |

Independent Variable                                                          Dependent Variable
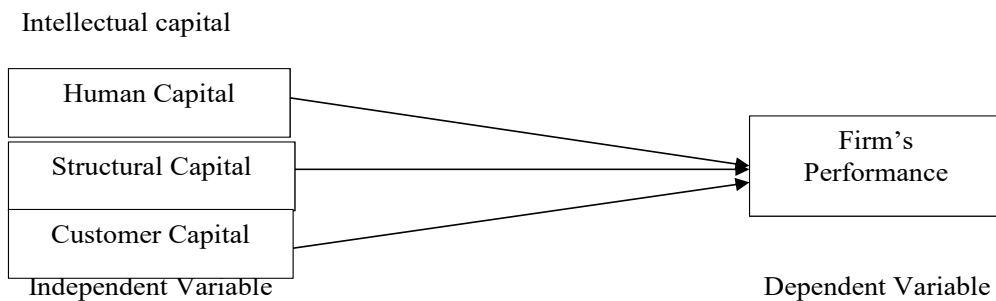
Figure 2.1 Conceptual Framework, Source: Stewart (1997)

## 4. Results and findings

It is found that out of the total respondents, 10.4 percent were female and 89.6 percent were male, most of the respondents were of age group of 25 to 40 years having Master's degree level and branch manager level was found the highest respondent. The mean score of human capital items appeared just above the average. It is found that the human capital practices in banking sector were found in satisfactory level. The mean score of structural capital was just above the average and satisfactory level. But employees had little influence over firm decisions and the firm does not sets an appropriate and sufficient R&D budget which was scored below the average. The mean score of customer capital scored slightly higher than average. It revealed that banking staff were found to be in the average situation in terms of client value.

### Table 1. Overall descriptive statistics

| Variables | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Human capital | 48 | 2.50 | 4.70 | 3.5750 | 0.46103 |
| Structural capital | 48 | 2.25 | 4.88 | 3.2995 | 0.66231 |
| Customer capital | 48 | 2.33 | 5.00 | 3.6042 | 0.64194 |
| Firms' performance | 48 | 3.00 | 5.00 | 3.8229 | 0.42583 |

*Source: Output of Statistical Package of Social Science (SPSS-22)*

This table shows that firm's performance measured by three independent variables (human capital, structural capital, and customer capital). The mean ± SD of human capital was $3.5750 \pm 0.46103$, structural capital was $3.2995 \pm 0.66231$ and customer capital was $3.6042 \pm 0.64194$. The finding revealed that there was positive attitude (>3) of firm performance through human capital, structural capital and customer capital.

### Table 2. Association between intellectual capital and firms' performance

| | | Human capital | Structural capital | Customer capital | Firm's performance |
|---|---|---|---|---|---|
| Human capital | | 1 | | | |
| Structural capital | Correlation | 0.766** | 1 | | |
| | p-value | 0.000 | | | |
| Customer capital | Correlation | 0.620** | 0.815** | 1 | |
| | p-value | 0.000 | 0.000 | | |
| Firm performance | Correlation | 0.438** | 0.492** | 0.551** | 1 |
| | p-value | 0.002 | 0.000 | 0.000 | |

*Source: Output of Statistical Package of Social Science (SPSS-22)*

The relationship between human capital and firm performance was positive correlation (r =0.438, p=0.002) which statistically significant. The relationship between structural capital and firm performance was positive correlation (r =0.492, p=0.000) which statistically significant. Furthermore, the relationship between human capital and firm performance was positive correlation (r =0.551, p=0.002) which statistically significant.

## Table 3. Multiple regression model summary and coefficients

| Model | R | R square | Adjusted R Square | Std. error of the estimate |
|---|---|---|---|---|
| | 0.564 | 0.319 | 0.272 | 2.17974 |

a. Predictors: (Constant), Customer capital, Human capital, Structural capital

## Table 4. Multiple regression of Overall Model Fit (ANOVA)

| Model | Sum of squares | df | Mean square | F | P-value |
|---|---|---|---|---|---|
| Regression | 97.757 | 3 | 32.586 | 6.858 | 0.001 |
| Residual | 209.055 | 44 | 4.751 | | |
| Total | 306.813 | 47 | | | |

*Source: Output of Statistical Package of Social Science (SPSS-22)*

The coefficient of determination ($R^2$) was 0.319 which indicates 31.9% of firm performance was explained by independent variable remaining 68.1% explained by other variable. Findings shows that firm's performance was statistically significant by three independent variables (F = 6.858; p-value = 0.001). It was found that the regression model meets the criteria of goodness of fit.

## Table 5. Coefficient of regression result of IC on firms' performance

| Model | Unstandardized coefficients | | Standardized coefficients | t | Sig. | Collinearity statistics | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Tolerance | VIF |
| (Constant) | 13.369 | 2.678 | | 4.991 | 0.000 | | |
| Human capital | 0.084 | 0.107 | 0.151 | 0.782 | 0.438 | 0.413 | 2.423 |
| Structural capital | 0.005 | 0.127 | 0.010 | 0.039 | 0.969 | 0.225 | 4.450 |
| Customer capital | 0.298 | 0.143 | 0.449 | 2.088 | 0.043 | 0.335 | 2.985 |

Source: Output of Statistical Package of Social Science (SPSS-22)

The finding shows that firm's performance explained by human capital (β = 0.151, p = 0.438), structural capital (β = 0.010, p = 0.969) and customer capital (β = 0.449, p = 0.043). It revealed that customer capital as a major predictor of firm's performance whereas human capital and structural capital were not statistically significant predictors at 5% level of the significant.

## 5. Discussion

Three components of intellectual capital namely, human capital, structural capital and customer capital are considered as independent variables while firm's performance is used as a dependent variable. The results showed that only customer capital components of intellectual capital are significantly contributing to enhance the performance of commercial banks in Chitwan. The finding of this study was supported by research (Khalique and colleagues, 2011), which indicated that customer capital had the strongest relationship to organizational success in Islamic banks and this study has reached the same conclusion that customer capital is a substantial predictor of company performance. However, The results of this paper, it was found that relationship between

human capital and structural capital towards firms' performance is insignificant, the finding was not supported with earlier studies by Vishnu and Gupta (2014) and Muhammad and Ismail (2009).

## 6. Conclusion

The mean score of human capital and structural capital was just above the average but the mean score of customer capital was higher and relatively better as compared to human capital and structural capital. There was positive correlation between dependent and independent variable. The multiple regression analysis was performed to test the statistical significance and the impact of intellectual capital. The main conclusion of this research is that customer capital is a major factor affecting firm's performance with perspective of commercial banks. It is also concluded that banking executives of Chitwan district were found to be in the positive attitude in terms of client or customer value.

## 7. Implication

In Nepalese organizations, intellectual capital is a relatively recent notion. Nepalese culture has a very poor and weak intellectual capital orientation. Present study appeared as a successful piece of research work that explored both the intellectual capital conceptualization and orientation in banking sector. The findings of this study reported that the human capital and structural capital were considered as insignificant factors in commercial banks. However, all components of intellectual capital were considered as important and fundamental for the success and growth of banking sectors. As a result, policymakers, researchers, managers, potential and existing shareholders, scholars, and others will be affected by these findings. The information can be useful to academics and researchers studying at firm performance and intellectual capital in the banking industry. This study is contributed to a better understanding of intellectual capital in a Nepalese organization.

## References

Al-Musali, M. A., & Ku Ismail, K. N. I. (2016). Cross-country comparison of intellectual capital performance and its impact on financial performance of commercial banks in GCC countries. *International Journal of Islamic and Middle Eastern Finance and Management*, *9*(4), 512-531.

Andriessen, D. (2001). Weightless wealth: Four modifications to standard IC theory. *Journal of Intellectual Capital*. *2* (3), 204-214.

Bontis, N. (1999). Intellectual capital: An exploratory study that develops measures and models. *Management Decision*. *36* (2), 63-76.

Bueno, E., Salmador, M. P., Rodriguez, O., & De Castro, G. M. (2006). Internal logic of intellectual capital: a biological approach. *Journal of Intellectual Capital*. *7* (3), 394-405.

Chu, P. Y., Lin, Y. L., Hsiung, H. H., & Liu, T. Y. (2006). Intellectual capital: An empirical study of ITRI. *Technological Forecasting and Social Change*, *73* (7), 886-902.

Clarke, M., Seng, D., & Whiting, R. H. (2011). Intellectual capital and firm performance in Australia. *Journal of Intellectual Capital*. *12* (4), 505-530.

Curado, C., & Bontis, N. (2007). Managing intellectual capital: The MIC matrix. *International*

*Journal of Knowledge and Learning*, *3*(2-3), 316-328.

Dhungana, D., Phuyal, R. K., & Regmi, R. R. (2014). Intellectual capital and organizational performance on commercial banks of Nepal. *Advances in Economics and Business Management (AEBM)*. *4* (8), 525-529.

Edvinsson, L., & Malone, M. (1997). Intellectual capital. New York: HarperBusiness. *From Capitalizing on Company Knowledge to Knowledge Management*, *287*.

Gautam, T. (2004). *Organizational commitment in Nepal*. Unpublished Ph. D, thesis submitted to faculty of management, Tribhuvan University.

Gautam, T., Upadhyay, N., Van Dick, R. & Wagner, U. (2004). Team climate and its linkage to organizational commitment in Nepal. *Dissertation, University of Marburg, Germany*.

Hameed, A. A. & Anwar, K. (2018). Analyzing the relationship between intellectual capital and organizational performance: a study of selected private banks in Kurdistan. *International Journal of Social Sciences & Educational Studies*, *4* (4), 39.

Hitt, M., Bierman, L., Shimizu, K. & Kochhar, R. (2001), Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal, 44 (1*), 13-28.

Irsyahma, A. & Nikmah, N. (2017). Intellectual capital, firm value, and financial performance. *AFEBI Accounting Review. 1* (01), 29-43.

Kamukama, N. (2013). Intellectual capital: company's invisible source of competitive advantage. *Competitiveness Review: An International Business Journal, 23* (3), 260-283.

Khalique, M., Shaari, J.A.N. & Isa, A.H.M. (2011). Intellectual capital and its major components. *International Journal of Current Research. 3* (6), 343–347.

Kourtzidis, S., & Tzeremes, N. G. (2020). Investigating the determinants of firm performance: a qualitative comparative analysis of insurance companies. *European Journal of Management and Business Economics*, *29* (1), 3 22.

Li-Chang, H. & Chao-Wang, H. (2012). Clarifying the effect of intellectual capital on performance: The mediating role of dynamic capability. *British Journal of Management, 23* (2), 179-205.

Marimuthu, M., Arokiasamy, L. & Ismail, M. (2009). Human capital development and its impact on firm performance: Evidence from developmental economics. *The Journal of International Social Research, 2* (8), 265-272.

Mention, A. L. & Bontis, N. (2013). Intellectual capital and performance within the banking sector of Luxembourg and Belgium. *Journal of Intellectual Capital*, *14* (2), 286-309.

Mondal, A., & Ghosh, S. K. (2012). Intellectual capital and financial performance of Indian banks. *Journal of Intellectual Capital, 13(4), 515-530.*

Ousama, A. A., Hammami, H. & Abdulkarim, M. (2019). The association between intellectual capital and financial performance in the Islamic banking industry: An analysis of the GCC banks. *International Journal of Islamic and Middle Eastern Finance and Management*, *13* (1), 75-93.

Radulovich, L., Javalgi, R.G. & Scherer, R.F. (2018). Intangible resources influencing the international performance of professional service SMEs in an emerging market: Evidence from India. *International Marketing Review, 35* (1), 113-135.

Rezaei, Z. & Mousavi, Z. (2015). The impact of intellectual capital on the performance of Islamic banking. *Indian Journal of Fundamental and Applied Life Sciences, 5* (1), 1806-1813.

Riahi-Belkaoui, A. (2003). Intellectual capital and firm performance of US multinational firms -a study of the resource-based and stakeholder views. *Journal of Intellectual Capital*, *4*

(2), 215-226.

Roos, G., & Roos, J. (1997). Measuring your company's intellectual performance. *Long range planning*, *30*(3), 413-426.

Sällebrant, T., Hansen, J., Bontis, N., & Hofman-Bang, P. (2007). Managing risk with intellectual capital statements. *Management Decision*.

Sekaran, U. & Bougie, R. (2016). *Research Methods for Business: A skill building approach*. UK: John Wiley & Sons.

Siddiqui, M. A. & Asadi, A. (2014). Relational capital and performance: A case of brand developing firm. *Middle East Journal of Scientific Research. 21* (11), 2115-2122.

Soewarno, N. & Tjahjadi, B. (2020). Measures that matter: An empirical investigation of intellectual capital and financial performance of banking firms in Indonesia. *Journal of Intellectual Capital*, *21* (6), 1085-1106.

Sveiby, K. E. (1997). *The new organizational wealth: Managing & measuring knowledge-based assets*. Berrett-Koehler Publishers.

Stewart, T. A. (1997). Intellectual capital: the new wealth of organizations, Bantam Doubleday Dell Publishing Group. *Inc., New York, NY*.

Tayles, M., Pike, R. H. & Sofian, S. (2007). Intellectual capital, management accounting practices and corporate performance: Perceptions of managers. *Accounting, Auditing & Accountability Journal. 20* (4), 522-548.

Tiwari, R. & Vidyarthi, H. (2018). Intellectual capital and corporate performance: a case of Indian banks. *Journal of Accounting in Emerging Economies. 8* (1), 84-105.

Tovstiga, G. & Tulugurova, E. (2007). Intellectual capital practices and performance in Russian enterprises. *Journal of Intellectual Capital. 8* (4), 695-707.

Tran, N. P. & VO, D. H. (2020). Do banks accumulate a higher level of intellectual capital? Evidence from an emerging market. *Journal of Intellectual Capital*, *23* (2), 439-457.

Vishnu, S. & Gupta, V. K. (2014). Intellectual capital and performance of pharmaceutical firms in India. *Journal of Intellectual Capital. 15* (1), 83-99.