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The Impact of Human Capital on Stocks Performance in Emerging Markets: Evidence From Egypt

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Abstract

This study attempts to investigate the impact of human capital on the common stock's return. The population of the study is Egyptian companies listed at the Egyptian exchange (EGX) due to 2014-2018. The statistical results indicate that there is a general tendency to change common stock's hold return to the corporation's human capital, and it is significant at 0.01 levels. In other terms, it can be stated that the corporation's human capital has a significant impact on common stock's hold return in the Egyptian corporation, and according to Adjusted R-squared the corporation's human capital explain a 57.8% from the change common stock's hold return.so; led to the impact of human capital on creating value of common stock. This can be traced back to investing in "the development and researches" on the other hand besides training, therefore medicine and technology companies get affected through these fields of development researches areas; however companies in industrial and banking sector get impacted by training field.

Keywords: Human capital, Intellectual capital, Intangible capital, Stocks performance

JEL Codes: E22, E24, G12, J24, O15

1. Introduction

The business world has witnessed many transitions, mainly due to technological developments, especially after the Second World War, as the world began to witness a war of minds, as there can be no strategic plan except in light of the human elements with efficiency and multiple skills. Therefore; Human capital is the cumulative value of expertise, information, abilities, lives and employee motivation. In other terms; Human capital requires these corporation and contributions that represent the analysis, experience, innovation and decision-making that people contribute to corporation (Kaplan & Norton, 2004).

Financial markets usually make evaluations for the ability of financial assets, especially from common stock, to generate benefits for shareholders, which can be traced back to the assets they possess that create positive cash flows according to cash dividend discount; Discounted Cash Flow - free cash flow to the firm (FCFF) / free cash flow to equity (FCFE)-; Economic Value Added (EVA) and/or earnings approaches (Francis et. al., 2000; Lamont and Polk 2001; Shrieves et al., 2001; Jiang and Lee 2005; Olweny, 2011; Fernandez, 2007; Garrett and Priestley 2012; Alalawi et. al., 2016; Tijjani and Sani, 2016; Jackowicz et. al., 2017; Pinto et al., 2019). Everyone is looking at the source of creating benefits in real assets (profits and cash flows in the financial statements) which creates a return on financial assets (market value moving at uptrend and dividends for shareholders). However; Consider the main source of production and value of corporation is intellectual capital (Nonaka and Takeuchi; 1995) addition to tangible capital.

2. Literature Review

It is of considerable importance to determine the factors underlying corporation ' innovativeness and to conduct considerable research. The literature has established positions, such as funding constraints addition to market opportunities (Coad et al., 2016) characteristics of corporation and their market (Hall and Ziedonis, 2001; Freel, 2003; Rogers, 2004;Hewitt-Dundas, 2006; Sung and Carlsson, 2007; Nieto and Santamaría, 2010, Kamal et. al., 2016; Hong et. al., 2016; Fischer et. al., 2018) modes of financing (Best & Mitra, 1997; Piper , 2000; Lerner, 2000; Brown et al., 2009).

The human capital has long been considered a critical resource to most companies. Literature suggests that the attributes of human capital affects operating outcomes (Huselid, 1995; Wright et. al., 1995; Pennings et al., 1998; Leana and Van Buren, 1998; Hitt at el., 2001; Pepper ,2002; Bosma at el., 2004; Szymanski et al., 2019). It is only logical that human capital is the most important production factor to labor-intensive firms that provide professional services on the basis of domain knowledge.(Nyberg and Wright, 2015; Wu and Chen 2016;Fonti and Maoret, 2016; Mubarik et al., 2018; Bendickson and Chandler, 2019; Harris et al., 2019)

Eventually; corporates must plan for human capital through strategies to stimulate innovation and modernization, whether for products (goods or services), methods of managing operations, and positive interaction with the business environment. According to (Manso;2011) the optimal innovation motivating incentive scheme can be implemented via a

combination of stock options with long vesting periods, option reprising, golden parachutes, and managerial entrenchment. Therefore; the study found a relation between human capital and corporate value according to the source of creating benefits in real assets (profits and cash flows in the financial statements) which creates a return on financial assets (market value moving at uptrend and dividends for shareholders).

2.1 Human Capital Definitions

Human Capital is a measure of the skills, education, capacity and attributes of labor which influence their productive capacity and earning potential.

Human capital, intangible collective resources possessed by individuals and groups within a given population. These resources include all the knowledge, talents, skills, abilities, experience, intelligence, training, judgment, and wisdom possessed individually and collectively, the cumulative total of which represents a form of wealth available to nations and organizations to accomplish their goals.

Human capital is available to generate material wealth for an economy or a private firm. In a public organization, human capital is available as a resource to provide for the public welfare. How human capital is developed and managed may be one of the most important determinants of economic and organizational performance.

Human capital refers to the production factors, coming from human beings; we use to create goods and services. Our knowledge, skills, habits, and social & personality attributes all form part of the human capital that contributes to the creation of goods and services. Our creativity also contributes. Factors of production are the four inputs required for the production of goods and services. In other words, it is the collection of all our resources. It comprises all our knowledge, abilities, talents, skills, intelligence, training, judgment, and experience. It also includes our wisdom, individually, and collectively. In a national economy, the term refers to how its population contributes towards wealth creation.

Human capital is the economic value of the abilities and qualities of labor that influence productivity. These qualities include higher education, technical or on-the-job training, health, and values such as punctuality. Investment in these qualities improves the abilities of the labor force. The result is greater output for the economy and higher income for the individual.

The investments are called human capital because workers aren't separate from these intangible assets. In a corporation, it is called talent management and is under the human resources department.

2.2 Factors That Contribute to Human Capital Formation

A. Education: Education not only raises the standard and quality of living but also encourages modern attitudes of people. Moreover, education increases the productive capacity and productivity of a nation's workforce by honing their skills. Further, education increases the acceptability of the modern techniques and also facilitates a primitive economy to break the shackles of tradition and backwardness. An investment in the education sector has twofold benefits. It does not only increase the income earning capacity but also reduces

the skewed distribution of income, thereby forming an egalitarian society.

B. Health: The wealth of the country can be increased with the efforts of healthy workforce. Investment in health sector increases, efficiency and productivity of a nation's workforce. In contrast to an unhealthy person, a healthy person can work better with more efficiency and consequently, can contribute relatively more to the GDP of a country. Good health and medical facilities not only increase the life expectancy but also improve quality and standard of living. Investing in health sector ensures the perennial quality and standard of living.

C. On-the-job training: Training refers to the act of acquiring skills, knowledge and competency required to perform a particular job efficiently and effectively. On-the-job training is the most effective kind of framing to a trainee, imparting them with the technical skills and know-how at the actual work site. In this type of training, a trainee is assisted and trained by a trainer when the trainee is actually doing the job. This helps the trainee not only to acquire the: theoretical and practical skills simultaneously but also enables them to learn from the experiences of their trainer and thereby can increase their efficiency and productivity.

At the national level (the country as a whole) there is an international report on human capital issued by the World Bank, but at the company level, there is no similar report; This could be a field of future research.

2.3 Study Layout

According to Sun and Ghosal (2020) the human capital indicators play an important role in influencing patenting. In addition, the study expected that human capital affects many other aspects, such as the level of product quality (goods or services) and positive interaction with the business environment. It is a matter that represents an added value for the company and for the shareholders and determines the market value of the shares according to a trend towards risk, and this can be illustrated by the following figure:

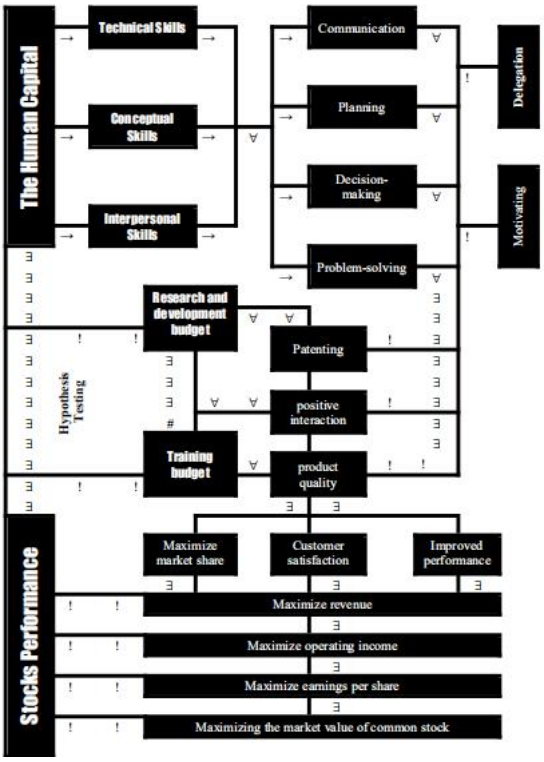

Figure 1. Study layout

According to Katz (2009), the three basic types of management skills include: Technical Skills, Conceptual Skills and Interpersonal Skills; Technical skills involve skills that allow managers to employ a variety of techniques to achieve their goals and their knowledge. The skills include not only operating machinery and technology, manufacturing devices and parts of equipment but also the skills needed to boost sales, develop and sell services and products for various types of products and services. Conceptual skills involve skills includes the knowledge and ability of the skill managers present in the formulation of abstract thinking and ideas. A full definition, an idea and a problem can be evaluated and the director can find creative solutions. This allows the director to foresee challenges efficiently in the department or the whole corporate. The human or the interpersonal skills are the skills that allow managers to communicate, function or connect with employees effectively. These qualifications permit managers to exploit the corporate's human potential and motivate employees to achieve better results.

These are basic skills in administrative activities and impact on their essential missions; There is a wide range of missions that manager should possess to do an effectively and efficiently. The following are four essential missions of managers: Communication, Planning, Decision-making and Problem-solving under two control factors (delegation and motivating).

The efficiency of managers in these essential missions impact on the corporate's performance under two control factors (research and development budget and training budget). The corporate's performance is shown through maximize market share; customer satisfaction and

improved performance for corporate's operation activities. This is reflected in revenue, operating income, earnings per share (EPS) and the market value of common stock.

According to the above; the study expected that there is an impact of the corporate's human capital on their stocks performance under two control factors. These factors are research and development budget and training budget.

2.4 Study Problem

According to study layout; the study is designed to bridge the gap in literature by presenting empirical evidence of the impact of the corporate's human capital on their stock performance; therefore the study addresses the following question:

Is there any impact of the corporation's human capital on the performance of their common stock?

2.5 Study Hypotheses

According to study problem; the study hypotheses can be formulated as follows

H_1: There is no significant impact of the corporation's human capital on the performance of their common stock with an immediately.

H_2: There is no significant impact of the corporation's human capital on the performance of their common stock with a lag period.

H_3: There is no significant impact of the corporation's human capital on the performance of their common stock with immediately and a lag period.

3. Study Methodology

The study used panel data analysis to examine the impact of the corporation's human capital on the performance of their common stock.

3.1 Data Collection

This study is based on secondary data collection. The data for this study was collected from the audited annual financial report published (for determine the investment add at research; development and training according to annual base.); the annual data for the listed companies during 2014 to 2018 (for determine the hold return for common stock according to annual base.). All data were hand collected from the Egyptian Exchange (EGX). The Sample shown in Table 1.

Table 1. The sample

No.	COMPANY	LISTING DATE	REUTERS CODE
1	Cairo Pharmaceuticals	09/04/1996	CPCI.CA

2	Commercial International Bank (Egypt)	02/02/1995	COMI.CA
3	Credit Agricole Egypt	03/07/1996	CIEB.CA
4	Egyptian International Pharmaceuticals (EIPICO)	27/09/1995	PHAR.C
5	El-Nile Co. For Pharmaceuticals And Chemical Industries	27/02/1995	NIPH.CA
6	Elswedy Electric	18/05/2006	SWDY.CA
7	GB Auto	07/03/2007	AUTO.CA
8	Qatar National Bank Alahly	03/07/1996	QNBA.C
9	Raya Contact Center	11/02/2015	RACC.C
10	Raya Holding For Financial Investments	12/05/2005	RAYA.CA

Source: Prepared by the researchers through advice data from The Egyptian Exchange

3.2 Study Variables

Data extracted from financial reporting in the study for dependent and independent variables. The following table illustrates different variables that will be used in the analysis.

Table 2. The study variables

No.	**Variables**	**mensuration**	**Type of Variables**
1	The investment add at research and development	Lin (investment add)	independent variable
2	The investment add at training	Lin (investment add)	independent variable
3	Hold return	%	dependent variable

3.3 Study Model

Application of regression is used to find data-fitting equations. Once the study has the equation of regression, the study can make predictions using the formula. This method is simple and does not take into account the difference between the elements of the study

sample, whether in characteristics such as the size of the company, in addition to the effect of development over time.

Contrarily; Panel data analysis is a factual technique, broadly utilized in sociology, and econometrics to break down two-dimensional (ordinarily cross sectional and longitudinal) board information. The information is generally gathered after some time and over similar unit and afterward a relapse is run over these two measurements. Multidimensional investigation is an econometric technique where information is gathered over multiple measurements;

$$Y_{jt} = A + ß_{Fjt}F_{jt} + E_{jt} \quad (1)$$

Where (y) is the dependent variable, (F) is the independent variable, (A) and (**ß**) are coefficients, (i) and (t) are indices for individuals and time; but (e) is The random error ; Through the previous presentation, the study model can be formulated as follows

$$HR_{JT} = A + ß_{idjt}ID_{jt} + ßID_{jt-1}ID_{jt-1} + ßIT_{jt}IT_{jt} + ßIT_{jt-1}IT_{jt-1} + E_{jt} \quad (2)$$

Where:

HR_{JT}	The hold return for company (J) at (T) time, It's a dependent variable
A	Intercept
$ß_{idjt}$	Slope of Investment in development with a immediately (T) with the hold return
ID_{jt}	Investment in development with a immediately (T); It's the independent variable
$ßID_{jt-1}$	Slope of Investment in development with a lag period (T-1) with the hold return
$_1ID_{jt-1}$	Investment in development with a lag period (T-1); It's the independent variable.
$ßIT_{jt}$	Slope of Investment in training with a immediately (T) with the hold return
IT_{jt}	Investment in training with a immediately (T); It's the independent variable
$ßIT_{jt-1}$	Slope of Investment in training with a lag period with the hold return
IT_{jt-1}	Investment in training with a lag period (T-1); It's the independent variable
E_{jt}	Random error

downtrend.

Examining the impact of the corporation's human capital on the performance of their common stock with an immediately.

This hypothesis examines the impact of the corporation's human capital on the performance of their common stock with an immediately. The study used panel data cross-sectional units to examine this hypothesis; Table 3 shows the output of H1.

Table 3. The output of H1

Model 1: WLS, using 50 observations

Included 10 cross-sectional units

Dependent variable: HR

Weights based on per-unit error variances

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	-111.064	18.1478	-6.120	<0.0001	***
LRDT	10.2750	2.52745	4.065	0.0002	***
LTT	8.46853	1.46440	5.783	<0.0001	***

Statistics based on the weighted data:

Sum squared resid	47.56976	S.E. of regression	1.006043
R-squared	0.595690	Adjusted R-squared	0.578485
F(2, 47)	34.62369	P-value(F)	5.73e-10
Log-likelihood	-69.70128	Akaike criterion	145.4026
Schwarz criterion	151.1386	Hannan-Quinn	147.5869

Statistics based on the original data:

Mean dependent var	24.18557	S.D. dependent var	10.64541
Sum squared resid	2962.358	S.E. of regression	7.939073

Source: Gnu Regression, Econometrics and Time-series Library output.

The previous statistical analysis indicate that there is a general tendency to change common stock's hold return to the corporation's human capital with immediately, and it is significant at 0.01 levels. In other words, it can be said that the corporation's human capital as with immediately has a significant impact on common stock's hold return in the Egyptian

corporation, and according to Adjusted R-squared the corporation's human capital explain a 57.8.2% from the change common stock's hold return.

Examining the impact of the corporation's human capital on the performance of their common stock with a lag period:

This hypothesis examines the impact of the corporation's human capital on the performance of their common stock with a lag period. The study used panel data cross-sectional units to examine this hypothesis; Table 4 shows the output of H2.

Table 4. The output of H2

Model 2: WLS, using 50 observations

Included 10 cross-sectional units

Dependent variable: HR

Weights based on per-unit error variances

	Coefficient	Std. Error	t-ratio	p-value	
const	-88.9491	22.4985	-3.954	0.0003	***
LRDTL1	7.21230	2.76633	2.607	0.0122	**
LTTL1	8.60571	1.41758	6.071	<0.0001	***

Statistics based on the weighted data:

Sum squared resid	48.88045	S.E. of regression	1.019809
R-squared	0.475729	Adjusted R-squared	0.453419
F(2, 47)	21.32411	P-value(F)	2.57e-07
Log-likelihood	-70.38079	Akaike criterion	146.7616
Schwarz criterion	152.4976	Hannan-Quinn	148.9459

Statistics based on the original data:

Mean dependent var	24.18557	S.D. dependent var	10.64541
Sum squared resid	3306.501	S.E. of regression	8.387555

Source: Gnu Regression, Econometrics and Time-series Library output.

The previous statistical results show that there is a general tendency to change common stock's hold return to the corporation's human capital with a lag period, and it is significant at 0.01 levels. In other words, it can be said that the corporation's human capital as with a lag period has a significant impact on common stock's hold return in the Egyptian corporation, and according to Adjusted R-squared the corporation's human capital explain a 45.3% from the change common stock's hold return.

Examining the impact of the corporation's human capital on the performance of their common stock with immediately and a lag period:

This hypothesis examines the impact of the corporation's human capital on the performance of their common stock with immediately and a lag period. The study used panel data cross-sectional units to examine this hypothesis. Table 5 indicates the output of H3.

Table 5. The output of H3

Model 3: WLS, using 50 observations

Included 10 cross-sectional units

Dependent variable: HR

Weights based on per-unit error variances

	Coefficient	Std. Error	t-ratio	p-value	
const	-99.1447	20.2477	-4.897	<0.0001	***
LRDT	33.4984	7.81896	4.284	<0.0001	***
LTT	-2.28824	3.89212	-0.5879	0.5595	
LRDTL1	-23.6112	7.20620	-3.277	0.0020	***
LTTL1	9.43895	3.47363	2.717	0.0093	***

Statistics based on the weighted data:

Sum squared resid	46.62208	S.E. of regression	1.017864
R-squared	0.597735	Adjusted R-squared	0.561978
F(4, 45)	16.71663	P-value(F)	1.83e-08
Log-likelihood	-69.19821	Akaike criterion	148.3964
Schwarz criterion	157.9565	Hannan-Quinn	152.0370

Statistics based on the original data:

Mean dependent var	24.18557	S.D. dependent var	10.64541
Sum squared resid	2619.444	S.E. of regression	7.629539

Source: Gnu Regression, Econometrics and Time-series Library output.

The previous statistical results show that there is a general tendency to change common stock's hold return to the corporation's human capital with immediately and a lag period, and it is significant at 0.01 levels. In other words, it can be said that the corporation's human capital as with immediately and a lag period has a significant impact on common stock's hold return in the Egyptian corporation, and according to Adjusted R-squared the corporation's human capital explain a 56.2% from the change common stock's hold return.

4. Conclusion

Interest in human capital is not new, as many studies have spotted & highlighted this concept (Goode, 1959; Frank, 1960; Schultz, 1961; ... e.g.); at the national level (the country as a whole) there is an international report on human capital issued by the World Bank. The 70 years ago witnessed world involve an international transfer of resources in the form of human capital that goes completely unrecorded in any official balance-of-payments statistics (Grubel and Scott, 1966). According to Human Capital Index report for 2018; the rank of Singapore is the first; the second and third was South Korea and Japan; and the rank of Egypt is 104.

As for the company level, there is no similar report; this could be an area for further research. But there is general agreement on the impact of this on company's performance; according to Barney (2015) that the resources of a firm are its primary source of competitive advantage and they include physical capital, human capital and organizational capital resources. Those resources make a improve efficiency for operation actives of the company's.

According to the statistical analysis; there is a general tendency to change common stock's hold return to the corporation's human capital with immediately, and it is significant at 0.01 levels. In other words, it can be said that the corporation's human capital as with immediately has a significant impact on common stock's hold return in the Egyptian corporation, and according to Adjusted R-squared the corporation's human capital explain a 57.8.2% from the change common stock's hold return. But with a lag period explain just a 45.3% from the change common stock's hold return. Finally the corporation's human capital with immediately and a lag period explain a 56.2% from the change common stock's hold return.

This is traced back to investing in "the development and researches" on the other hand besides training, therefore medicine and technology companies get affected through these fields of development researches areas, but companies in industrial and banking sector get impacted by training field.

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Appendix

Appendix A

Stocks Performance

Cairo Pharmaceuticals

Commercial International Bank (Egypt)

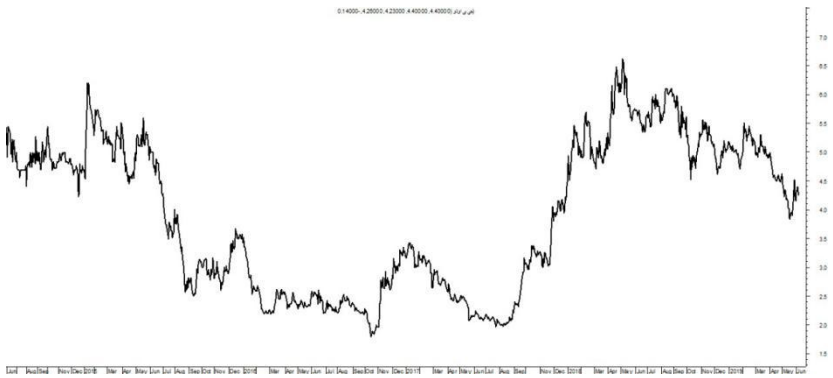
Credit Agricole Egypt

Egyptian International Pharmaceuticals (EIPICO)

El-Nile Co. For Pharmaceuticals and Chemical Industries

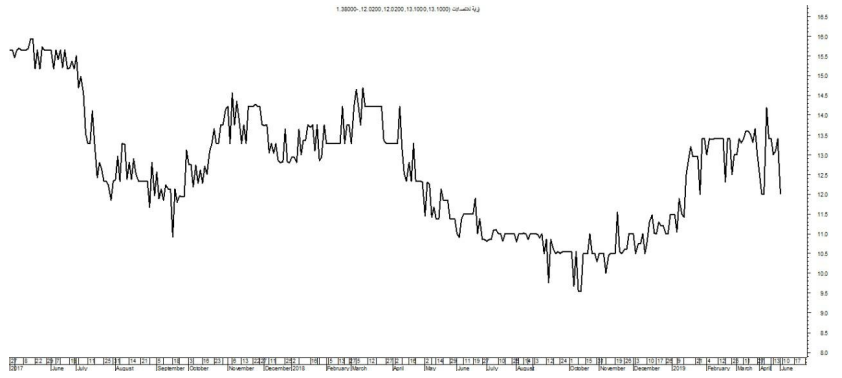
Elswedy Electric

GB Auto



Qatar National Bank Alahly

Raya Contact Center



Raya Holding for Financial Investments

Appendix B

Statistical analysis output

Descriptives

Descriptive Statistics

	N	Mean	Std.	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
HR	50	24.1856	10.6454	1.225	.337	1.310	.662
LRDT	50	7.2615	.3351	.199	.337	-.840	.662
LRDTL1	50	7.2402	.3275	.205	.337	-.921	.662
LTT	50	7.0972	.5415	-.441	.337	1.513	.662
LTTL1	50	7.0406	.5755	-.488	.337	.867	.662
Valid N (listwise)	50						

Correlations

Correlations

		HR	LRDT	LRDTL1	LTT	LTTL1
Pearson Correlation	HR	1.000	.487**	.378**	.644**	.585**
	LRDT	.487**	1.000	.938**	.395**	.196
	LRDTL1	.378**	.938**	1.000	.313*	.198
	LTT	.644**	.395**	.313*	1.000	.898**
	LTTL1	.585**	.196	.198	.898**	1.000
Sig. (2-tailed)	HR	.	.000	.007	.000	.000
	LRDT	.000	.	.000	.004	.172
	LRDTL1	.007	.000	.	.027	.168
	LTT	.000	.004	.027	.	.000
	LTTL1	.000	.172	.168	.000	.
N	HR	50	50	50	50	50
	LRDT	50	50	50	50	50
	LRDTL1	50	50	50	50	50
	LTT	50	50	50	50	50
	LTTL1	50	50	50	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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