The effect of Managerial Ability on Working Capital and Its speed adjustment: Case of Egyptian non-financial listed Companies

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Abstract:

The purpose of this paper is to find out the effect of managerial ability on managing working capital and its speed adjustment for non-financial listed companies.

Statistical descriptive have been utilized to find out the normality of data. Then measuring the managerial ability which represents the residual of the efficiency Tobit regression model. Next, utilizing single regression analysis to estimate the effect of the managerial ability on managerial ability and its speed adjustment.

The results showed that there were weak significant effects of managerial ability on working capital which indicated that conducting current assets

didn't pay enough attention to its importance, while hasn't significant on its speed adjustment which addresses that management hasn't any target working capital in their short-term financial planning.
Accordingly, we recommend that management should hire specialized financial managers to conduct working capital effectively instead of financial managers accounting background or develop their capabilities toward managing current assets.
Keywords: Managerial ability; Working Capital; Target Working Capital Speed Adjustment; Efficiency; Egypt.

1- Introduction:

Working capital management is the administration of the firm's current assets and the financing needed to support current assets and managerial ability (Horn, James C. Van and Wachowicz, John M., 2008). Managerial ability refers to the skills that a manager should possess to lead a team, manage the human dimension, mobilize technical skills, and make the right decisions. These skills include business planning, decision-making, problem-solving, communication, delegation, and time management2. Managerial skills are essential for any person whose mission is to manage a team. Managerial skills can be defined as certain abilities that a manager/executive should possess in order to fulfill specific tasks in an organization (Bhutta. Aamir Inam. 2021).
The robust evidence that managerial ability has a significant impact on corporate decisions and its outcomes and that many studies showed that financial decisions have the main influence on business performance (Aras and Yildirim, 2018) including working capital management (Altaf, Nufazil, and Ahmad, Farook, 2018).
However, this research is addressing the role of managerial ability in enhancing the efficiency of working capital and target working capital speed adjustment, which may support the decisions of general assemblies in selecting the board members. The rest of the paper will be organized as follows, section 2 explains the literature review, section 3 the methodology, section 4 the results of the analysis and section 5 provide the conclusion.

2- Literature review:

2.1- Managerial Ability

Managerial abilities have influenced positively different areas where, (Dong, Feng and Doukas, John, 2021) Analyzed diverse levels of managerial ability and firm performance in the cross section of acquiring firms and they found that acquirers with strong managerial ability better post-merger firm performance than their low-ability counterparts. While (Jang, Soomi, 2021) examined whether analysts consider managerial ability in forming their stock recommendations and they found that managerial ability is a distinct and important attribute of firms in explaining analysts' stock recommendations and the returns of those recommendations to investors. And,

(Dong, Feng and Doukas, John, 2021) examined whether fund managers use corporate managerial ability (MA) as a point of reference in their portfolio investment decisions and they found that skilled fund managers with significant loading on high-MA stocks outperform low-skill managers. Also, (Chen, Suyun, 2021) investigated the relationship between managerial ability and inefficient investment, and the impacts of internal control on them and they found that the managerial ability alleviates the under-investment caused by information asymmetry but aggravates the over-investment caused by agency problem; where Internal control restrains the relationship between managerial ability and over-investment but promotes the relationship between managerial ability and under-investment and also, there was a significant positive correlation between managerial ability and over-investment negative correlation between managerial ability and under-investment. Where, internal control has a significant suppressed effect for state-owned firms, while significant promote effect for private-owned firms.

Besides this, (Vo, Xuan Vinh, 2021) investigated the role of latent, unobservable managerial ability on bank lending behavior and results suggested that more able managed banks produce higher amount of loans. And, (Khoo, Joye and Cheung, Adrian, 2021) examined whether and how

managerial ability affects corporate debt maturity decisions and they found that firms with high ability managers are associated with more short-term debt financing. In addition, (Kumar, Sonal and Zbib, Leila, 2022) examined the managerial ability of the CEO impacts on firm performance during the crisis period and they found that there was a positive and significant association between the CEO managerial ability and both the cumulative raw and abnormal returns. And (Jang, Soomi, et. al, 2023) examined whether more capable managers affect the cost of equity capital and they found that higher managerial ability was associated with a lower implied cost of equity. Finally, (Banerjee, Pradip, and Deb, Soumya G., 2023) studied the interlinkage between capital investment, efficiency in working capital management, managerial ability, and firm performance and they found that managerial ability increases the investment in capital expenditure, working capital management efficiency and firm performance.

2.2- Working Capital efficiency

There are some factors affecting working capital efficiency, starting, (Moussa, Amr Ahmed. 2018) analyzed the key factors affecting working capital behavior of Egyptian listed companies and found that working capital behavior is affected by various factors related to firm characteristics, economic conditions, and industry type. While (Dbouk, Wassim, et. al, 2020) investigate the impact of macro-economic risk on working capital and he showed that Economic policy uncertainty (EPU) drives high levels of inventory, trade credits, payables, and working capital. And, (Sardo, Filipe, et. al. 2021) Analyzed The effect of the probability of financial distress on working capital and the results suggested that small and medium enterprises exposed to a higher probability of bankruptcy invest more in working capital to avoid default risk and financing imbalance. Also, (Sawarni, Kumar Sanjay, et. al, 2022) investigated how firms growing at a high average rate over a period differ in their working capital management (WCM) efficiency from those growing at a low rate during the same period and they found that firms with high growth their working capital significantly more efficiently than those with low growth. Besides this, (Tarkom, Augustine, 2022) examined the impact of the COVID-19 pandemic on firms' working capital management and found a

negative impact of Covid-19 on working capital management. In addition, (Kumpamool, Chamaiporn and Chancharat, Nongnit, 2022) Investigated the influence of board composition on the working capital management and they found that larger board size causes a lower net working capital holding, it increases its efficiency by implementing aggressive policies. Finally, (Sawarni, Kumar Sanjay, et. al, 2023) investigated the impact of earnings management (EM) on the efficiency of Working Capital Management and its components and they found that it was inversely influence the working capital management efficiency of Indian firms.

2.3- Speed Adjustment

Target working capital ensures that the buyer can continue the normal operations of the business without additional debt obligations, consequently it is important to measure the companies speed adjustment toward the target. Starting (Chauhan, Gaurav S. and Banerjee, Pradip, 2017) investigated the existence of an optimal or target level of working capital for the Indian manufacturing firms, and whether firms follow the target or not and found that there is no evidence of systematic target-following behavior of working capital. While, (Eldomiaty, Tarek, et. al, 2018) Investigated the benefits of an optimal vs observed working capital and found that significant association exists between volatility of sales and cash conversion cycle; sales volatility and lagged growth of sales carry relatively the highest weights when a firm moves from observed to optimal cash conversion cycle; shorter cash conversion cycle is associated significantly with higher profitability. Also, (Tsuruta, Daisuke, 2019) demonstrated the adjustment speed of firm working capital and the relationships between working capital and firm performance in Japan and he found that there was a negative relationship between excess working capital and firm performance became more significant during the crisis, especially for larger firms but not for long time. In addition, (Prasad, Punam, et. al, 2019) assess the impact of deviation from the target investment in working capital (WC) (measured by net trade cycle (NTC)) on the profitability (measured by gross operating income (GOI) and net operating income (NOI)) of the listed non-financial Indian firms and they revealed that Indian firms maintain a target NTC and try to converge in

case of any deviations to it. Furthermore, the profitability of the sample firms was observed to be influenced by the deviation from the target NTC irrespective of whether the deviation was above or below the target investment level in WC. Besides this, (Ahangar, Nufazil, 2020) examined the existence of target level of working capital and the speed of adjustment toward the target for eight manufacturing sectors of Indian economy and found that firms have target working capital, but with low speed of adjustment and varies across sub-sectors.

The literature review showed the following aspects:

- Managerial abilities have influenced positively different areas such as post-merger firm performance, important attribute of firms in explaining analysts' stock recommendations, alleviates the under-investment, stock performance, volume of granting loans, short-term debt financing, lower cost of equity, capital expenditure and firm performance.
- There are many factors affecting working capital such as firm characteristics, economic conditions, industry type, growth rate, crisis, board size and earning management.
- There is a target working capital and it is affected negatively by the financial crisis.

Conceptual Framework

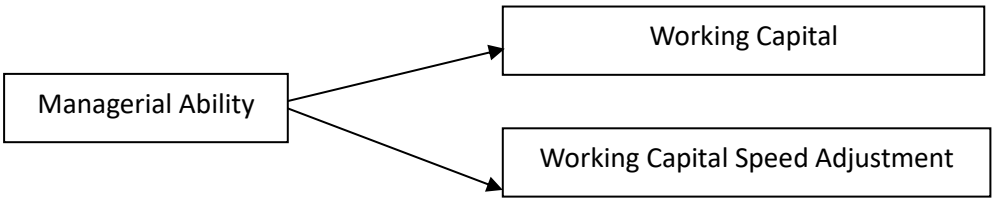

Figure 1: Conceptual framework for the impact of managerial ability on working capital and its speed adjustment.

Thus, previous studies concentrated on the influences of managerial ability on different areas excluding working capital efficiency and its target speed adjustment. While this examines the impact of managerial ability on

working capital and its target speed adjustment. In doing so, the following questions will be addressed:

- To what extent does managerial ability affect working capital?
- To what extent does managerial ability affect target working capital speed adjustment?

3- Data and Methodology

The research used data related to non-financial firms from 2017 until 2023 for the listed non-financial companies. Research variables can be defined as follows:

Independent variables:

- Managerial Ability:

  This research utilizes (Demerjian and Mcvay, 2012) model to measure managerial ability according to two steps, first measure the firm efficiency as follows:

  max θ = Sales/(v1COGS + v2SG&A + v3PPE + v4Intangible+ v5Goodwill + v6R&D)…(1)

  where Sales is output variable. Cost of goods sold (COGS), selling and administration expenses (SG&A), net value of fixed assets (PPE), net value of intangible assets (Intangible), goodwill (Goodwill) and research and development costs (R&D) are input variables. The final measured firms' efficiency values (Efficiency) is between 0–1. The efficient firm is 1 point, while the inefficient firm is 0 point. The smaller is the firm's score, the lower the firm's efficiency.

  Firm efficiency scores are influenced by specific factors and managerial ability. Thus, the second stage is to eliminate firm level factors, build Tobit regression model, and estimate managerial ability.

  Efficiency = ∂0 + ∂1Size + ∂2MS + ∂3FCF + ∂4Age + ∂5BHHI + Year + Industry + ε …(2)

  where the size of firm (Size), market share (MS), free cash flows (FCF), listed years (Age), and business complexity (BHHI) are firm-level factors. Regression residuals (ε) are managerial ability (MA).

Dependent variables:

- Working capital

Many researchers such as (Sawarni, Kumar Sanjay, et, al, 2023) , (Tarkom, Augustine, 2022) (Le, Ben, 2018) (Chauhan, Gaurav S. and Banerjee, Pradip, 2017) (Ren, Ting, et. al, 2019) (Altaf, Nufazil, and Shah, Farooq Ahmad, 2018) (Eldomiaty, Tarek, et. al, 2018) (Akg€un, Ali _Ihsan, and Karatas, Ayy€uce Memis, 2020) measured working capital according to the following formula:

CCC = IVD + RCD - PYD … (3)

IVD = Inventory × 365 ÷ Cost of goods sold

RCD = Accounts receivable × 365 ÷ Sales

PYD = Accounts payable × 365 ÷ Cost of goods sold

- Working capital target speed adjustment

Following (Ahangar, Nufazil, 2020) who utilize general partial adjustment model as follows:

$CCC_{i;t} - CCC_{i;t-1} = \delta (CCC^{*}_{i;t} - CCC_{i;t-1}); 0 < \delta < 1$ …(4)

where $CCC_{i;t}$ is the firm i's cash conversion cycle in the end of year t; $CCC^{*}_{i;t}$ is the firm i's target cash conversion cycle at the end of year t; $(CCC^{*}_{i;t} - CCC_{i;t-1})$ is the adjustment required to reach the target working capital and δ takes the value between 0 and 1 and measures the speed of adjustment. If δ =1, then $CCC_{i;t} = CCC^{*}_{i;t}$; implying that adjustment costs are so low that firm immediately adjusts their current level of working capital to reach the target level. However, if δ = 0, then $CCC_{i;t} = CCC_{i;t-1}$, implying that adjustment costs are so high that firm chooses to remain at the same level in spite of adjusting.

The target CCC is a linear function of the list of explanatory variables in the literature as the determinants of working capital (Mathuva, 2014; Hill et al., 2010) defined in the previous section and can be estimated as follows:

$$CCC^{*}_{i;t} = \alpha + b1CFLW_{i;t\_1} + b2SIZE_{i;t\_1} + b3GRWT_{i;t\_1} + b4AT_{i;t\_1} + b5Age_{i;t\_1} + b6LEV_{i;t\_1} + b7ROA_{i;t\_1} + \beta 8GDPGR_{t} + e_{i;t}$$ … (5)

where, Cash flow; is defined as the ratio of earnings before interest and taxes plus depreciation to total assets. Size, is defined as the natural logarithm of total assets reported in the balance sheet. GRWT growth is defined as the percentage change in the sales of the firm from the

previous year. AT is measured as the ratio of operating income to total assets. firm age (Age) is defined as the number of years from the time the company was incorporated. leverage; is defined as the ratio of total debt (debt in current liabilities and long-term debt) to total assets. ROA is measured as the ratio of net profits to total assets. and macroeconomic conditions-gross domestic product growth rate. (GDPGR) is used as a proxy for controlling macroeconomic conditions. ηi represents the time invariant firm-specific attributes and captures characteristic of the firm as well as the industry in which it operates; and γt is the year fixed effect, εi,t is the random error term.

4- Results:

4.1Descriptive Statistics

Table 1: Descriptive Statistics

Variable	Mean	Median	Skewness	Ex. kurtosis	Jarque-Bera test
CCC*	-0.018724	0.0065994	-5.4969	54.530	40226.8
CCC	1917.2	158.60	1.8621	15.507	4260.27
CFLW	0.64140	0.23380	2.0575	12.595	2282.42
TotalAssetsLogofTA	11.997	3.5347	17.577	306.98	1.24111e+006
GRWT	0.58827	0.13877	15.874	271.72	972886
AT	0.30327	0.070530	1.5797	21.594	6191.42
Age	21.923	24.000	-0.90090	0.51013	45.5875
LEV	0.26759	0.13697	4.1144	21.133	6686.35
ROA	0.11862	0.051596	-0.031355	9.5083	1175.35
GDPGR	0.051517	0.054500	-0.28007	-1.3981	29.4893

Source: Prepared by Authors

Jarque-Bera test showed that most variables are normally distributed which could be state that there is no randomness in the data, expect total assets are not normally distributed indicating that it is the main source of randomness for efficiency and target working capital.

Managerial ability was developed in two steps as shown in (1) and (2) then utilize residual of (2) as independent variable to measure the impact on working capital (3) and its speed adjustment (4) which is estimated according to (5).

Table 2: Estimation of managerial ability (2)
Tobit, using 469 observations
Dependent variable: Managerial Ability
QML standard errors

	Coefficient	Std. Error	z	p-value	
const	0.279125	0.0363002	7.689	<0.0001	***
TotalAssetsLogofTA	0.000203604	5.53168e-06	36.81	<0.0001	***
MarketShareMS	3.29385e-08	1.38122e-08	2.385	0.0171	**
FreeCashFlow	9.94903e-07	4.41552e-08	22.53	<0.0001	***
ListedAge	0.00266418	0.00150491	1.770	0.0767	*

Chi-square(4)	2319.983		p-value	0.000000
Log-likelihood	−37.63657		Akaike criterion	87.27315
Schwarz criterion	112.1768		Hannan-Quinn	97.07175

sigma = 0.260919 (0.00900188)
Left-censored observations: 2
Right-censored observations: 0

Test for normality of residual -
Null hypothesis: error is normally distributed
Test statistic: Chi-square(2) = 116.518
with p-value = 4.99267e-026

Table 2 showed that total assets, market share and free cash flow are the main source of determining efficiency and the level of managerial ability of the different companies within the sample and the residual of such Tobit regression exclude the effect of such factors.

Table 3: The estimation of working capital in response to managerial ability.

Fixed effects, using 469 observations
Included 67 cross-sectional units
Time-series length = 7
Dependent variable: CCC
Standard errors clustered by unit

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	1884.14	9.20605e-08	2.047e+010	<0.0001	***
residual	−7283.22	2714.56	−2.683	0.0092	***

Mean dependent var	1884.136		S.D. dependent var	11962.10
Sum squared resid	5.60e+10		S.E. of regression	11818.87
LSDV R-squared	0.163558		Within R-squared	0.022824
Log-likelihood	−5026.775		Akaike criterion	10189.55
Schwarz criterion	10471.79		Hannan-Quinn	10300.60
rho	−0.172139		Durbin-Watson	2.041017

Table 3 showed the effect of managerial ability on working capital and the model explained 16.3% of the working capital variation which means that there were 83.7% explained by other variables

Table 4: The estimation of target capital structure
Fixed effects, using 312 observations
Included 52 cross-sectional units
Time-series length = 6
Dependent variable: CCC*

Standard errors clustered by unit

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	−0.0163921	0.221815	−0.07390	0.9414	
CFLW	0.0437468	0.0535886	0.8163	0.4181	
TotalAssetsLogofTA	−4.68575e-05	1.92552e-05	−2.434	0.0185	**
GRWT	0.00388399	0.00149364	2.600	0.0122	**
AT	−0.0362160	0.0874512	−0.4141	0.6805	
Age	0.00282209	0.00428987	0.6578	0.5136	
LEV	0.0569406	0.0642890	0.8857	0.3799	
ROA	−0.0743629	0.0696888	−1.067	0.2910	
GDPGR	−1.73567	4.79157	−0.3622	0.7187	

Mean dependent var	−0.018724	S.D. dependent var	0.581328
Sum squared resid	75.04427	S.E. of regression	0.545706
LSDV R-squared	0.285974	Within R-squared	0.014982
Log-likelihood	−220.4205	Akaike criterion	560.8410
Schwarz criterion	785.4212	Hannan-Quinn	650.5989
rho	−0.350999	Durbin-Watson	2.354868

Joint test on named regressors -
Test statistic: F(8, 51) = 50.8634
with p-value = P(F(8, 51) > 50.8634) = 1.21569e-021
Robust test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: Welch F(51, 89.9) = 0.860868
with p-value = P(F(51, 89.9) > 0.860868) = 0.717311

Table 4 showed that total assets and sales growth rate are the main source of determining target working capital which explained 28.5 of the target capital structure which means that there were 72.5% explained by other variables.

Table 5: Estimation of working capital in response to managerial ability
Fixed effects, using 312 observations

Included 52 cross-sectional units
Time-series length = 6
Dependent variable: CCC*
Robust (HAC) standard errors

	Coefficient	*Std. Error*	*z*	*p-value*	
const	0.0446558	0.000120919	369.3	<0.0001	***
ManaAbility	−0.0232174	0.0776033	−0.2992	0.7648	

Mean dependent var	0.044692	S.D. dependent var	0.578547
Sum squared resid	73.50019	S.E. of regression	0.532714
LSDV R-squared	0.293924	Within R-squared	0.000112
Log-likelihood	−217.1772	Akaike criterion	540.3545
Schwarz criterion	738.7337	Hannan-Quinn	619.6406
rho	−0.378702	Durbin-Watson	2.417917

Joint test on named regressors -
Test statistic: F(1, 51) = 0.0895092
with p-value = P(F(1, 51) > 0.0895092) = 0.766018
Robust test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: Welch F(51, 89.9) = 1.12005
with p-value = P(F(51, 89.9) > 1.12005) = 0.315362
Table 5 showed that managerial ability has no effect on working capital speed adjustment which indicated that companies within the sample don't have target working capital.

5- Conclusion:

In this paper descriptive statistics showed the normality of most variables except total assets addressing randomness of estimation models. We extracted the managerial ability according to two steps; first estimate the efficiency and found that total assets, market share and free cash flow are the main source of determining efficiency and the level of managerial ability of the different companies within the sample from the residual of

such Tobit regression excluded the effect of such factors. Then we measured the effect managerial ability on working capital and found that the model explained 16.3% of the working capital variation which means that there were 83.7% explained by other variables which indicated the weakness of managerial contribution in managing working capital effectively. Next, its effect on working capital speed adjustment and found that managerial ability has no effect on working capital speed adjustment which indicated that companies within the sample don't have target working capital.

6- Managerial Implications and recommendations:

The research results showed two issues the first the weak contribution of management in managing working capital efficiently, the second that the management don't work on determining working capital targets during research period and this may be referred that most of financial managers are accounting background which not considering effectively the approach of managing current assets. Accordingly, we recommend that management should hire specialized financial managers to conduct working capital effectively instead of financial managers accounting background or develop their capabilities toward managing current assets.

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