"The impact of cash holding on stock returns in small and medium enterprises on the Egyptian Nile Stock Exchange"

AUTHORS	Ahmed Rashed (b) Waleed Ghoniem (b)
ARTICLE INFO	Ahmed Rashed and Waleed Ghoniem (2022). The impact of cash holding on stock returns in small and medium enterprises on the Egyptian Nile Stock Exchange. <i>Investment Management and Financial Innovations</i> , <i>19</i> (3), 83-92. doi:10.21511/imfi.19(3).2022.08
DOI	http://dx.doi.org/10.21511/imfi.19(3).2022.08
RELEASED ON	Monday, 01 August 2022
RECEIVED ON	Saturday, 04 June 2022
ACCEPTED ON	Wednesday, 27 July 2022
LICENSE	This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Investment Management and Financial Innovations"
ISSN PRINT	1810-4967
ISSN ONLINE	1812-9358
PUBLISHER	LLC "Consulting Publishing Company "Business Perspectives"
FOUNDER	LLC "Consulting Publishing Company "Business Perspectives"

P	G	===
NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
43	0	8

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BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives" Hryhorii Skovoroda lane, 10, Sumy, 40022, Ukraine

www.businessperspectives.org

Received on: 4th of June, 2022 Accepted on: 27th of July, 2022 Published on: 1st of August, 2022

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Ahmed Rashed, Ph.D., Lecturer, Faculty of Commerce, Finance Department, Cairo University, Egypt. (Corresponding author)

Waleed Ghoniem, Ph.D., Lecturer, Faculty of Commerce, Accounting Department, Cairo University, Egypt.

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Conflict of interest statement: Author(s) reported no conflict of interest Ahmed Rashed (Egypt), Waleed Ghoniem (Egypt)

THE IMPACT OF CASH HOLDING ON STOCK RETURNS IN SMALL AND MEDIUM ENTERPRISES ON THE EGYPTIAN NILE STOCK EXCHANGE

Abstract

This paper explores the impact of cash holdings on stock returns in small and medium enterprises. The sample includes 24 SMEs listed on the Egyptian Nile Exchange, excluding service firms, with a total of 96 observations from 2016 to 2019. Data was collected from financial statements and reports obtained through an information dissemination company in Egypt. This study uses a panel data analysis with comparing all results via ordinary least squares and the generalized method of moments. The findings show a statistically significant negative effect of cash holding on stock returns in small and medium enterprises on the Egyptian Nile Exchange. Further, the evidence shows that firms with higher levels of cash holding have higher investment alternatives and then lower stock returns. This result supports the agency theory that an increase in cash holding leads to managers exploiting cash resources to achieve personal benefits, thus increasing agency costs, lowering investment efficiency, and therefore lowering stock returns. The results support the trade-off between risk and return by using cash holding to finance operational activities and investing in higher investment alternatives and then lower stock returns.

Keywords cash holding, stock returns, agency theory, investment

efficiency, OLS, GMM

JEL Classification M41, G39, G50

INTRODUCTION

Cash holding is one of the most important financial topics related to returns and costs that are reflected in the financial and accounting aspects (Brown & Petersen, 2011; Dittmar & Smith, 2007; Khatib et al., 2021). The main objective of cash management is to reach the optimum cash holding at which the maximum possible benefits are achieved, which enables a firm to conduct its operational activities and meet emergency needs, take advantage of temporary opportunities available in the market and reduce risks to the lowest possible opportunity and agency costs (Arslan et al., 2006). On other hand, cash holding reduces the possibility of being exposed to financial hardship resulting from the weak generation of sufficient cash flows to pay obligations and ensure the continuity of the operational process, thus avoiding or reducing the costs of liquidating assets or capital costs, while, on the other hand, cash holing is associated with a set of costs associated with it, the most important of which are agency costs for shareholders and opportunity costs (Brown & Petersen, 2011). Hence, firms should take into account the returns and costs when determining the optimum level of cash holding to maximize returns and reduce costs in a manner that reflects positively on firm value (Dittmar & Smith, 2007).

Small and medium-sized enterprises (SMEs) are a dynamic force for sustainable economic growth and job creation in developing countries (Epede & Wang, 2022). SME owners are exposed to many obstacles related to the investment environment like the length of stages required to prepare documents and guarantees, the difficulty of obtaining licenses, and the length of the approval period (Woldie et al., 2018). In addition to the multiplicity of agencies and the difficulty in obtaining financing compared to large projects. Also, the owners suffer from barriers related to marketing and the inability to compete with imported products, as well as problems associated with weak administrative, technical, and organizational capabilities.

Therefore, the study is expected to contribute to exploring the impact of cash holding on stock returns in 24 small and medium-sized enterprises (SMEs) in the Egyptian Nile Exchange using OLS and GMM. Data was collected via financial statements and reports through an information dissemination company. One question is addressed: (1) Is there any relationship between cash holding and sock returns of listed small and medium firms in Egypt?

The study is divided in the following parts. After the introduction, the literature review explains how cash holdings and stock returns are directly related through previous literature. The next section explores data and methodology. The presentation of empirical findings and debate follows. Conclusions are in the final section.

1. LITERATURE REVIEW

Cash holding is one of the important financial and administrative decisions taken by firm managers, since it contributes to achieving strategic goals in terms of firm survival and growth in light of the intensity of competition. Firms determine the optimum level of cash holding to achieve many benefits that are positively reflected in the firm reputation and financial position, which may gain the confidence of shareholders, investors, and other relevant parties, and thus be reflected in shareholders' value and wealth (Ye, 2018).

On other hand, maximizing profitability is the focus of financial decisions to assess operational performance in addition to being an important indicator of the firm efficiency and its reflection on the benefit of its shareholders, while the firm value and returns reflect the firm performance, since an increase in the firm's profits may lead to higher returns, and vice versa (Jensen, 2002).

Previous studies have shown remarkable development in the level of cash holding in many countries, where the world scope database has shown that the percentage of cash holding in firms registered in the stock markets in 45 countries has increased almost from 9% in 1995 to more than 37% in 2017; this has significantly increased the inter-

est of many researchers in studying and analyzing the economic effects of cash holding on financial markets in general and stock returns in particular, as well as in clarifying the determinants of cash holding benefits to all relevant parties in the decision-making process (Chang & Noorbakhsh, 2006). Accordingly, stock returns in small and medium enterprises are affected by the change in the level of cash holding by applying to the Egyptian Nile Stock Exchange.

Theoretical perspectives explain different behavioral interpretations of the relationship between cash holding and stock returns (Ozkan & Ozkan, 2004; López-Gracia & Sogorb-Mira, 2008; Simutin, 2010; Fresard, 2010; Palazzo, 2012; Uyar & Kuzey, 2014). The first behavioral interpretation adopts both transaction and reserve motives, according to both trade-off and pecking order theory, the proponents of this interpretation depend on the fact that the effective management of cash holding contributes to reducing the cost of capital, which reflects positively on firm value, and maximizing its shareholder's wealth through the availability of a high level of cash holding, which contributes to decreasing operational activities costs while facing the cash flow volatility and the ability to fulfill contractual obligations, and then maximizes its firm value and reflects positively on stock returns and provides financial flexibility in

exploiting growth opportunities (López-Gracia & Sogorb-Mira, 2008; Uyar & Kuzey, 2014).

On other hand, the second behavioral interpretation adopts the agency theory. The proponents of this interpretation depend on the fact that stock returns are affected by the level of cash holding, depending on the efficiency of the exploitation of cash balances away from personal purposes (Lins et al., 2010; Amess et al., 2015).

Previous studies have demonstrated that a conflict of interest negatively affects the price share and high levels of cash holding may result in being exposed to agency problems through a manager's exploitation of cash resources to achieve personal benefits at the expense of negative reflection on stock returns, which results in higher agency costs and lower investment efficiency, and then a negative reflection on stock returns (Ferreira & Vilela, 2004; Mun et al., 2020; Habib et al., 2021).

The third behavioral interpretation depends on the fact that a firm always seeks to achieve a balance between the benefits and costs of keeping cash in a way that maximizes firm value and shareholder wealth, and then if cash holding deviates from the optimal level in the affirmation or dispossession, which represents a concave correlation between cash holding and stock returns (Jensen, 1986).

Finally, the fourth behavioral interpretation adopts the pecking order theory, which assumes that there is no optimal level of cash holding and that it represents a wall of repulsion between retained earnings and investment needs (Al-Najjar, 2013). Hence, there is no direct correlation between cash holding and stock returns.

Empirical perspectives have reached the same theoretical results, which in some literature support a positive relationship between cash holding and stock returns, based on the fact that firms must keep cash holding in line with the industry's optimal range and enhance the maximization of their shareholder wealth (Sodjahin, 2013; Abushammala & Sulaiman, 2014). On the other hand, some of the literature indicated an inverse relationship between cash holding and stock returns based on the fact that firms prefer to use cash holding to finance operational activities and

maintain their continuity or invest in high investment alternatives (Hardin et al., 2009; Nason & Patel, 2016).

Also, some studies support the third behavioral explanation in terms of firms that have more than a quarter of their assets in the form of cash assets, have better operational performance compared to their counterparts of the same size and industry (Mikkelson & Partch, 2003).

Some sources claim that firms with an optimal level of cash holding increase the likelihood of exploiting investment opportunities in the market, which reflects positively on increased stock returns (Berk et al., 1999; Fresard, 2010; Abushammala & Sulaiman, 2014).

Other sources believe that cash holding over the optimal level adversely affects financial performance as a result of a lower rate of return on investment than the average cost of capital, which leads to a decrease in profitability and a deterioration in financial performance, and thus lower stock returns (Chen, 2008; Aslam et al., 2019).

Cash holding is affected by many determinants that may affect a firm's decision when determining the optimal level of cash holding. One of the most important determinants of cash holding is the sales growth rate, since firms with high investment opportunities have a greater degree of uncertainty in achieving future cash flows, in addition to information asymmetry, and therefore may keep more cash holding to ensure the firm's ability to finance future investments when the internal cash flow is low (Kim, 2015; Chung et al., 2015; Chen et al., 2018).

Firm size is an important factor in determining the level of cash holding. Some of the literature argued that there is a negative relationship between firm size and cash holding, since small-sized firms are more exposed to irregular risks and borrowing restrictions, and then managers tend to maintain a higher level of cash holding to meet these restrictions and risks (Maheshwari et al., 2018).

On the contrary, it was found that some of the literature argued that firm size is correlated positively with the level of cash holding in the presence

of agency problems. Some studies highlighted the role of financial leverage as one of the determinants of cash holding, which indicated that higher financial leverage leads to a decrease in the level of cash holding (Ozkan & Ozkan, 2004), but other studies argued that there is a positive relationship between financial leverage and cash holding as a result of the reserve motive from default and bankruptcy (Bates et al., 2009).

Although there are different points of view in previous research in different aspects, it was silent in dealing with small and medium-sized enterprises when large firms have already been considered. Therefore, the study proposes to examine the relationship between cash holding and stock returns in small and medium-sized enterprises. The main hypothesis is formulated as follows:

 H_i : There is a negative relationship between cash holding and stock returns.

2. DATA AND METHODOLOGY

2.1. Data

The sample consists of 24 small and medium-sized enterprises listed on the Egyptian Nile Exchange from 2016 to 2019, with a total number of 96 observations, excluding 5 firms that worked in the service sector, using panel data analysis via OLS and GMM. The reason for choosing this particular period from 2016 to 2019 is due to the availability of data related to published financial statements and stock prices. Data were collected from financial statements and reports from 2016 to 2019 through an information dissemination company.

The Nile Stock Exchange for small and medium enterprises suffered from instability between 2011 and 2013 as a result of the Egyptian revolution, and during 2014 and 2015 continued to suffer from many problems that affected it, the most important of which is the low number of registered firms and the low trading volume, in addition to the significant decline in the number of shares traded. The period from 2016 until now represents the best period available for the performance of the Nile Stock Exchange index

in which there is stability of the trading process on the share price.

The reason for choosing these particular enterprises is related to the role of SMEs in enhancing the performance of the Egyptian market. Although SMEs face financial failure problems due to fluctuations in the financial market. Insufficient cash flow is the most complex risk facing a firm's survival and growth, which is reflected in its market value (Al-Najjar, 2013). Firms maintain cash to deal with these risks and avoid financial and operational risks. Cash term is one of the most important and most liquid assets, but the least profitable, as it is one of the most dangerous accounts to be linked to a large number of accounting transactions as well as the ease of exploitation compared to other assets.

2.2. Methodology

The study explores the impact of cash holding on stock returns in small and medium firms using panel data regression via ordinary least squares (OLS) and the generalized method of moments (GMM).

The proposed model to investigate the association between cash holding and stock returns is as follows:

$$BHR_{i,t} = \beta_0 + \beta_1 CASH_{i,t} +$$

$$+ \sum_{k}^{\beta} controls_{i,t} + \varepsilon_{i,t},$$
(1)

$$BHR_{i,t} = \beta_0 + \beta_1 CASH_{i,t} + \beta_2 FS_{i,t} +$$

$$+\beta_3 LEV_{i,t} + \beta_4 SG_{i,t} + \varepsilon_{i,t}.$$
(2)

where $BHR_{i,t}$ is stock returns of firm (*i*) in period (*t*), $CASH_{i,t}$ is cash holding measured by cash and cash equivalents subtracted from current debts scaled by total assets. *controls*_{i,t} are three different variables, namely firm size, financial leverage, and sales growth. *FS* is firm size measured by natural logarithm of total assets, while *LEV* is financial leverage measured by total debts to total assets, and finally, *SG* is sales growth measured by changes in sales revenues to lagged sales revenues. Table 1 summarizes all measurements of variables included in this study.

Table 1. Measurements of variables in this study

Variables	Measure	Predict Sig	References
Stock Returns (BHR)	Price change plus dividends per share to the share price on the opening date	. /	Xu (2021), Monache et al. (2021)
Cash Holding (CASH)	Cash and cash equivalents subtracted from current debts scaled by total assets		
Firm Size (FS)	Natural logarithm of total assets	+/-	Maheshwari et al. (2018)
Leverage (LEV)	Total debts to total assets	+/	Ozkan and Ozkan (2004)
Sales Growth (SG)	Changes in sales revenues to lagged sales revenues	+/-	Bates et al. (2009)

3. EMPIRICAL RESULTS

Descriptive statistics help to display the characteristics of small and medium-sized firms listed on the Egyptian Nile Stock Exchange from 2016 to 2019. The results of the descriptive statistics can be explained in Table 2.

Table 2 shows the descriptive statistics for all the variables employed in the regression. On average, the mean value of the stock return (BHR) is negative, around –2%. The average cash holding (CACH) reaches 0.1% during the study period. Firms are characterized by the instability of both stock returns and cash holding during the study period between 2016–2019 due to higher standard deviation. During the study period, the average FS, LEV, and SG are 7.27, 0.119, and –0.045, respectively.

According to control variables, the average FS, LEV, and SG are 7.27, 0.119, and -0.045, respectively. Firm

size is consistent and identical in the Egyptian market, which indicates that firms are characterized by stability during the period between 2016–2019, for comparison, both sales growth and financial leverage are different and asymmetric in the Egyptian market, and firms are characterized by instability during the research period.

Table 3 shows the correlation matrix for all variables of the study. The results refer to the negative association between the level of cash holding and stock returns (r = -0.278). Also, there is a negative association between financial leverage and stock returns, while both firm size and sales growth are not associated with stock returns. All variance inflation factors (VIF) for all variables are less than 10. There is a free multicollinearity problem, since all the values are less than 10.

Table 4 shows that the Hausman test suggests that the fixed effect is the most appropriate model

Table 2. Descriptive statistics

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p99	Skew.	Kurt.
BHR	96	021	.181	279	.236	279	.236	.006	1.736
CASH	96	.001	.047	069	.072	069	.072	.066	1.988
FS	96	7.27	.365	6.719	7.833	6.719	7.833	.082	1.999
LEV	96	.119	.35	307	.777	307	.777	.765	2.516
SG	96	045	.547	813	.806	813	.806	.166	1.901

Table 3. Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	VIF	
(1) BHR	1.000						
	-0.278*	1.000					
(2) CASH	(0.006)					1.09	
(3) FS	0.091	-0.049	1.000				
	(0.378)	(0.636)				1.012	
(4) 15) (-0.407*	0.239*	-0.069	1.000		4.070	
(4) LEV	(0.000)	(0.019)	(0.503)			1.073	
(5) SG	-0.008	0.190	-0.090	0.134	1.000		
	(0.940)	(0.063)	(0.384)	(0.192)			

Note: *** *p* < 0.01, ** *p* < 0.05, * *p* < 0.1.

when compared to the random model because the p-value of the chi-square is less than 0.05. While the p-value of the Breusch and Pagan test is more than 0.05, which means that the pooled effect model is best for testing all hypotheses compared to random effects.

Table 4. Hausman test and Breusch and Pagan test

Coef.
19 419
19.419
: 13.413
.001
effects
19.42
0.075

Table 5 shows that the Chi2 for BHR is 0.12, and the probability value is greater than 0.05; this indicates that there is homoscedasticity. The f-value for BHR is 0.43, and the probability value is greater than 0.05, indicating omitted variable concern. The unit root test for BHR is –3.845 and the probability value is smaller than 0.05, indicating that there is a stationary time series. The Durbin-Watson value is 2.092, indicating that there is no autocorrelation.

Table 5. Diagnostics tests

Coef.				
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity				
0.12				
0.727				
owers of the fitted values				
0.43				
0.730				
Init-Root Test				
-3.8451				
0.0000				
tson Test				
2.092				

Table 6 shows the results for both OLS and GMM estimations. According to OLS, the p-value of the f-test is significant because (p > F) is at the 1% significance level. Cash holding explains stock returns in SEMs in the Nile stock market by more than 20% (Adj R2 = 0.21). GMM indicates the transformed residuals have no serial correlation because AR (2) is higher than the 5% level and the instruments employed are legitimate, which indi-

cates that the empirical model has been accurately stated because of p-values for both Hansen and Sargan tests are greater than 0.1.

GMM specification is correct, and the over-identifying limitations are valid. As a result, these findings suggest that the dynamic panel of stock returns (BHR) model is a good fit. Furthermore, there is a negative impact of the level of cash holdings on stock returns, that is the coefficient value for both models OLS and GMM are -0.078 and -2.239 at 5% and 1% levels, respectively.

The results also mean that firm size (FS) does not affect stock returns (BHR), since the p-values in both OLS and GMM models are more than the 5% level. Also, it was found that financial leverage (LEV) has a negative influence on stock returns with coefficient values of -0.189 and -0.179 in both OLS and GMM at the 1% significance level. In contrast to the OLS model, sales growth has a positive influence on stock returns in the GMM model at the 5% level.

Table 6. Regression analysis

Mantalala	OLS	GMM
Variable	BI	HR
CH	-0788*	-2.239***
FS	0.314	0.057
LEV	-0.189***	179***
SG	0.028	0.045*
_Cons	0.224-	-0.416
N	96	96
Adj R-squared	0.210	
F-test	6.070	
Prob > F	0.000	
Wald chi2(3)		63.84
Prob > chi2		0.000
AR (1)		0.043
AR (2)		0.605
Sargan test		0.144
Hansen test		0.143

Note: * p < 0.05, ** p < 0.01, *** p < 0.001.

The robustness of the cash holding effect can be checked by replacing the CASH value with an alternative measure, that is the ratio of total cash and equivalent items to total assets (CASH2) (Thakur & Kannadhasan, 2019; Shehata & Rashed, 2021). Table 7 repeats the same regression using OLS and GMM. The findings in Table 7 reveal a strong negative effect of cash holdings on stock returns, -0.883, -2.209 (p < 5%), respectively, con-

firming the results in Table 6 (Hardin et al., 2009; Nason & Patel, 2016). According to control variables, the results in Table 7 remain the same, showing that there is a negative impact of financial leverage (LEV) on stock returns (BHR) at the 1% level in both OLS and GMM. Also, it was found that sales growth (SG) does not affect stock returns (BHR), since p-values (p < 5%) in both OLS and GMM models are in contrast to Table 6. Firm size (FS) has a positive impact on stock returns in the GMM model at the 5% level in contrast to Table 6.

Table 7. Robustness check

Mantalala	OLS	GMM
Variable	Bl	-IR
CH2	-0.883*	-2.090*
FS	0.066	0.149***
LEV	-0.208***	-0.242***
SG	0.020	-0.0233
Cons	0.438-	-0.990
N	96	96
Adj R–squared	0.204	
F–test	5.84	
Prob > F	0.003	
Wald chi2(3)		63.84
Prob > chi2		0.000
AR (1)		0.016
AR (2)		0.652
Sargan test		0.236
Hansen test		0.393

Note: * p < 0.05, ** p < 0.01, *** p < 0.001.

4. DISCUSSION

Regarding the main objectives, this paper investigates cash holdings and stock returns in small and medium firms on the Egyptian Nile Exchange within the period of 2016–2019. The main hypothesis is accepted. It means that there is a negative impact of cash holding on stock returns for both OLS and GMM models. This result is consistent

with some previous works that support the argument that firms prefer to use cash holding to finance operational activities and maintain their continuity or invest in high investment alternatives (Hardin et al., 2009; Nason & Patel, 2016). Regarding control variables, Table 6 shows that there is a negative impact of financial leverage (LEV) on stock returns in both OLS and GMM models, while there is no impact of firm size (FS) on stock returns. Also, sales growth has a positive impact on stock returns in the GMM model.

Regarding robustness check, Table 7 explores the same impact of cash holding on stock returns by replacing an alternative measure of cash holding (ratio of total cash and equivalent items to total assets). The robustness check confirms the same regression using OLS and GMM. The findings refer to a negative impact of cash holding on stock returns This result is consistent with the results in Table 6 (Hardin et al., 2009; Nason & Patel, 2016).

The results support the agency theory, according to which the conflict of interest negatively affects the stock price. Firms believe that cash holding may expose them to agency problems through managers' exploitation of cash resources to achieve personal benefits, which leads to higher agency costs and lower investment efficiency, and a decrease in stock returns (Lins et al., 2010; Amess et al., 2015; Ferreira & Vilela, 2004; Nason & Patel, 2016; Mun et al., 2020; Habib et al., 2021). Investors must consider agency problems when making their investment decisions to avoid a decline in stock returns due to a decrease in profitability. Also, the results support the trade-off between risk and return, since firms keep cash to finance operating activities, invest in higher investment alternatives, and then reduce stock returns.

CONCLUSION

This study aims to test the impact of cash holding on stock returns in small and medium firms listed on the Egyptian Nile Exchange from 2016 to 2019. Based on both OLS and GMM analysis, cash holding hurts stock returns in SMEs, and firms with more cash holdings lead to lower stock returns. This result is consistent with the behavioral interpretation based on the trade-off theory between return and risk, as the provision of cash reserve balances helps firms to cover all needs of operational activities in the event of any restrictions or deficits, exploit investment opportunities, and reduce financing costs related to liquidating or liquidating assets to pay obligations or face unexpected events; but it is related to the

opportunity cost of capital resulting from the low return on cash compared to alternative investments. Based on this result, some suggestions can be made for future researchers interested in this study area.

Only one determinant of stock returns is used in this analysis. Other determinants of stock returns, such as excess returns, can be included by future researchers.

This analysis only covers four years as a period, from 2016 to 2019. When doing a study on this issue, the following researchers can prolong time observation. The following researchers are encouraged to extend the observation period to ten years.

AUTHOR CONTRIBUTIONS

Conceptualization: Ahmed Rashed, Waleed Ghoniem. Data curation: Ahmed Rashed, Waleed Ghoniem.

Formal analysis: Ahmed Rashed.

Funding acquisition: Ahmed Rashed, Waleed Ghoniem.

Investigation: Ahmed Rashed, Waleed Ghoniem.

Methodology: Waleed Ghoniem.

Project administration: Ahmed Rashed, Waleed Ghoniem.

Resources: Ahmed Rashed.

Software: Ahmed Rashed, Waleed Ghoniem.

Supervision: Waleed Ghoniem. Validation: Ahmed Rashed. Visualization: Ahmed Rashed.

Writing – original draft: Ahmed Rashed.

Writing - review & editing: Ahmed Rashed, Waleed Ghoniem.

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APPENDIX A

Table A1. All firms listed in the sample

No	Firm Name	Code
1	Al Bader Plastic	EBDP.CA
2	Arabian Rocks Plastic Industries	ARPI.CA
3	Integrated Engineering Group	INEG.CA
4	International Business Corporation for Trading and Agencies	IBCT.CA
5	International Dry Ice Company – Difco 2	DIFC.CA
6	Pharaoh tech for control and communication systems	PTCC.CA
7	Barbary Investment Group	BIGP.CA
8	M.B Engineering	MBEN.CA
9	Port Saied for Agricultural Development and Construction	PSAD.CA
10	MISR INTERCONTINENTAL FOR GRANITE & MARBLE	MISR, CA
11	International Company for Medical Industries	ICMI.CA
12	Union Pharmacist Company for Medical Services and Investment	UPMS.CA
13	Arab Development & Real Estate Investment	ADRI.CA
14	First Investment company And Real Estate Development	FIRE.CA
15	Marseille Almasrea Alkhalegeya for Holding Investment	MAAL.CA
16	Misr Kuwait Investment & Trading Co.	MKIT.CA
17	UTOPIA	UTOP.CA
18	Brothers Solidarity for Real Estate Investment & Food Security	BSRF.CA
19	FERCHEM MISR CO for FERTILLIZERS & CHEMICALS	FERC.CA
20	International Company for Fertilizers & Chemicals	ICFC.CA
21	Al Moasher for Programming and Information Dissemination	AMPI.CA
22	Vertika for Industry & Trade	VERT.CA
23	Al Fanar Contracting Construction Trade Import and Export Co.	FNAR.CA
24	Egypt -south Africa for communication	ESAC.CA