The Impact of share repurchases on liquidity and return volatility in Egyptian Stock Exchange

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Abstract
Share Repurchases program is a method of a free cash distribution to shareholders. Historically, distribution method was the most preferable method for organisations, but later, shares repurchase became more common and the rate of replacing distributions by share repurchase programs increased as share repurchases was, at the beginning, limited to few countries specifically U.S.A, U.K and Canada, yet and since 1990, share repurchases activity reached many countries worldwide after removing legal restrictions. The study examined the relationship between share repurchase, share liquidity and share return volatility in Egyptian stock exchange, the study was applied to data of 56 repurchase operations from 2012 to 2014 and the study results indicate that Share Repurchases increases liquidity and reduces volatility.

1. Introduction

Share Repurchases Program (SRP) is a method of a free cash distribution to shareholders. Historically, distribution method was the most preferable method for organisations, but later, shares repurchase became more common (Bozanic, 2010) and the rate of replacing distributions by share repurchase programs increased (Skinner, 2008) as share repurchases was, at the beginning, limited to few countries specifically U.S.A, U.K and Canada, yet and since 1990, share repurchases activity reached many countries worldwide after removing legal restrictions (Lee et al., 2005).

There are three common repurchase methods; *open market repurchase*, *tender offers repurchase* (Stephens and Michael, 1998; Grullon and Kenberry, 2000; Baker et al., 2003; Anderson and Dyl, 2004; Billett and Xue, 2007) *and privately negotiate share repurchase*, which also called targeted repurchases. Under *open market*, purchase made directly from market through brokerage house and at certain prices, while for *tender offers* purchase takes one of two forms. There is an explanation assumes that repurchase operations may improve share liquidity, here we shall differentiate between effects on the announcement of the repurchase on share liquidity and the actual repurchase on share liquidity. Accordingly, the next section discussing the previous studies divided to two parts:

- **First Part:** for studies discussed the relationship between the announcements of repurchase about share repurchase and share liquidity.
- **Second Part:** for studies discussed the relationship between repurchase and share liquidity.

2. Previous studies

This section starts with discussing the relationship between announcing share repurchase and share liquidity. There are many studies found a significant increase in liquidity resulted from announcing share repurchase. For example, Franz et al., 1995 focused on 157 announcement of share repurchase program in the US National Association of Securities Dealers

Automated Quotation (NASDAQ), as the study indicated that announcing the repurchase may represent signal information as information asymmetry reduces in the period after announcing share repurchase to increase share liquidity within a limited period of time beginning from announcing share repurchase program till the program end. In addition to the USA market, many other studies reached the same result in other countries. For instance, the study of (McNally and Smith, 2011) applied to a sample of 3726 advertisements on repurchase program in Canada from January 1987 to December 2005, and the study of (De Cesari et al., 2011) applied to a sample of 669 advertisement on repurchase program in Italian market of exchange from 1997 to 2004.

On the other hand, some studies found that liquidity reduces as a result of share repurchase announcement. For instance, Barclary and Smith 1988 is the first study that discussed the relationship between liquidity and share repurchase in the open market that used a sample of shares of New York Stock Exchange (NYSE) (Nayar et al., 2008) applied to tenders along with two types; fixed price and Netherlandish bid for share repurchase from 1993 to December 2004. The effect of advertising repurchase was analysed 75 days before advertisement and 75 days after advertisement.

However, some studies proved that there is no relationship between announcing share repurchase and share liquidity that means that announcing repurchase cannot affect liquidity whether by increase or decrease. Study of (Singh et al., 1994) applied to a sample of 181 announcement of share repurchase program in the open market from 1983 to 1990. The effect of announcing repurchase analysed within 100 days before the announcement and 100 days after the announcement. Moreover, Study of (Wiggins, 1994) applied to a sample of 195 announcement of repurchase program in the open market from 1988 to 1990. The effect of the repurchase announcement analysed within 60 days before the announcement and 60 days after the announcement, and the study of (Miller and McConnell 1995) applied to a sample of 248 announcement in New York Stock Exchange (NYSE) from January 1984 to June 1988. The effect or repurchase analysed within 50 days before the announcement and 50 days after the announcement.

In this sub-section, studies discussed the relationship between repurchase and share liquidity are presented. These results classified into two main groups; the first group indicates that liquidity increased because of share repurchase. For instance, Brockman and Chung 2001 applied to a sample of 1526 repurchase operations made by 103 companies in Hong Kong Stock Exchange from November 1991 to August 1999. Moreover, the study of (Cook et al., 2004) applied to a sample of 2951 repurchase operations made by 64 companies in the U.S.A from March 1993 to March 1994. In addition to the study of (Ginglinger and Hamon, 2007) applied to a sample of 36848 repurchase operations made by 352 French companies from January 2000 to December 2002.

Moreover, studies discussing causes of companies' attempts to share repurchase extended to another explanation; organisations resort to share repurchase to support the stability of share price according to results of studies, which confirmed that repurchase programs, may reduce share return volatility. Here, one shall differentiate between the effects of the announcement of the repurchase on share return volatility and the effects of actual repurchase on share return volatility. However, there are studies which discussed the effects of the repurchase amount on share return volatility such as (Kim, 2007) applied to a sample of 905 announcement on repurchase program in the U.S.A from January 1990 to December 1992 with analysing the effect of announcing repurchase within 60 days before the announcement and 60 days after the

announcement. Besides, the Study of (De Cesari et al., 2011) applied to a sample of 669 announcements on repurchase program in Italian exchange from 1997 to 2004.

Finally, studies of actual repurchase effects on share returns volatility are rare, which give an importance to the current study. In addition, the current study is a completion of researchers' efforts on the international level as the research is evidence on the relationship between share repurchases, share liquidity and share return volatility in the Egyptian stock exchange. According to the previous study results, the current study assumes that share repurchase has a positive effect on share liquidity and a negative effect on share return volatility accordingly; the above hypotheses are drafted as follows:

Fist Hypothesis:
There is a positive effect of share repurchase on share liquidity.
Second Hypothesis:
There is a negative effect of share repurchase on share return volatility.

3. **Methodology**
The research applies the quantitative approach which is generally located in the positivist social sciences paradigm, which mainly reflects the scientific method of social sciences (Jennings, 2001; Creswell, 2003). The positivist paradigm espouses a deductive approach to the research process. It thus begins with theories and hypotheses on a particular phenomenon, collects data from the real-world site and subsequently analyses the data statistically to reject or support the initial hypotheses (Blanche and Durrheim, 1999; Welman and Kruger, 2001; de Jong, A., M. Dutordoir, and P. Verwijmeren, 2011). Researchers who implement a deductive approach draw on theory to direct the design of the study and the subsequent explanation of their results (Neuman, 1994). The aim is to verify or test a proposed theory, rather than to construct one. Therefore, it can be seen that the identified theory proposes a framework for the whole study, also serving as an organising model for the research hypotheses and for the whole data collection process.

The research community consists of 56 repurchase operation including all share repurchase operations whether open market operation to repurchase shares or repurchase operations made by tenders as in annex no. (1) applied from 30/11/2012 to 26/12/2014 according to data of Egypt Co. for publishing information (EGID). This period was selected due to non-registering treasury share operations in Egyptian exchange before 30/11/2012.

3.1 The variables of the study
The study variables classified into dependent, independent and control variables
3.1.1The Dependent Variables
(LIQ): Indicates the stock liquidity variable which was expressed by share turnover used in many applied studies (Kang and Stulz, 1997; Datar et al., 1998; Banerjee et al., 2007) share turnovers were calculated by dividing the number of monthly shared traded on number of shares issued within the same period and on inversely relationship between share liquidity and volatility is expected (Brockman and Chung, 2001).
(VAR): Indicates volatility variable expressed as standard deviation of monthly return used in many applied studies (French et al., 1987; Schwert, 1989), a significant relationship between volatility and share liquidity is expected (Benstion and Hagerman, 1974; Stoll, 1978; Ho and Stoll, 1981; Copeland and Galai, 1983; Harris, 1994).

3.1.2 Independent Variable

(REP): Indicates share repurchase variable representing actual repurchase expressed by Dummy variable takes the value (1) if the trade day lies in the repurchase periods and takes (zero) otherwise and this what was used in many applied studies (Brockman and Chung, 2001; Ginglinger and Hamon 2007; McNally and Smith, 2011).

3.1.3 Control Variables

(VOL): Indicates share volume variables expressed by number of repurchase shares divided on the outstanding shares and a significant relationship between share volume and volatility is expected (Karpoff, 1987; Schwert, Volatility 1989; Lamourex and Lastrapes 1990; Stoll and Whaley 1990; Gallant et al., 1992; Lee and Rui, 2002). Also, a significant relationship between share volume and stock liquidity is expected (Benston and Hagerman, Liquidity 1974; Ho and Stoll, 1981; Copeland and Galai, 1983).

(PRI): Indicates price variable expressed by average monthly closing price, significant relationship between share price and stock liquidity is expected (Benston and Hagerman, Liquidity 1974; Ho and Stoll, 1981; Copeland and Galai, 1983).

(RET): Indicates share return variable expressed by average monthly return of share, as significant relationship between return and volatility is expected (Duffeee, 1995).

(MAL): Indicates market liquidity variable expressed by turnover ratio share. Turnovers were calculated through dividing the total number of shares traded in monthly Egyptian exchange by number of shares issued within the same period which was used in many applied studies (Haugen and Baker 1996; Lam and Ta, 2011; Lesmond, 2005; Nguyen et al., 2007; Rouwenhorst, 1999, De Cesari, A., S. Esp enlaub, and A. Khurshed, 2011). Worth mentioning, share turnover rate is calculated in Egyptian exchange through dividing value of registered traded shares by market capital at the end of the tear, as the study took place from 2012 to 2014, the monthly measurement of share turnover rate is more suitable for this study as there are many observations, a significant relationship between market liquidity and share variables is expected (De Cesari et al., 2001).

(MAV): Indicates market variance expressed as value – weighted market monthly return standard deviation which was used in many applied studies including study of (French et al., 1987), a significant relationship between market variance and volatility (Kim, 2007).

4. The Analysis

According to the above study variables' discussion, which explained the previous studies that used these variables as well as explaining the relationship between such variables and share liquidity variable, the study examined the existence of significant relationship between share repurchase and share liquidity operations as follows:

Multi Regression Form

LIQ = B0 + B1 (REP) + B2 (VAR) + B3 (VOL) + B4 (PRI) + B5 (MAL) + ε

Table (1) indicates descriptive statics of form variables in terms of arithmetic mean, median, standard deviation, Skewness and Kurtosis.

Statement	Arithmetic mean	Median	Standard deviation	Skewness	Kurtosis
LIQ	0.012	0.023	0.35	2.71	-6.58
REP	0.031	0.021	0.36	2.70	-6.59
VAR	0.014	0.022	0.35	2.70	-6.51

VOL	0.024	0.025	0.33	2.71	-6.58
PRI	0.023	0.026	0.34	2.73	-6.56
MAL	0.016	0.024	0.26	2.71	-6.57

Table (1): Descriptive Statistics of Form Variables

R value	R square value	Amended R value	Estimation error
0.914	0.857	0.852	0.057

Table (2): Determination Coefficient (R^2) to Determine the Form Ability to Describe Date

Table no. (2) Proves that independent variables of form (REP), (VAR), (VOL), (MAL) and (PRI) are able to explain 85.7% of variables in share liquidity.

	Beta values	Test statistics value	P. value
(constant)		-2.878	0.006
(VOL)	-0.008	-0.166	0.869
(VAR)	0.065	1.410	0.165
(REP)	0.125	2.692	0.010
(PRI)	0.045	0.978	0.333
(MAL)	0.919	19.610	0.000

Table (3): Results of Testing Significance of Regression Coefficients

Table no. (3) Indicates the following: There is a positive significant effect of share repurchase and market liquidity variables on share liquidity variable, as probability value reached (0.010) and (0.000) respectively less than significant level 5%, the remaining variables have no significant effects.

Sig. value	F value
0.000	85.133

Table (4): Results of Contrast Analysis Test ANOVA of Regression Significance Test

It is clear from this test results that the significance value = 0.000 less than the significant value of 5%. Accordingly, we refuse the zero hypothesis, which means that the regression is insignificant and accepts the alternative hypothesis indicating that regression is significant which means validity of regression significance tests because they confirm the relationship between independent variables and dependent variable.

Moving to the second part of the analysis, the study tested the existence of a significant relationship between share repurchase and share return volatility operations as follows:

Multi Regression form

VAR = B0 + B1 (REP) + B2 (LIQ) + B3 (VOL) + B4 (RET) + B5 (MAV) + ε

Table no. (5) Indicates descriptive analysis of form variables in terms of arithmetic mean, median, standard deviation, Skewness and Kurtosis.

Statement	Arithmetic mean	Median	Standard deviation	Skewness	Kurtosis
VAR	0.015	0.022	0.35	2.70	-6.51
REP	0.031	0.021	0.36	2.70	-6.59
LIQ	0.012	0.023	0.35	2.71	-6.58
VOL	0.024	0.025	0.33	2.71	-6.58
RET	0.024	0.027	0.28	2.75	-6.42
MAV	0.025	0.026	0.34	2.74	-6.23

Table (5): Descriptive Analysis of Form Variables

Table no. (6) Indicates study form determination coefficient as follows:

R value	R square value	Amended R value	Estimation error
0.921	0.845	0.824	0.003

Table (6): Determination Coefficient (R^2) to Determine the Form Ability to Describe Data.

Table no. (6) Proves that independent variables of form (REP), (LIQ), (VOL), (MAV) and (RET) are able to explain 84.5% of changes in volatility variables in share returns. While Table no. (7) Clarifies the following: There is a negative significant effect of share repurchase share return and share liquidity variables on share return volatility variables a P value reached (0.000), (0.007), (0.007) respectively, less than significance level of 5% and the remaining variables have no significant effect.

	Regression coefficients value	Test statistics value	P. value
(constant)		-1.018	0.313
(VOL)	-0.028	-0.544	0.589
(LIQ)	-0.158	2.823	0.007
(REP)	-0.909	17.402	0.000
(RET)	-0.155	-2.835	0.007
(MAV)	0.008	0.139	0.890

Table (7): Results of Testing Regression Coefficients Significance

Sig value	F value
0.000	29.63

Table (8): Results of Contrast Analysis Test ANOVA for Regression Significance Test

It is observed from this test results that significance = 0.000 is less 5% than the significance level. Accordingly, we refuse the zero hypothesis. Regression is not significant and accepts the alternative hypothesis stating that regression is significant, which means that regression significance tests are valid because they conform relationship between independent variables and dependent variable.

5. Results and conclusions

The current study is devoted to answer a very important question was left unanswered by previous financial studies in Egypt which is: Can a company improve liquidity and stability of its share prices through share repurchase, testing share repurchase effects on share liquidity and volatility of share return in Egyptian stock exchange? The study applied on data of 56-repurchase operation made by 27 companies as it extended from 2012 to 2014 only. This period was selected due to non-registering Egyptian exchange treasury share operation information before 30/01/2012.

The study found a positive significant effect of share repurchase operations on share liquidity in Egyptian stock exchange. This result agrees with study of (Brockman and Chung, 2012) made in Hong Kong stock exchange and (Cook et al., 2014) made in the U.S.A. The study of Brad Barber et al. (2014) applied to French companies. In addition, the study found a negative significant effect of share repurchase on share return volatility in Egyptian exchange. Companies use share repurchase in case of expecting a positive effect on its shares' price in stock exchange through informing them that it has information unavailable to them which increases demand and share price and stability.

Finally, Share repurchase in Egyptian exchange is a good field of study for researches. There is a part of announcing share repurchase, and challenges of repurchase including giving false market signals. In addition, there should be many relationships between share repurchase, share liquidity and volatility in share return in Arab countries.

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