The Impact of Information Asymmetry and Agency Costs on Dividends Smoothing
Empirical Evidence from Egypt

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Abstract

This study explores the impact of information asymmetry and agency costs on dividends smoothing, four proxies are used for measuring information asymmetry namely firm size, firm age, volatility of earnings and assets tangibility. Agency costs are measured using four proxies namely free cash flow, market to book ratio, institutional ownership and ownership concentration. Firm Fixed Effects (FFE) Model is tested using a sample of non-financial companies over the period from 2012 to 2018, with 490 firm–year observations.

The results show that dividends smoothing is more likely to occur when firms are young and when firms have low asset tangibility. However, firms that have high volatility of earnings smooth less. The results also show that there is no significant relationship between firm size and dividends smoothing. Two out of four proxies are in line with information asymmetry-based explanation of dividends smoothing.

The results reveal that firms with low market to book ratio, low level of institutional ownership and more dispersed ownership are more likely to smooth their dividends. The results also show that there is no significant relationship between free cash flow and dividends smoothing. Three out of four proxies are in line with agency-based explanation of dividends smoothing. Overall, these findings suggest that both agency costs and information asymmetry have an effect on the decisions of firms to smooth their dividends.

Keywords: *information asymmetry; agency costs; dividends smoothing; dividends policy.*

1. Introduction

Dividends smoothing was first presented by Lintner (1956) who builds a theoretical model based on a survey of 28 executives from various industries. Lintner states that managers are hesitant and reluctant to make changes in dividends payouts that might have to be reversed soon. Managers believe that most investors prefer a reasonable stable rate and that the market puts a premium on a stable or gradually growing dividends payout rate.

The signaling (asymmetric information) models for paying dividends, developed by Bhattacharya (1979), John and Williams (1985), and Miller and Rock (1985), suggest that managers as insiders choose dividends payment levels and increases, to signal private information to investors. Managers have an incentive to signal this private information to the public when they believe that the current market value of their firm's stock is below its intrinsic value. The increased dividends payment serves as a credible signal when other firms that do not have favorable inside information cannot imitate the dividends increase without increasing the chance of later incurring dividends cut. Thus, the implication of the dividends-signaling hypothesis is that firms that increase (decrease) cash dividends should experience positive (negative) price reactions.

The agency theory of dividends is based on the idea that dividends act as a bonding and monitoring device that reduces the agency conflicts between managers and shareholders (Easterbrook, 1984). Jensen (1986) developed the free cash flow hypothesis that arises from the agency argument. He argues that, if firm's managers with considerable free cash flows have a propensity for overinvestment by accepting projects with negative net present values (NPV), a dividend increase reduces the extent of over-investment. In this sense, dividends are used as a mechanism for paying out the free cash, thereby reducing the agency costs of free cash flow.

According to agency theory, dividends decrease indicates an increase in the manager's ability to misuse cash by investing in less profitable projects. While in information asymmetry theory, dividends decrease indicates a decrease in the level of firm earnings in the future.

Therefore, the market reacts negatively to dividends decrease. That's why managers are reluctant to cut dividends and tend to smooth dividends.

The research problem can be expressed in the following question:

What is the impact of information asymmetry and agency costs on dividends smoothing in firms listed on the Egyptian stock exchange?

Research Objective

This research aims mainly to empirically examine the impact of information asymmetry and agency costs on dividends smoothing in firms listed on the Egyptian stock exchange.

Research Importance and Contributions

This study contributes to the extant literature in several ways:

a. To the best of the researcher's knowledge, this study is considered the first one which investigates the effect of information asymmetry and agency costs on dividends smoothing in Egypt.

b. Given the conflicting results of prior literature, it remains an empirical issue as to whether information asymmetry and agency cost is positively or negatively related to dividends smoothing.

c. The results of this study may help the stakeholders to partially understand why firms smooth their dividends.

2. Literature review and hypotheses development:

2.1. Information asymmetry and dividends smoothing

Booth and Xu (2008) examine the relation between dividends smoothing and asymmetric information between managers and investors for a sample of 484 publicly traded firms in USA for the period 1986 - 2005. Dividends smoothing is measured by the speed of adjustment (SOA) and the volatility of dividends per share (DPS) relative to earnings per share (EPS). Information asymmetry is measured by idiosyncratic risk[1], analysts' forecasts error and dispersion of analysts' forecasts.

[1] Idiosyncratic risk is measured as the standard deviation of the residuals from the market model.

They show that measures of information asymmetry are negatively related to SOA. These results imply that firms with higher levels of asymmetric information have a higher propensity to smooth their dividends.

Dewenter and Warther (1998) compare dividend policy of U.S and Japanese firms to examine the impact of information asymmetry on dividends policy. They assumed that the level of information asymmetry between managers and shareholders is much intense in the United States than in Japan because Japanese firms exhibit higher degrees of ownership concentration than do U.S. firms. They use a sample of 420 U.S firms and 194 Japanese firms for the period 1982-1993. Dividends smoothing is measured by the frequency of dividends changes (increase, decrease, initiate, omit) and the SOA coefficient. They find that Japanese firms are less reluctant to omit and cut dividends and their dividends are more responsive to earnings changes than those of U.S firms. They also find stock price reactions to dividends omissions and initiations in Japan are smaller than in those in the U.S. Results are consistent with the hypothesis that Japanese firms are subject to less information asymmetry than U.S firms and that information asymmetry affects dividends policy.

Chemmanur et al. (2010) compare the dividends policies of firms in Hong Kong and the U.S. They argue that Hong Kong, with its tax and equity ownership structure quite different from the U.S., presents an excellent environment for research from an international perspective and to understand the effects of information asymmetry on corporate dividends policies. The tax structure in U.S, where dividends are taxed at a higher rate than capital gains, is more convenient for dividend signaling compared to that in the Hong Kong. This is because the signaling cost, required to make the signaling of insiders' private information credible, is driven by the difference in taxation on dividends and capital gains. Further, given that the ownership structure in Hong Kong is significantly more concentrated than in the U.S., they expect the extent of asymmetric information between firm insiders and outsiders to be greater in the U.S. compared to that in Hong Kong.

They find that the equity market reacts to a significantly smaller extent to changes in firms' dividend policies in Hong Kong compared to the U.S and that the extent of dividends smoothing by firms in Hong Kong is less than those in the U.S. The above results provide significant support to asymmetric information models of dividend policy.

Javakhadza et al. (2014) examine the extent to which information asymmetry explains dividends smoothing behavior for a sample of 2,219 firms from 24 countries for the period 1999 - 2011. Dividends smoothing is measured by the SOA coefficient. Firm size, firm age, stock turnover, asset tangibility and volatility of firm's earnings and stock returns are used as proxies for level of information asymmetry between managers and investors. They show that managers of firms small in size, young in age, with low stock turnover and more tangible assets do less dividends smoothing.

Leary and Michaely (2011) examine determinants of dividends smoothing policies across a wide spectrum of publicly traded firms in U.S for a sample of 1,335 firms for the period 1985-2005. Dividends smoothing is measured by the SOA coefficient and volatility of dividends relative to that of earnings. Firm age, size, asset tangibility, volatility of both earnings and stock return, accuracy and dispersion of analysts' forecasts are used as proxies for information asymmetry between investors and managers. They find that younger, smaller firms with low dividend yields, more volatile earnings and return and firms with fewer and more disperse analyst forecasts smooth less. The results indicate that firms with low levels of asymmetric information tend to smooth more which is not consistent with the predictions of information asymmetry models.

Jeong (2013) investigates the relation between dividends smoothing and information asymmetry between managers and investors in Korea. The sample consists of 279 firms listed on Korean stock exchange over the 32-year period from 1981 to 2012. Dividends smoothing is measured by the SOA coefficient. Firm age, size, growth rate and volatility of earnings (firm risk) are used as proxies for the degree of information asymmetry between managers and investors. Results of this study indicate that larger firms and lower growth firms smooth dividends more. Riskier firms tend to smooth dividends more during the sample period.

These results are not consistent with the predictions of information asymmetry models.

Muller and Svensson (2014) explore the characteristics of Swedish public firms that drive dividends smoothing. This study covers firms listed on Stockholm stock exchange, that have been paying dividends every single year during the period of 2001-2012, or for as long as the company has been listed, for a minimum of 7 years. Dividend smoothing is more likely to occur when companies have high asset tangibility, low stock return volatility, when the dispersion of analysts' forecasts are low (low information asymmetry), and when companies are large. These findings contradict the information asymmetry explanation of dividends smoothing.

Tresl (2013) confirms the findings of Leary and Michaely (2011) and Muller and Svensson (2014) on a bigger international dataset of 4,396 firm from 21 countries from 1999 to 2009. Asymmetry information is measured by firm size, asset tangibility and equity return volatility. He finds that coefficients of firm size, asset tangibility and return volatility imply a negative relationship between asymmetric information and dividend smoothing.

2.2. Agency costs and dividends smoothing

leary and Michaely (2011) use market to book ratio, cash cow indictor[2] and governance strength index as proxies for the extent of firm's exposure to agency conflicts between managers and investors which are the. They find that firms which are cash cows**,** with low growth prospects, weaker governance and greater institutional holdings smooth more. These results indicate that firms which are most subject to agency conflicts between managers and investors tend to smooth more.

Michaely and Roberts (2012) compare the dividends policies of publicly and privately held firms in order to identify factors influencing dividends policies in U.K. The sample consists of all nonfinancial, nonagricultural, and nongovernment firms in the FAME[3] database during the period 1993–2002 that are subject to the Companies Act auditing

[2] firms that are profitable, have high credit ratings, and low Price/Earnings ratios.

[3] Forecasting Analysis and Modeling Environment is a time series database.

requirements. Dividends smoothing is measured by the SOA coefficient. They include to the discussion of dividend smoothing the importance of capital markets when analyzing dividend smoothing behavior of public and private companies in the U.K. When comparing public to private companies, public companies smooth the most. Further, when dividing private companies according to agency and information asymmetry problems as proxied by ownership dispersion, private companies with high dispersion smooth more than private companies with low ownership dispersion. The authors conclude that over and above the ownership structures and the attendant incentive conflicts and information asymmetry caused by that structure, dividend smoothing is affected by the scrutiny of public markets.

Muller and Svensson (2014) aim to identify the characteristics of Swedish public firms that drive the dividends smoothing. The study covers firms listed on Stockholm stock exchange, that have been paying dividends every single year during the period of 2001-2012, or for as long as the company has been listed, for a minimum of 7 years. They use cash cow, financial slack, leverage and ownership concentration as proxies for agency costs. They find that dividends smoothing is more likely to occur when companies are considered to be cash cows and have low leverage. They find no significant relationship between dividend smoothing, financial slack and ownership concentration. The results of this study tend to support the agency theory explanation of dividends smoothing.

Dewenter and Warther (1998) compare dividends policies of U.S and Japanese firms to examine the impact of agency conflicts on corporate dividends policy. They used a sample of 420 U.S firms and 194 Japanese firms for the period 1982-1993. Dividends smoothing is measured by the frequency of dividends changes (increase, decrease, initiate, omit) and the SOA coefficient. They argue that dividends - which are a necessary or even appropriate tool for constraining managers - seem less relevant in Japan because of alternative forms of corporate control such as the monitoring role of main banks. They find that Japanese firms are less reluctant to omit and cut dividends, and their dividends are more responsive to earnings changes than those of U.S firms. Results are consistent with the hypothesis that Japanese firms are

subject to fewer agency conflicts than U.S firms and that agency conflicts affect dividends policy.

Tresl (2013) supports the findings of Leary and Michaely (2011) on a bigger international dataset of 4,396 firm from 21 countries for the period from 1999 to 2009. The market to book ratio is used as a proxy to measure agency costs. The author finds several results. First, agency costs are positively related to dividends smoothing which stems from mitigation view because the market puts higher valuation premium on a smoothed dividend. Second, there is a positive impact of dividends smoothing on firm valuation. Third, a smooth dividend is less important in high shareholder protection countries. Overall, the results in this study lend support to the mitigation view that companies' smooth dividends in order to mitigate agency costs.

Javakhadza et al. (2014) examine the extent to which agency theory explains dividends smoothing behavior for a sample of 2,219 firms from 24 countries for the period 1999 – 2011. Dividends smoothing is measured by the SOA coefficient. Different proxies are used to measure agency costs: the market-to-book ratio, cash scaled by total assets, free cash flow scaled by total assets, ownership concentration and institutional ownership. Results of this study suggest that managers of firms with low market-to-book ratios and less free cash engage in greater dividends smoothing. Firms with a highly concentrated ownership structure and strong corporate governance smooth dividends less.

Rahman (2006) explores the impact of ownership structure on dividends smoothing using a large sample of firms covering 28 countries for the period 1992-1999. Three measures are used to measure dividend smoothing: (1) the frequency of different dividend change events (increase, same, or decrease); (2) SOA coefficient from Lintner model; and (3) sensitivity of dividends to earnings changes. Several proxies are used to measure the ownership structure at the country-level: (1) the fraction of the largest 20 firms in a country that have a large shareholder controlling at least 20 percent of the votes; (2) the median percentage of common shares owned by the three largest shareholders in the largest 10 firms in a country. Several proxies are used to measure the ownership structure at the firm-level: (1) Fraction of common equity

owned by the largest shareholder; (2) A dummy variable takes the value of 1 if OWN >= 0.20; and (3) Fraction of voting equity owned by the three largest shareholders. The author shows that both firm and country-level ownership concentrations negatively affect dividends smoothing. These results support the predictions of agency theory.

Jeong (2013) investigates the relation between agency costs and dividends smoothing in Korea. The sample consists of 279 firm listed on Korea stock exchange over the 33-year period from 1980 to 2012. Dividends smoothing is measured by the speed of adjustment (SOA) coefficient. Ownership concentration is used as a proxy for agency costs. Results of this study indicate that firms with concentrated ownership smooth dividend more. These results are not consistent with the predictions of agency theory which implies that firms with a highly concentrated ownership structure are less likely to smooth dividends.

Shinozaki and Uchida (2011) investigate dividends smoothing behaviors of approximately 6,000 firms from 28 countries for the period from 2001 to 2011. Dividends smoothing is measured by the SOA coefficient. Ownership concentration is measured by the percentage ownership by the largest shareholders. They provide evidence that the percentage ownership held by the largest shareholder is positively (negatively) associated with the SOA (dividend smoothing). The results support the agency theory of dividend smoothing as well as the idea that controlling shareholders care about the survival of their companies.

2.3. Comments on Literature Review

1. There is a contradiction in the results of previous literature concerning the relation between information asymmetry and dividends smoothing.
2. There is a conflict in the findings of previous studies concerning the relation between agency costs and dividends smoothing.
3. Different operational definitions are used through the literature as a proxy to measure information asymmetry, agency costs and dividends smoothing.

4. Divergent control variables are used in the previous studies to examine the relation between the independent and dependent variables.
5. As far as the researcher knows, none of the previous studies have been replicated in the Egyptian environment.

2.4. Hypotheses Development

A. Information asymmetry and dividends smoothing

Dividend signaling theory indicates that in the presence of asymmetric information, a firm's dividend policy can help to credibly convey information held by insiders concerning the firm's future prospects. The model constructed by John and Williams (1985) suggests that a firm's information environment is related to the extent to which dividends are smoothed relative to earnings. In other words, a higher level of information asymmetry results in a higher degree of dividends smoothing (javakhadze et al., 2014).

John and Nachman (2000) argue that dividend smoothing is generated by a combination of the need of firms to signal their private information in asymmetric information setting with their desire to strategically raise a greater amount of external financing during periods when the extent of asymmetric information they face in the equity market is lower. Booth and Xu (2008) confirm that managers smooth their dividends relative to earnings to withhold negative news and minimize adverse investor reactions.

Dewenter and Warther (1998), Booth and Xu (2008), Chemmanur et al. (2010) and Javakhadza et al. (2014) are consistent with the predictions of information asymmetry model and find a positive relation between asymmetry of information and dividends smoothing. However, Leary and Michaely (2011), Jeong (2013), Tresl (2013) and Muller and svensson (2014) document that there is a negative relation between information asymmetry and dividends smoothing.

The first hypothesis can be expressed as follows:

H_1: Information asymmetry is not associated with dividends smoothing

B. Agency costs and dividends smoothing

Agency theory explanation of dividends smoothing argues that a higher level of agency costs results in a higher degree of dividends smoothing (javakhadze et al., 2014). Tresl (2014) argue that smooth dividends are used to mitigates agency costs since commitment to a stable dividend stream is a credible commitment to future cash outflows, which mitigate agency costs of free cash flows. Investors value this commitment and put a premium on smooth dividends since dividend reductions are severely penalized in the market.

Allen et al. (2000) propose that institutional shareholders are strong monitors and have an advantage in ensuring that firms are well-managed. Concentration of institutional ownership could then force managers to smooth dividends by imposing various penalties in response to dividend cuts. Consequently, institutional ownership might encourage firms to engage in more smoothing of their dividends.

However, Javakhadza et al. (2014) document that firms with concentrated ownership are less likely to use dividends to mitigate shareholder–manager agency problems since management in these firms is closely monitored by these powerful controlling block-holders. In addition, block-holders might tolerate dividend cuts since they are more concerned with firm survival. Firms with highly-concentrated ownership structure smooth dividends less. This indicates that dividend smoothing is most common among firms that are most susceptible to agency conflict.

Dewenter and Warther (1998), Leary and Michaely (2011), Michaely and Roberts (2012), Tresl (2013), Javakhadza et al. (2014) and Muller and svensson (2014) find that there is a positive relation between agency costs and dividends smoothing. However, Rahman (2006), Shinozaki and Uchida (2011) and Jeong (2013) document that there is a negative relation between agency costs and dividends smoothing.

In the view of the previous discussion, the second hypothesis can be expressed as follows:

H_2: Agency costs are not associated with dividends smoothing.

3. The Empirical Study

3.1. Sample Selection

The study population includes all Egyptian companies listed on the Egyptian stock exchange over the period from 2012-2018. Firms from banking sector and financial services sector are excluded because of the special nature of their financial reports. Thus, the study sample is a convenient sample of 70 non-financial firms listed on the Egyptian Stock Exchange over 7-year period from 2012 to 2018, comprising 490 firm-year observations. Missing values and outliers are eliminated.

The financial information needed to measure the study variables in the multiple linear regression model are obtained from the published financial reports and the Egyptian stock exchange reports.

3.2. Research model

Based on empirical findings in previous studies, a multiple linear regression model will be used to examine the impact of information asymmetry and agency costs on dividends smoothing after controlling for other variables that may affect dividends smoothing.

$$\mathbf{DiviSmooth = B_0 + \sum B_1\, INFAS + \sum B_2\, AC + B_3\, Lev + B_4\, Prof + B_5\, Divi + \epsilon}$$

Where;

B_o	**Constant**
B_1, B_2	**Coefficients of independent variables**
B_3:B_5	**Coefficients of control variables**
DiviSmooth	**Dividends smoothing (dependent variable)**
INFAS	**Information asymmetry (independent variable)**
AC	**Agency costs (independent variable)**
Lev	**Leverage**
Prof	**Profitability**
Divi	**Dividend payout**
e	**Random error (Residuals)**

3.3. Measurement of variables

1. Information asymmetry

Different proxies will be used to measure the degree of information asymmetry between managers and investors. These proxies are:

a. **Firm age**: is the number of years since the firm is listed on the Egyptian stock exchange (Jeong, 2013).
b. **Firm size:** is computed as the natural log of total assets of firm *i* at the end of the year t (Jeong, 2013).
c. **Volatility of earnings**: is computed as the standard deviation of the ratio of net earnings to total assets over the sample period (Leary and Michaely, 2011)
d. **Asset tangibility**: is computed as net property, plant and equipment (PP&E) scaled by total assets of firm *i* at the end of the year t (javakhadza et al., 2014).

Younger, smaller firms, with fewer tangible assets and higher volatility of earnings have higher degree of information asymmetry between managers and investors.

2. Agency costs

Different proxies will be used to measure agency costs. These proxies are:

a. **Free cash flow**

It is computed as net operating cash flow minus capital expenditures, scaled by total assets of firm i at the end of the year t (javakhadza et al., 2014).

b. **Growth opportunities:**

The market to book ratio is used to measure growth opportunities. The market to book ratio is computed as the market value of equity divided by the book value of equity of firm *i* at the end of the year t (Leary and Michaely, 2011).

c. **Ownership concentration**

The percentage of shares held by the five largest shareholders is used to measure ownership concentration. The largest shareholder is the one who holds at least 5% of firm's stock (javakhadza et al., 2014; Chemmanur et al., 2010).

d. Institutional ownership

The percentage of shares held by institutional investors, including pension funds, labor unions, investment funds, insurance companies and banks. (Leary and Michaely, 2011; Knyazeva and Knyazeva, 2014).

The severity of potential agency problems increases in firms with more free cash flow, low investment opportunities, with less concentrated ownership and low level of institutional investors.

3. Dividends smoothing

The first proxy is the SOA coefficient from the "partial adjustment model" of Lintner (1956). Lintner concludes that most companies have a long-term target payout ratio but the actual dividends payments deviate from the target dividends payments. Managers tend to raise dividend to its long-term target level only after they are confident that an increase in earnings is permanent and the new dividend level is sustainable. Therefore, managers are very reluctant to cut dividends.

The SOA measures how dividends changes in response to change in earnings. Managers do not move immediately to the new target dividend, but instead smooth out changes in their dividends by moving part of the way to the target dividend each year. Consequently, the speed of adjustment is inversely related to dividends smoothing (Javakhadza et al., 2014).

Lintner originally presented the "partial adjustment model" of dividends payments as follow:

$$D_{i,t} - D_{i,t-1} = a + c\,(D_{i,t}^{*} - D_{i,t-1}) + e_{i,t} \qquad (1)$$

Where

$D_{i,t}$: the actual dividends payments in year t.

$D_{i,t}^{*}$: the target dividends level is computed as the current net earning times target payout ratio.

$D_{i,t-1}$:the dividends payments in year t-1.

C : the speed of adjustment.

Since the target payout ratio is unknown to researchers, many previous studies (Chemmanur et al., 2010; Jeong, 2013; Javakhadza et al., 2014) including Lintner (1956) estimate SOA by using equation (2) after substituting *D** in equation (1):

$$\Delta D_{i,t} = b_0 + b_1 D_{i,t-1} + b_2 E_{i,t} + e_{i,t} \qquad (2)$$

$\Delta D_{i,t} = D_{i,t} - D_{i,t-1}$

$\Delta D_{i,t}$: change in dividends per share of firm *i* in year *t.*

$D_{i,t}$: Dividends per share of firm *i* in year *t*.

$D_{i,t-1}$: Dividends per share of firm *i* in year *t-1.*

$E_{i,t}$: Earnings per share of firm *i* in year *t.*

The SOA coefficient is estimated as $-b_1$ from equation (2).

4. Control variables

a. Leverage:

It is computed as the ratio of total debt to the book value of total assets of firm *i* at end of year *t* (Leary and Michaely, 2011). High leveraged firms need to service their loans by paying the fixed charges (interests and principal payments). These payments lead to reduce free cash flows under management control (Jensen,1986). Hence, companies with high debt levels are less likely to pay dividends in order to reduce agency costs and subsequently smooth their dividends less (Muller and svensson,2014). In accordance with this, it is expected negative relation between leverage and dividends smoothing.

b. Profitability:

profitability is measured by return on assets ratio. This ratio is computed as net income scaled by book value of assets of firm *i* at end of year *t* (Shinozaki and Uchida, 2014). According to signaling theory, profitable companies will pay more dividends to signal their confidence about the future cash flows and the ability to maintain a healthy financial position in the future. The dividends payment is more likely to continue for firms with high level of profitability (Abu khalaf,2012). Hence, it is expected that there is a positive relation between firm's profitability and dividends smoothing.

c. Dividends level:

Dividends level is measured by dividends payout ratio. Dividends payout ratio is computed as the ratio of the dividend payments to net income of firm *i* (javakhadza et al., 2014). According to agency theory, firms with high level of free cash flow should pay out more dividends to reduce agency costs of free cash flow. These firms tend to smooth their dividends in order to regularly pay high level of dividends (Leary and

Michealy,2011). Therefore, a positive relationship between dividends level and dividends smoothing is expected.

4. The Empirical Results

4.1. Descriptive Statistics

Table (1) presents summary statistics for all variables used in the regression model and were defined previously. For the entire sample, the speed of adjustment mean is 0.15 with a standard deviation of 1.88 and a minimum of -8.74 and a maximum of 9.90. the mean of firm age is 18.771 with a standard deviation of 4.84.

Table (1): Descriptive statistics

Variables	*Obs.*	*Mean*	*Std. Dev.*	*Min*	*Max*
Dependent Variable:					
Speed of adjustment	465	0.1531	1.875	-8.7377	9.8956
Volatility of dividends	471	0.7393	0.530	0	2.4472
Independent Variable:					
Firm age	490	18.771	4.843	0	36
Firm size	490	20.427	1.454	17.298	24.723
Volatility of earnings	490	0.0372	0.031	0.0032	0.3001
Asset tangibility	490	0.2026	0.172	0.00006	0.9488
Free cash flow	490	0.0456	0.120	-0.5083	0.4539
Market to book ratio	490	1.0576	1.204	-6.7081	9.8013
Institutional ownership	490	12.361	19.26	0	90
Ownership concentration	490	65.664	20.06	0	99.680
Control Variables:					
Leverage	490	0.4031	0.239	0.0142	1.6482
Profitability	490	0.0809	0.097	-0.7037	0.4828
Dividend payout	490	1.2868	6.395	-11.258	79.77

4.2. Correlation Analysis

Pearson correlation is used to test the correlations among all variables used in regression models of the study. The correlation results are used to get some preliminary insights into the data and provide a first indication about the multi-collinearity problem. Table (2) presents Pearson correlation between all variables. This table reveals that the

Table (2): Correlation matrix between variables

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Speed of adjustment	**(1)**	1												
Volatility of dividends	**(2)**	**-0.0601** [-1.18]	1											
Firm age	**(3)**	**-0.0976** [-1.93]*	**-0.0930** [-2.02]**	1										
Firm size	**(4)**	**-0.0757** [-1.49]	**-0.1667** [-3.66]***	**-0.0018** [-0.04]	1									
Volatility of earnings	**(5)**	**-0.1605** [-3.19]***	**-0.1903** [-4.19]***	**0.1056** [2.346]**	**0.0928** [2.058]**	1								
Asset tangibility	**(6)**	**-0.0049** [-0.09]	**0.0698** [1.516]	**-0.1375** [-3.07]***	**-0.0017** [-0.04]	**0.1477** [3.299]***	1							
Free cash flow	**(7)**	**-0.0439** [-0.86]	**-0.0065** [-0.14]	**-0.0700** [-1.55]	**0.1289** [2.872]***	**-0.0493** [-1.09]	**0.0936** [2.076]**	1						
Market to book ratio	**(8)**	**0.0135** [0.266]	**0.0751** [1.631]	**-0.0017** [-0.04]	**0.0684** [1.514]	**-0.1583** [-3.54]***	**-0.1100** [-2.45]**	**0.1444** [3.223]***	1					
Institutional ownership	**(9)**	**-0.0961** [-1.89]*	**-0.0650** [-1.41]	**-0.0268** [-0.59]	**-0.0551** [-1.22]	**-0.0513** [-1.13]	**-0.1407** [-3.14]***	**0.0779** [1.726]*	**0.0169** [0.373]	1				
Ownership concentration	**(10)**	**-0.1902** [-3.81]***	**-0.2269** [-5.04]***	**-0.0144** [-0.32]	**0.3021** [7.002]***	**0.2406** [5.476]***	**-0.0074** [-0.16]	**0.0741** [1.641]	**0.0256** [0.565]	**0.2601** [5.949]***	1			
Leverage	**(11)**	**-0.3129** [-6.48]***	**-0.3215** [-4.35]***	**0.1432** [3.197]***	**0.0831** [1.843]*	**0.1685** [3.777]***	**-0.1388** [-3.09]***	**-0.1201** [-2.67]***	**-0.0862** [-1.91]*	**0.0283** [0.625]	**0.2815** [6.483]***	1		
Profitability	**(12)**	**-0.0403** [-0.79]	**0.0357** [0.774]	**-0.0392** [-0.87]	**0.0996** [2.212]**	**-0.1659** [-3.72]***	**-0.0218** [-0.48]	**0.5577** [14.84]***	**0.3109** [7.225]***	**0.0675** [1.495]	**0.0732** [1.622]	**-0.2914** [-6.73]***	1	
Dividend payout	**(13)**	**0.0105** [0.208]	**0.0216** [0.467]	**0.0077** [0.169]	**0.0059** [0.132]	**-0.0122** [-0.27]	**0.0264** [0.582]	**-0.0026** [-0.06]	**-0.0059** [-0.13]	**-0.0119** [-0.26]	**0.0604** [1.336]	**0.0559** [1.238]	**-0.0645** [-1.43]	1

highest correlation coefficients between independent variables is 55.77 percent. This implies that there is no indicator of multicollinearity between all independent variables as correlation coefficients are less than 70 percent.

Table(2) also shows that there is a significant and negative correlation between speed of adjustment as a dependent variable and firm age, volatility of earnings, institutional ownership, concentration of ownership and leverage, which suggests that old companies with a high volatility of earnings , a high concentrated ownership , a high institutional ownership and a high leverage tend to smooth more.

4.3. Regression Analysis

Based on the results of the Residual variance test, Breusch Pagan test, Hausman test and the time test, it can be concluded that the one-way Firm Fixed Effects (FFE) is relevant for the study model.

$$\mathbf{DiviSmooth = B_0 + \sum B_1\ INFAS + \sum B_2\ AC + B_3\ Lev + B_4\ Prof + B_5\ Divi + \epsilon}$$

4.4. Discussion of Results

The results for regression model are presented in table (3). The regression model has an adjusted R-squared of 98 percent which means that independent variables explain 98% of the variation in the dividends smoothing behavior of Egyptian firms. The Fisher test indicates that the regression model is significant at 1%.

For information asymmetry proxies, firm age and asset tangibility, the coefficients on speed of adjustment are 0.057 and 0.85 respectively. This shows that firm age and asset tangibility have a significant positive relationship with SOA. These findings support the information asymmetry (signaling) theory as younger firms with fewer tangible assets, which have a high degree of information asymmetry, tend to smooth their dividends more. This finding is consistent with javakhadze et al. (2014).

Table (3): Regression results

Dependent Variable: ***Speed of adjustment***

Methods: ***1way-Fixed effects with (firm GLS weights & White cross-section standard errors)***

	Reg (3)
Firm age	0.0573 [11.52]***
Firm size	-0.1299 [-1.756]*
Volatility of earnings	-1.3112 [-1.055]
Asset tangibility	0.8504 [4.529]***
Free cash flow	-0.0490 [-0.247]
Market to book ratio	-0.2492 [-5.616]***
Market to book ratio_square	0.0372 [6.683]***
Institutional ownership	0.0184 [1.872]*
Ownership concentration	0.0087 [1.928]*
Leverage	0.9183 [2.437]**
Profitability	2.7551 [4.434]***
Dividend payout	0.0049 [1.894]*
Constant	0.3779 [0.246]
Adjusted R^2	%98
DW-stat.	1.9326
Fisher test	(253.3)***
Extreme point	3.3495
Obs.	465
No. of firms	70
Effects Specification	
Residual variance test	(1.357)**
Breusch-Pagan test	(0.358)
Hausman test	(40.49)***
Time test	(6.454)

***Note*:** - ***, **, * indicate significance at 1%, 5% and 10% respectively.
- ***Residual variance test*:** Null hypothesis: The Pooled OLS model is adequate, in favor of *FEM* alternative.
- ***Breusch-Pagan test*:** Null hypothesis: The Pooled OLS model is adequate, in favor of *REM* alternative.
- ***Hausman test*:** Null hypothesis: The *REM* is consistent, in favor of the *FEM*.
- ***Time test*** (wald test for joint significance of time dummies): Null hypothesis: The time is not affect.

However, the coefficient on speed of adjustment for firm size is -0.128. This shows a significant and negative relationship between firm size and SOA. This finding is consistent with Leary and Michaely (2011). With respect to volatility of earnings, the results indicate statistically insignificant relationship with SOA. These results contradict the predictions of information asymmetry theory. Overall conclusion, the first hypothesis, which states that information asymmetry is not associated with dividends smoothing, is rejected.

For agency costs proxies, institutional ownership and ownership concentration, the coefficients on SOA are 0.0184 and 0.0087 respectively. This shows that institutional ownership and ownership concentration have a significant and positive relationship with SOA. These findings support agency theory as firms with dispersed ownership and lower levels of institutional ownership, which have higher levels of agency costs, tend to smooth their dividends more. This finding is consistent with Rahman (2006) and Michaely and Roberts (2012).

According to the results in table (3), market to book ratio has a U-shaped relationship with SOA. In the beginning, there is a significant negative relation between the ratio and SOA. However, this relation turns into positive when the ratio exceeds the extreme point (3.349), which supports the agency-based explanation of dividends smoothing. This finding is consistent with Leary and Michaely (2011) and Tresl (2013).

With respect to free cash flow, the results indicate statistically insignificant relationship with SOA, which contradicts agency theory explanation of dividends smoothing. Overall, the second hypothesis, which states that agency costs are not associated with dividends smoothing, is rejected.

Considering the control variables, leverage, profitability and dividends payout ratio has a significant positive relationship with SOA, which indicates that firms with high level of leverage, profitability and dividends payout ratio tend to smooth their dividends less.

4.5. Summary and conclusion

This study investigates why firms smooth their dividends by examining the effect of information asymmetry and agency costs on dividends smoothing. With two hypotheses being examined, the first hypothesis is developed to test the effect of information asymmetry on dividends smoothing. The second hypothesis is developed to test the effect of agency costs on dividends smoothing. Four proxies are employed for measuring information asymmetry namely firm size, firm age, volatility of earnings and assets tangibility. Other four proxies for measuring agency costs namely free cash flow, market to book ratio, institutional ownership and ownership concentration are employed.

Based on a convenient sample of 70 Egyptian companies for the period from 2012 to 2018 to constitute 490 firm-year observations, the results show that dividends smoothing is more likely to occur when firms are young and when firms have low asset tangibility. However, firms that have high volatility of earnings smooth less. The results also show that there is no significant relationship between firm size and dividends smoothing. Two out of four proxies are in line with information asymmetry-based explanation of dividends smoothing.

The results reveal that firms with low market to book ratio, low level of institutional ownership and more dispersed ownership are more likely to smooth their dividends. The results also show that there is no significant relationship between free cash flow and dividends smoothing. Three out of four proxies are in line with agency-based explanation of dividends smoothing. Overall, these findings suggest that both agency costs and information asymmetry have an effect on the decisions of firms to smooth their dividends.

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أثر عدم تماثل المعلومات وتكاليف الوكالة على تمهيد التوزيعات

"دراسة إمبريقية في البيئة المصرية"

إسراء فخري إبراهيم علي

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ملخص

يهدف هذا البحث الي اختبار أثر عدم تماثل المعلومات وتكاليف الوكالة علي تمهيد التوزيعات. يقاس المتغير المستقل الأول عدم تماثل المعلومات باستخدام أربعة مقاييس هما: عمر الشركة، حجم الشركة، تقلبات الأرباح، والأصول الملموسة. أما المتغير المستقل الثاني فهو تكاليف الوكالة وتقاس بالتدفقات النقدية الحرة، الفرص الاستثمارية المتاحة، تركز الملكية، والملكية المؤسسية. المتغير التابع في البحث هو تمهيد توزيعات الارباح ويتم قياسه باستخدام معامل سرعة التعديل لنموذج Lintner (1946)، حيث أن القيم القريبة من الصفر تشير إلى تمهيد توزيعات الأرباح والعكس صحيح. يتكون مجتمع الدراسة من جميع الشركات المساهمة المسجلة في بورصة الأوراق المالية ماعدا البنوك والمؤسسات المالية نظراً لطبيعة أنشطتها وتقاريرها الخاصة. تشمل عينة الدراسة 70 شركة تمثل 490 مشاهدة خلال الفترة من 2012 إلي 2018. تشير نتائج الدراسة بشكل عام أن لكل من تكاليف الوكالة وعدم تماثل المعلومات تأثير علي قرار الشركة لتمهيد توزيعات الأرباح.

كلمات مفتاحية: عدم تماثل المعلومات، تكاليف الوكالة، تمهيد توزيعات الأرباح، سياسة توزيع الأرباح.