Dividend policy and market value of banks in MENA emerging markets: residual income approach

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Abstract

Purpose – This study will examine the impact of cash dividends on the market value of banks listed in Middle East and North African (MENA) emerging countries during the period 2000–2015.

Design/methodology/approach – The current study adopts residual income approach based on Ohlson's (1995) valuation model. By testing different statistical techniques, fixed effect is applied on panel data for (144) banks listed on 11 MENA stock markets over the period 2000–2015. Furthermore, additional tests are applied to confirm the primary results.

Findings – The analysis reveals that current dividend payouts and dividend yield do not provide information relevant to the establishment of market values in MENA emerging markets; thus, they have no material impact on MENA banks' market values. This lack of current dividend payment effect is consistent with Miller and Modigliani (1961) dividend irrelevance assumption: there is no evidence of either an informational or real cash inflow effect of current dividend payments. The findings of this study can be attributed to the fact that MENA banks may be forced to place more emphasis on allocating money for investment instead of paying dividends given them they are subject to liquidity requirements for investment, expansion, general operations and compliance with regulations. Only after all these financial needs are covered can the remaining surplus be distributed as cash dividends. Therefore, cash dividends represent earnings residual rather than an active decision variable that impacts a firm's market value. This is consistent with the residual dividend hypothesis, which is the crux of Miller and Modigliani (1996) irrelevance theory of dividends.

Research limitations/implications – The current study is restricted to a sample of one type of financial firms, banks, because of the problem of missing data and limited information related to other financial firms for the same period. Therefore, further research could be additional types of financial firms such as insurance firms that play a vital role in MENA emerging economies.

Practical implications – The results of this study have some important implications for banks' dividend policymakers. Dividend policymakers in MENA emerging markets seem to follow residual dividend policy, in which they distribute dividends according to what is left over after all acceptable investment opportunities have been undertaken. This makes for inconsistent and unstable dividend policy trends, making it difficult for investors to predict future dividend decisions. Further, this practice may deliver information to shareholders about a lack of positive future investment opportunities, and this may negatively affect the share value of banks.

Originality/value – This study is the first of its kind – up to the author's knowledge – that examines a large cross-country sample of MENA banks (144) to cover a long time period in the recent past, and, more importantly, after the banking sector in the region has experienced major transformations during last two decades. In addition, most of the MENA region countries included in this study, namely, banks, operate in tax-free environments (there are neither taxes on dividends nor on capital gains). This feature adds complexity to the ongoing dividend debate.

Keywords Dividend policy, Market value, Banks, MENA markets, Residual income model

Paper type Research paper

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1. Introduction

A firm manager's long-term goal is to enhance his/her firm's value. Enhancing a firm's value implies maximizing the owners' (shareholders) wealth. According to Fama and French (2001), an optimum value of a firm can be reached through the implementation of financial management functions – making one financial decision will influence other financial decisions and thus will impact the firm's market value. A dividend payment decision is one of the most important financial decisions employed by firm management to achieve the main goal mentioned above. Dividend decisions directly influence the market value of a firm, and other financial decisions (such as investment decisions) influence the firm's value indirectly via their impact on dividend payment decisions (Juhandi *et al.*, 2013).

The dividend payment decision and its impact on the market value of a firm has been studied extensively by financial scholars. In this respect, researchers are divided into two camps when discussing the relationship between dividend payments and the market value of firms. On one side, scholars believe that a firm's dividends and market value are independent of each other, which is so called the irrelevance theory, while on other side, researchers advocate that a dividend payment is pertinent to the market value of a firm, that is known as relevance theories. Among this latter group, there are two factions: one that argues that the dividend–market value relationship is positive (bird-in-hand hypothesis, information signaling hypothesis, agency cost hypothesis), and one that argues it to be negative (tax-related effect hypotheses).

A vast body of theoretical and empirical studies on the relationship between dividend payments and a firm's value exists. However, the majority of these studies were conducted using data from advanced markets (mainly in the US). These studies used various approaches (e.g. dividend discount model, capital assets pricing model, event study and survey) to test this relationship. Most of these studies excluded banking firms from their analysis due to the fact that banking firms have several unique characteristics that differ from other industries (Gordon, 1959; Bar-Yosef and Kolodny, 1976; Marsh and Power, 1999). Therefore, very little is known about the effect of dividend payments on the market value of firms and the explanatory power of models for other industries and countries in answering this question as it applies to banks in emerging markets. In this respect, it is worthwhile conducting empirical research to determine the impact of cash dividend payments on the market value of banks in emerging countries, in particular, the Middle East and North Africa (MENA) emerging countries. In most of the MENA region countries included in this study, banks operate in tax-free environments (there are neither taxes on dividends nor on capital gains). This feature adds complexity to the ongoing dividend puzzle. In order to address gaps and limitations in dividend literature as mentioned previously, the aim of this paper is to empirically examine the impact of cash dividends on the market value of banks listed on MENA stock markets over the period of 2000–2015 by employing residual income model.

The present study contributes to the financial literature in several aspects. First, this study is the first of its kind – up to the author's knowledge – that examines a large cross-country sample of MENA banks (144) to cover a long time period in the recent past, and, more importantly, after the banking sector in the region has experienced major transformations during last two decades. Second, most of the MENA region countries included in this study, namely, banks, operate in tax-free environments (there are neither taxes on dividends nor on capital gains). This feature adds complexity to the ongoing dividend debate. Third, the study examines dividends issue by applying the residual income model (an accounting model) that is widely accepted among academicians in an accounting field which is different to previous empirical works that were applied (dividend discount model, capital assets pricing model and event study). These models are widely used in a finance field. Moreover, the model is especially useful as it employs readily available accounting data, and it can be easily applied to companies that do not distribute earnings. Accordingly, this study was carried out with four main objectives. The first objective is to identify whether or not cash dividends (beyond

residual income) affect the market value of banks listed in MENA emerging markets. The study's second objective is to identify which theory of dividends (irrelevance or relevance) better explain the relationship between MENA emerging market banks' dividends and market values. The third objective is to figure out if the extended versions of the basic Ohlson's (1995) residual income model continue to explain the market value behavior of banks listed in MENA emerging markets. The last objective is to examine whether panel (random effects and fixed effects) methods are more appropriate in examining the Ohlson (1995) model in MENA emerging markets compared to the pooled ordinary least square (OLS) method.

The remainder of this paper is structured as follows: Section 2 reviews relevant prior studies and develops research hypotheses. Section 3 describes data, methodology and variables used in this study. Section 4 provides main empirical results and discussion and further analyses. Sections 5 and 6 present conclusions and implication of the results, respectively.

2. Literature review and research hypotheses

The relationship between dividends and the market value of firms has captured the attention of finance scholars since the middle of the last century. One of the most important works on this topic is written by Miller and Modigliani (1961). They argue that a firm's dividend policy has no role in increasing or decreasing the firm's market value. In other words, no matter how much care managers take in developing their firms' dividend policy, no certain form of dividend policy is able to maximize or minimize their shareholders' wealth. This is known as dividend irrelevance theory.

The logic behind the irrelevance theory of dividends is that the market value of a firm is basically determined by the present value of future investment's cash inflow, discounted at a required rate of return. These cash inflows can be in the form of future dividends, capital gains or a mix. Thus, if no earnings are distributed, they will be retained as capital gains ready for future distribution. Under perfect market conditions, investors who do not obtain dividends in a current period can create *homemade* dividends via selling their shares such that they earn an amount equal to what they would earn as dividends. These earnings carry no additional taxes or transaction costs and have no impact on the market value of that firm's shares. Based on this argument, firm managers are unable to enhance their firm's value by adopting a particular dividend policy. In short, dividends are irrelevant. Nearly six decades since the creation of the irrelevance theory (Miller and Modigliani), it is still one of the most respected theories in financial literature.

A number of research studies support Miller and Modigliani irrelevance hypothesis. For example, Watts (1973) investigates the relationship between sudden changes in dividends, future earnings and abnormal returns on shares in firms that announced unexpected changes in dividends. He finds that the information conveyed by unexpected dividend changes about future earnings is very small and that there are no abnormal returns around the time of the dividends announcements. Black and Scholes (1974) examine the impact of dividend policy on share prices by examining the investment portfolios of 25 firms listed on the New York Stock Exchange (NYSE) from 1936 to 1966. The results show no significant difference between high versus low dividend yields in terms of their effect on the return of share prices. These results are consistent with the irrelevance theory. Other studies also support dividend irrelevance, such as Miller and Scholes (1978, 1982), Miller and Rock (1985), and Miller (1986).

More recently, some empirical studies conducted in different markets confirm the irrelevance of dividends. Allen and Rachim (1996) use the cross-sectional regression model to test the relationship between dividend yield and share price volatility by studying 173 firms from 24 different industries listed on the Australian Stock Exchange from 1972 to 1985. They find no evidence that dividends are related to share price volatility.

Conroy *et al.* (2000) examine the pricing impact of dividends and earnings announcements by taking advantage of the market setting in Japan, where managers simultaneously announced the current years' dividends and earnings as well as expected dividends and expected earnings for following year. Their findings suggest that current earnings and announcements of forecasts for next year's dividends are each significant in explaining the stock market's reaction. However, the current dividends surprisingly have no significant effect on share prices. Chen *et al.* (2002) investigated the information content of annual announcements of dividends and earnings. They used 1,232 announcements by firms listed on the Chinese stock market for the period 1994–1997. They found that unexpected earnings are positively related to abnormal returns on shares, while cash dividends are not correlated with returns on shares; this finding is in line with the dividends irrelevance theory. Habib (2004) examines whether dividends are value-relevant in Japan by employing Ohlson's (1995) accounting-based equity valuation technique. By applying pooled ordinary least square regressions for a sample of 17,900 firm-year observations over the period 1976 to 1999, the evidence report that dividends are not priced in equity valuation. This result is consistent with those from event type studies in the Japanese market.

In addition, evidence supporting the irrelevance of dividends came from MENA emerging markets. Ben Naceur and Goaied (2002) examine the relationship between dividend policy, financial structure, profitability and firm value. They apply the random effect probit model to panel data for 28 firms listed on the Tunisian stock exchange. Their results show no significant effect of dividend payouts on the value of firms. They conclude that the dividend irrelevance theory is applicable to Tunisian firms.

Despite the fact that the aforementioned studies' findings are consistent with Miller and Modigliani's (1961) conclusion, it is widely believed that dividend irrelevance is invalid because of its assumption of a perfect capital market. In fact, in our real world, many market imperfections exist, such as asymmetric information, different tax rates, transaction costs and conflicts of interest between managers and shareholders. These imperfections may explain why many research studies prove that dividend payments are, in fact, pertinent to the market value of firms.

Gordon's (1959) study famously supports the relevance of dividends. The author proposes that there are three possible reasons for buying dividends shares by investors: First, both the dividends and earnings: second, the dividends and third, earnings. He assessed the three hypotheses by deriving the relationships between variables that follow each hypothesis. He examines these hypotheses by using data from four US industries, namely, chemicals, food, steel and machine tools from 1951 to 1954. Gordon (1959) employs cross-sectional methodology to test the relationship between share price, dividends and firm earnings at a single point in time to measure this relationship. The results show that the first hypothesis was conceptually weak – the dividends and earnings hypothesis did not seem to explain share pricing. However, the second hypothesis (dividends) was supported with the following explanation: if growth is valued highly, an increase in dividends with a corresponding decreasing in retained earnings will not increase the value of a share by as much as when a low value is placed on growth. Furthermore, the change in price with dividends can be anticipated with much greater accuracy when retained earnings are held constant than when the increase comes out of retained earnings. Regarding the third hypothesis (earnings), an investor buys income per share when acquiring a share of stock. He can obtain the dividend in cash and retained earnings if he sells the share because these components are bundled in the share's value. However, the different tax treatment of dividends and capital gains creates stockholders' preferences for retained earnings. In a nutshell, the conclusion of this study is that an increase in dividend payments will lead to maximizing the share value of firms and minimizing the equity cost.

Bar-Yosef and Kolodny (1976) examine the relationship between the capital asset pricing model (CAPM) and the question of dividends relevance. This evaluation model (CAPM) implicitly assumes that investors are indifferent between returns in the form of dividends versus capital gains. Thus, the dividend policy of a firm is only relevant to the extent to which it affects the level of market risk associated with the firm's price. Once a share beta coefficient is given, the (CAPM) means that information about a firm's dividend policy is not important in evaluating the share returns or market value. The results support the proposition that investors have a net preference for receiving their returns in the form of dividends rather than capital gains. They conclude that a firm should adopt a high dividend payout ratio in order to increase its share price.

Woolridge (1983) investigates the effect of dividend payment on a firm's value. He uses the comparison period return approach to test the movement of share prices around dividend changes. He finds that the expected dividend increases (or decreases) are associated with positive (or negative, respectively) share returns and that dividend signaling is the main factor influencing share prices around dividend change announcements. Fama and French (1998) examine the relationship between a firm's value and dividends and debt. They apply a cross-sectional regression to a dataset of 2,400 US firms and find that there is a positive relationship between dividends and a firm's value. Fama and French (1998) conclude that dividends convey important information about profitability that would be missed by using only earnings and or other variables. Marsh and Power (1999) attempt to test the relationship between share prices and dividend payments by using a panel cointegration technique on a sample of 56 large firms listed on the London Stock Exchange (LSE) from 1968 to 1996. The results suggest that there is a significant cointegration relationship between share prices and share dividends. The authors support the present value model, which links dividend payouts with share price.

Hand and Landsman (2005) examine the pricing of dividends in equity valuation using Ohlson's (1995) model. The "V" they considered was cash dividends, where the cash dividend represent other relevant information in the model. They use the OLS regression method on a sample of dividend-paying firms listed on (NYSE), (AMEX) and (NASDAQ) during the period 1984–1995. Their results suggest that dividends are positively and significantly correlated with market value of common equity, indicating that dividends act as a signal of managers' private information about future profitability but do not signal management's willing to abstain from incurring agency costs.

In the context of emerging markets, scholars have conducted empirical investigations of different emerging environments. Swartz *et al.* (2006) use dividends and intellectual capital variables as a proxy for other information (V) in Ohlson's (1995) valuation model to examine whether these variables contribute to share price variations. They analyze a sample of 154 firms listed on the Johannesburg Stock Exchange (JSE) from 1994 to 2004. The regression analysis indicates that the panel equation fits the data relatively well, suggesting that the extension model explains about 91% of the variation in share values. Also, the results suggest that share price is positively and significantly related to book values, abnormal earnings, dividends and intellectual capital, indicating that these variables provide relevant information in generating and assessing market value for emerging economy firms.

More recently, Al-Yahyaee *et al.* (2011) use the market model to test the relationship between cash dividend announcements and share prices. They calculate the daily abnormal return, daily average abnormal return and cumulative average abnormal return for a sample of 512 firm-year observations from firms listed on the Muscat Securities Market (MSM) from 1997 to 2005. Their findings show that announcements of dividend increases are associated with increased share prices, while announcements of dividend decreases are associated with decreases in share prices. Firms that did not change their dividends experienced insignificant negative returns. Dasilas and Leventis (2011) examine the market

stock price and trading volume responses to cash dividend announcements in the Athens Stock Exchange. The result revealed that there is a statistically significant market reaction on the dividend announcement day.

De Wet and Mpinda (2013) examine the impact of dividend payments on shareholders' value. They employ a panel data approach to measuring the relationship between dividends and share prices for 46 firms listed on the Johannesburg Securities Exchange (JSE) from 1995 to 2010. Using a fixed effects model, their results indicate that the dividend payment is positively related to market price per share in the long term. Al-Hares *et al.* (2012) examine the value relevance of book value, earnings and dividends for a sample of all nonfinancial firms listed on the Kuwait Stock Exchange (KSE) over the period 2003–2009. The results indicate that dividends are not value-relevant in the presence of earnings in the valuation model. However, when dividends are used as a substitute for earnings they become value-relevant. Lashgari and Ahmadi (2014) test the impact of dividend policy on share price volatility in Tehran Stock Exchange. They employed multivariable regression model based on a dataset for period from 2007 to 2012. The result indicated that dividend payout ratio has a significantly negative effect on stock price volatility.

Giriati's (2016) study aims to assess the influence of the dividend payout ratio on the value of firms. He applies the ordinary least square technique to data from 29 firms listed on the Bursa Efek Indonesia (BEI) from 2009 to 2013. He finds that dividend payouts positively impacted firm value. Budagaga (2017) examines the impact of dividend payments on the value of a firm using the residual income approach based on Ohlson's (1995) evaluation model. The fixed effects technique is applied to panel data for 44 firms listed on the Istanbul Stock Exchange (ISE) from 2007 to 2015. The results show a significantly positive relationship between the dividend payment and the value of firms. Zainudin *et al.* (2018) analyses the relationship between stock price volatility and dividend policy of industrial products firms listed on Bursa Malaysia. The sample comprises 166 industrial products public-listed firms covering a time span from year 2003–2012. The empirical results indicate that dividend policy is a strong predictor of stock price volatility of industrial products firms in Malaysia, particularly during the postcrisis period

Phan and Tran (2019) investigate the impacts of dividend policy and ownership on stock price volatility in the Vietnamese market. The authors use a comprehensive panel dataset of nonfinancial firms listed publicly on the Ho Chi Minh Stock Exchange and Hanoi Stock Exchange over the period from 2008 to 2015. The results indicate that dividend yield mitigates stock price volatility in the emerging market of Vietnam. Similarly, Almanaseer (2019) examines the relationship between dividend policy and share price volatility in insurance companies listed in the Amman Stock Exchange. A sample of 20 companies from 23 insurance companies was taken. The study finds a significant negative relationship between share price volatility and dividend yield and payout ratio.

Very few empirical studies have been undertaken in the banking sector. Lee (1979) examines the impact of dividend policy on share prices and returns for a sample of 78 US commercial banks and bank-holding firms from 1971 to 1976. Three models are derived from the capital asset pricing model (CAPM) to test the relationship between dividends and the equity value of commercial banks. The empirical findings suggest that dividend policy does have a significant effect on share value and that the higher dividends are associated with lower returns. Bessler and Nohel (1996) investigate the stock-market reaction to commercial banks' dividend cuts and omissions by analyzing daily data from a total of 81 dividend reductions by 56 of the largest US commercial banks listed on the NYSE, AMEX and NASDAQ from 1974 to 1991. The results of the cross-sectional analysis show the abnormal returns around the announcement dates of dividend cuts significant negative reactions in the markets. In addition, the results suggest that the abnormal returns were stronger for large banks with more assets, suggesting that large banks may lose large

customers if they fear that the bank is experiencing financial difficulties (presumably the reason behind the dividend cuts).

Al-Saedi (2010) empirically examines the validity of the irrelevance theory by testing the relationship between dividends, profitability, investment policy and the market value of firms from 14 different sectors listed in the LSE from 1997 to 2007. The results show that dividend payments have no effect on the market value of banks, suggesting that the market value of banks is determined by earnings and investment policy rather than by dividends. This is consistent with the irrelevance hypothesis. Suwanna (2012) employs the event model to examine the effect of dividend announcements on the share prices Thai financial firms listed on the Stock Exchange of Thailand from 2005 to 2010. The study's results indicate that share prices increase significantly after dividend announcements, consistent with the dividend signaling theory.

It is worth mentioning that most of the aforementioned research studies conducted in developed economies and much of the data collection and empiric analysis comes from USA markets. These markets have a particular set of characteristics (a high degree of efficiency, extensive competitions, ample liquidity, substantial experience, wide information availability and high taxes). Furthermore, these empirical studies excluded from their sample banking firms due to fact that banks have unique characteristics and reporting norms. Since emerging markets are different in nature and characteristics, from developed markets (Glen *et al.*,1995), very little is known regarding dividend behavior and its impact on firm value in emerging markets, in particular, MENA emerging markets. Another feature that is unique to firms in most MENA region countries, including those in the current study, is that they operate in a tax-free environment (there are neither taxes on dividends nor on capital gains). This feature adds complexity to the ongoing dividend debate. Therefore, based on the review of prior studies, the two main competing hypotheses for this study can be formulated as follows:

H0. Ceteris paribus, the cash dividend payment does not affect the market value of banks listed in MENA emerging markets.

H1. Ceteris paribus, the cash dividend payment does affect (either positively or negatively) the market value of banks listed in MENA emerging markets.

3. Data, methodology and variables

In this section, all the issues in regarding to data, the model and statistical methods will be illustrated.

3.1 Data and source

The data sample including all banks listed on the stock markets of eleven MENA countries (Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia and United Arab Emirates) from 2000 to 2015 are considered. This includes banks that did not distribute dividends during the study period, unlike some prior research studies (Lobo *et al.*, 1986; Nissim and Ziv, 2001; Hand and Landsman, 2005). The studies that did not include such firms were vulnerable to selection bias as a result of these exclusions since the decision not to pay dividends (a zero cash dividend payment) is a relevant outcome decision of the dividend policy. Therefore, the current study includes all listed banks (conventional – Islamic banks) in MENA region countries in order to avoid this selection bias to present results that best reflect the behavior MENA emerging market banks from 2000 to 2015. Further, banks that have not reported full data and mortgage and housing banks have been excluded, and the final sample consists of a panel dataset of total 144 banks listed on MENA's stock markets from 2000 to 2015. These banks range from old to newly listed ones (listed at a different time); several

banks were delisted during the study period. All these banks are included in the analysis in order to reduce the likelihood of survivorship bias. Therefore, the number of observations is different each year, resulting in unbalanced panel data. The financial and accounting data for this study are obtained from the Bank Scope and Bloomberg databases. The Table 1 presents the sample selection criteria and distribution of the sample across countries during 2000–2015.

3.2 Model specification

The current study adopts residual income model (RIM) developed and formalized by Ohlson (1995) (also known as the Ohlson equity valuation model). The model formally states a simple concept: the market value of a firm is a function of book values and future residual earnings. Ohlson (1995) develops the RIM model using book values, future earnings and dividends. The starting point for the model is the discounted dividend model, which postulates that the market value of a firm is equal to the present value of future dividends discounted by the risk-free rate of return (Ohlson, 1995):

$$P_t = \sum_{\tau=1}^{\infty} R_f^{-\tau} E_t \left[d_{t+\tau} \right] \tag{1}$$

Where:

P_t = the market value of a firm's equity at date t;

d_t = dividends (net cash payments) paid at the end of the period t;

R_f = 1+ one-period risk-free return, r (discount rate);

E_t = the expected value operator conditioned on the date t information.

As observed by Ohlson (1995), Eqn (1) applies to an economy with neutral risk, homogenous beliefs about firm prospects (no asymmetric information) and interest rates that satisfy a nonstochastic and flat term. Eqn (1) can be converted into the residual income model by using the clean "surplus" relation assumption:

$$\mathrm{bv}_t = \mathrm{bv}_{t-1} + x_t - d_t \tag{2}$$

where:

Selection criteria for sample	Number of banks	Countries	Conventional banks	Islamic banks
All listed banks	163	Bahrain	8	1
Conventional banks	136	Egypt	19	2
Banks have no full data	14	Jordan	9	1
Mortgage and housing Banks	5	Kuwait	6	3
Islamic banks	27	Lebanon	11	0
Final Sample	*144*	Morocco	11	0
		Oman	6	1
		Tunisia	13	0
		Saudi Arabia	10	9
		Qatar	8	4
		UAE	16	6
		Total	*117*	*27*

Table 1. Selection criteria and distribution of the sample across countries during 2000–2015

bv_t = a firm's book value at time t;

x_t = accounting earnings (net income) for period t;

d_t = dividends for period t.

The clean surplus relation can be further restated by excluding an infinite-growth condition in book value. This is an accrual accounting-based expression for a market value, sometimes is referred as a residual income model (also known as the abnormal earnings model) (Swartz *et al.*, 2006):

$$P_t = bv_t + \sum_{\tau=1}^{\infty} R_f^{-\tau} E_t \left[\tilde{x}^a_{t+\tau}\right] \tag{3}$$

where the abnormal earnings, or residual income ($\sim a$ denotes abnormal) are defined as follows:

$$\tilde{x}^a_t = x_t - (R_f - 1)\ bv_{t-1} \tag{4}$$

Abnormal earnings (residual income) are therefore equal to current earnings (x_t) less capital charge (a risk-free rate) (r). This is predicated on the idea that the inclusion of the book value in the model reflects normal accounting earnings on invested capital and that any earnings that are greater than normal earnings are abnormal (a residual). Ohlson's (1995) contribution results from his modeling of information dynamics. The model assumes the time-series behavior of normal earnings through two equations:

$$\tilde{x}^a_{t+1} = \omega X^a_t + V_t + \varepsilon'_{1,t+1} \tag{5a}$$

$$V'_{t+1} = \gamma v_t + \varepsilon'_{2,t+1} \tag{5b}$$

where:

ω, γ = the parameters of the process $(0 \le \omega \le 1$ and $0 \le \gamma < 1)$ are fixed at t and determined by the firm's economic environment and accounting principles, respectively.

V_t = Other relevant accounting information

$\varepsilon'_{1,t+1}$ and $\varepsilon'_{2,t+1}$ = the disturbance terms that are unpredictable, with zero mean variable.

The information dynamic is formulated by adding a scalar V_t variable to represent information other than abnormal earnings (residual income); this information is reflected in share prices index but does not yet appear in current financial statements. This part of the formula acknowledges stakeholders cannot rely upon financial statements, alone, for all the information that would be relevant for accurate valuation of a firm and must also turn to other sources for information for this purpose (Hand and Landsman, 1999; Zhang, 2014). Thus, based on residual income and information dynamics, Ohlson (1995) combines Eqn (3) with Eqns (5a) and (5b) to yield a linear function for P_t:

$$P_t = bv_t + \alpha_1 \tilde{x}^a_t + \alpha_2 V_t \tag{6}$$

where:

$$\alpha_1 = \omega/(R_f - \omega)$$
$$\alpha_2 = R_f/(R_f - \omega)/(R_f - \gamma)$$

Eqn (6) suggests that market value of a firm is equal to the book value of a firm's assets, adjusted for residual income (abnormal earnings) and other relevant information. These adjustments change the prediction of future earnings. The model includes accrual accounting variables. This is different from other classic valuation models such as Miller and Modigliani (1961) cash flow capitalizing model and Gordon's (1959) dividend growth model. The "V" element in the model is a generic variable that is not given a particular identity. It can represent anything that might be relevant to firm valuation and therefore is an open set (Zhang, 2014). Based on Eqn (6), the current study extends Ohlson's model and derives the valuation model presented in Eqns (7) and (8) by using dividend payouts and dividend yield as a surrogate for "other information" (V_t). This equation is used to examine the effect of cash dividend payments on the market value of banks listed on various MENA stock markets from 2000 to 2015. The extended Ohlson's (1995) model, which is assumed to be linear, can be written as follows:

$$\text{Model 1: } \mathrm{MV}_{i,t} = \alpha + \beta_1 \mathrm{BV}_{i,t} + \beta_2 \mathrm{RI}_{i,t} + \beta_3 \mathrm{DPOR}_{i,t} + \beta_4 \mathrm{Islamic}_{i,t} + \beta_5 \mathrm{SIZE}_{i,t} + \beta_6 \mathrm{FIC}_{i,t} + \beta_7 \mathrm{ASC}_{i,t} + \text{Year Dummy} + \text{Country Dummy} + \varepsilon_{i,t} \tag{7}$$

$$\text{Model 2: } \mathrm{MV}_{i,t} = \alpha + \beta_1 \mathrm{BV}_{i,t} + \beta_2 \mathrm{RI}_{i,t} + \beta_3 \mathrm{DYR}_{i,t} + \beta_4 \mathrm{Islamic}_{i,t} + \beta_5 \mathrm{SIZE}_{i,t} + \beta_6 \mathrm{FIC}_{i,t} + \beta_7 \mathrm{ASC}_{i,t} + \text{Year Dummy} + \text{Country Dummy} + \varepsilon_{i,t} \tag{8}$$

where: $\mathrm{MV}_{i,t}$ is the market value of a bank at time t; α is the intercept; $\mathrm{BV}_{i,t}$ is a bank's book value per share at time t; $\mathrm{RI}_{i,t}$ is a bank's residual income (abnormal earrings) at time t; $\mathrm{DPOR}_{i,t}$ represents a bank's dividend payouts at time t; $\mathrm{DYR}_{i,t}$ represent a bank's dividend yield at time t; $\mathrm{SIZE}_{i,t}$ represents a bank's size at time t; $\mathrm{islamic}_{i,t}$ is dummy = 1 if a bank is Islamic, else zero; $\mathrm{FIC}_{i,t}$ represents global financial crisis (2008–2009); $\mathrm{ASC}_{i,t}$ represents Arabic spring crisis (2010–2011). β_1, β_2, β_3, β_4, β_5, β_6 and β_7 are parameters that relate independent variables to market values, and $\varepsilon_{i,t}$ is the error term.

The analyses include three regression methods: pooled OLS, random effects and fixed effects methods. To control for heteroscedasticity, fixed effects and pooled OLS methods are tested and adjusted for heteroscedasticity using White's (1980) corrected robust regression.

3.3 Variables construction

3.3.1 Dependent variable. The current study uses the market value for bank i at time t as a dependent variable, which is denoted as $\mathrm{MV}_{i,t}$ and is measured as closing share price multiplied by the number of ordinary shares outstanding for a bank i at the end of year t over the period 2000–2015. This is consistent with the practices of Hand and Landsman (1999, 2005) and Al-Hares *et al.* (2012).

3.3.2 Main independent variables. The study employs two variables as a proxy for cash dividend decisions [1], namely the dividend payouts and dividend yield for bank i at time t, denoted as ($\mathrm{DPOR}_{i,t}$) and ($\mathrm{DYR}_{i,t}$), respectively, as the main independent variables beyond two explanatory variables that are included in the basic Ohlson (1995) residual income model. Namely, these explanatory values are the book value of equity and abnormal earnings (residual income). $\mathrm{DPOR}_{i,t}$ is measured as the amount of cash dividends per share divided by the earnings per share, and $\mathrm{DYR}_{i,t}$ is measured as the ratio of dividend per share to price per share of bank in a given year over the period 2000–2015.

The book value variable in the model is denoted as ($BV_{i,t}$) and is measured as the total equity divided by shares. The residual income (also known as abnormal earnings) variable in the model is symbolized as ($RI_{i,t}$) and is defined as ($RI_{i,t} = Xt_{i,t} - (r_{i,t} * BV_{i,t-1})$, which represents the current earnings per share (net income divide by shares) ($Xt_{i,t}$), less the risk-free rate ($r_{i,t}$), times book value per share at the beginning of the year t ($BV_{i,t-1}$). This method is consistent with Hodder *et al.* (2006); Higgins (2011); Lee *et al.* (2012), (2014); and Kuo (2016). Some prior research studies employ long-term government bond rates as a risk-free rate. However, due to the fact that government bond rates are not available for most MENA countries, the current study uses the annual treasury bill rate as a proxy for the risk- free rate (r) following Tsay *et al.* (2008); Higgins (2011); Lee *et al.* (2012) and Atyeh and Al-Rashed (2015), *Islamic* is a dummy variable that takes value one if the bank is Islamic.

3.3.3 Independent control variables. Some significant global issues occurred during the study period, namely, the global financial crisis (2008–2009) and the Arabic spring crisis (2010–2011). Thus, the financial crisis dummy variable (FCR) was added to the regression model as a control variable. The Arabic spring crisis (ASC) dummy variable was also added to the regression model as a control variable. Furthermore, the size of banks will be applied in this study as a control variable as well. All variables are computed at the fiscal year-end and are calculated in US dollars. In addition, since the data sample covers a relatively long period (2000–2015), year dummies are included in the models to control for the unobserved impact of variations in time. Add to that, country-fixed effects dummies are included in the regression models in order to control for the impact of different countries. Table 2 summarizes the study variables used in the empirical analysis of this study.

Variables	Symbols	Definitions	Expected direction of effect
Dependent variable			
Market value of bank	MV	The closing share price multiplied by the number of ordinary shares outstanding for bank i at the end of year t over the period 2000–2015	
Main Independent Variables			
Book value	BV	Total equity divided by number of shares of bank i at the end of year t over the period 2000–2015	+
Residual income	RI	Current earnings per share (Xt) less the risk-free rate (r) times book value per share at the beginning of year t (BV_{t-1}) of bank i over the period 2000–2015	+
Dividend payouts	DPOR	The ratio of dividends per share to earnings per share of bank$i$ at the end of year t over the period 2000–2015	+/−
Dividend yield	DYR	The ratio of dividend per share to price per share of bank i at the end of year t over the period 2000–2015	+/−
Islamic	Islamic	Dummy = 1 if a bank is Islamic, else zero	+/−
Independent Control Variables			
Size	SIZE	The natural logarithm of the total assets of bank i at the end of year t from 2000 to 2015	+
Global financial crisis	FCR	Dummy variable for the time period of the global financial crisis; FCR = 1 for years 2008 and 2009 and FCR = 0 otherwise	−
Arabic spring crisis	ASC	Dummy variable for the time period of the Arabic spring crisis; ASC = 1 for years 2010 and 2011 and ASC = 0 otherwise	−

Table 2. Variables and definitions

4. Empirical results and discussions

4.1 Descriptive statistics of the variables

Table 3 provides summary statistics (mean, SD, minimum, maximum, skewness and kurtosis) for the variables used in the regression analysis of this study. The panel dataset (unbalanced) contains 144 banks listed in eleven MENA countries with a total of 1,938 bank-year observations [2] from 2000 to 2015.

As shown in Table 3 above, the mean value of DOPR is equal to 0.363 and shows that banks, on average, have paid 36% of their earnings as dividends. The mean value of DYR is 0.017of total 1,938 bank-year observations. The descriptive statistics for the rest of variables can be seen from the table.

4.2 Correlation matrix and VIF of the independent variables

Table 4 presents the correlation matrix, variance inflation factor (VIF) and tolerance of the independent variables used in the regression analysis.

It can be noted that there is a strong correlation between the dividend payout ratio variable and the residual income variable and also between dividend yield and dividend payout ratio. However, in order to identify more directly if there is severe multicollinearity between independent variables, the VIF statistics for each independent variable is calculated. If VIF >10, it implies that multicollinearity exists. Tolerance (1/VIF) is also used to check for multicollinearity. If tolerance <0.1 and the corresponding VIF >10, this implies that multicollinearity exists (Gujarati and Porter, 2009). As shown in the table, all VIF values are small, and none of them exceed 10. None of the tolerance values are <0.1 except correlation between the dividend payout ratio and dividend yield. Therefore, the severe multicollinearity exists. In order to avoid this issue the researcher has separated the two variables (dividend payout and dividend yield) in different regression analyses as shown in Tables 5 and 6, respectively.

4.3 The Ohlson (1995) model analysis

Table 5 reports the findings of the pooled OLS and panel (fixed and random effects) estimations using a simplified version of Ohlson's (1995) residual income approach [3].

Table 3.
Descriptive statistics of the variables

Variables	Mean	S.D	Min	Max	Skewness	Kurtosis
MV	$1,259	$12.38	$2	$19,879	$1,665	$5,209
BV	6.248	9.082	0.114	10.98	3.068	9.059
RI	0.962	1.924	0.010	7.791	1.104	10.17
DPOR	0.363	0.744	0.000	3.161	1.299	9.271
DYR	0.017	0.035	0.000	0.691	5.412	47.26
SIZE	15.33	1.483	10.70	18.81	−0.190	2.485

Note(s): Variable (in $ millions)

Table 4.
Correlation matrix and VIF for the independent variables

Variables	BV	RI	SIZE	DPOR	DYR	VIF	Tolerance
BV	1.000					1.84	0.54
RI	*0.459*	1.000				1.81	0.55
SIZE	0.015	−0.032	1.000			1.10	0.91
DPOR	−0.046	*0.567*	0.004	1.000		1.03	0.97
DYR	−0.172	0.214	0.028	*0.731*	1.000	*0.85*	*1.18*

Table 5.
Findings of the Ohlson (1995) model applied to banks in MENA markets

Model variables	Panel methods						Panel methods					
	Pooled OLS		Random effects		Fixed effects		Pooled OLS		Random effects		Fixed effects	
Dependent variable	*MV*		*MV*		*MV*		*MV*		*MV*		*MV*	
Independent variables	*Coefficient estimates*	*t-statistic*	*Coefficient estimates*	*z-statistic*	*Coefficient estimates*	*t-statistic*	*Coefficient estimates*	*t-statistic*	*Coefficient estimates*	*z-statistic*	*Coefficient estimates*	*t-statistic*
BV	0.559***	2.84	0.699***	6.41	0.801***	6.52	0.591***	3.14	0.645***	7.11	1.07***	8.02
RI	13.97***	8.79	15.18***	22.60	15.47***	5.79	14.20***	9.28	12.84***	7.91	14.05***	9.89
DPOR	−0.023	−0.95	−0.033	−1.09	−0.037	−0.81	–	–	–	–	–	–
DYR	–	–	–	–	–	–	−0.075	−0.08	−0.092	−1.01	−2.174	−0.84
Islamic dummy	0.039	0.02	−0.081	−0.03	−0.068	−2.18	−0.029	−0.03	−0.072	−0.15	−0.10	−2.24
SIZE	0.969	1.37	1.559*	1.91	3.071	1.29	0.976	1.38	1.613*	2.01	3.084	1.32
FCR dummy	−4.86***	−3.32	−3.52	−1.55	−2.916	−2.01	−0.91***	−3.35	−3.34 ***	−3.64	−2.919	−2.08
ASC dummy	−4.23**	−2.51	−3.98*	−1.76	−3.696	−2.00	−4.28**	−2.51	−3.99*	−1.76	−3.723	−2.25
Constant	3.141**	2.18	1.61	0.73	0.336	0.90	5.192***	4.78	6.11***	4.16	7.48***	5.28
R-squared	47.2%		49.1%		64.7%		51.2%		55.4%		61.9%	
Lagrange multiplier *T*	547.54***						623.12***					
F-test			5.52***						6.17***			
Hausman-Test				10.98**						11.49**		
DW	1.73		1.79		1.84		1.88		1.90		1.93	
Country*Year FE	Yes		Yes		Yes		Yes		Yes		Yes	
Number of observations			1,782						1,843			

Note(s): The table presents coefficient estimates and *t*/*z* statistics. *,** and *** show significance at 10, 5, 1% levels, respectively. The Pooled OLS and fixed effects methods are corrected for heteroscedasticity by employing White's corrected heteroscedasticity robust regression

Table 6.
Findings of the Ohlson (1995) model applied to banks in MENA markets

Model variables	Panel methods						Panel methods					
	Pooled OLS		Random effects		Fixed effects		Pooled OLS		Random effects		Fixed effects	
Dependent variable	*SR*		*SR*		*SR*		*SR*		*SR*		*SR*	
Independent variables	*Coefficient estimates*	*t-statistic*	*Coefficient estimates*	*z-statistic*	*Coefficient estimates*	*t-statistic*	*Coefficient estimates*	*t-statistic*	*Coefficient estimates*	*z-statistic*	*Coefficient estimates*	*t-statistic*
BV	0.334***	4.17	0.451***	4.92	0.471***	4.67	0.391***	5.02	0.512***	5.14	4.96***	4.85
RI	7.045***	13.04	8.013***	14.33	8.421***	14.33	7.28***	14.05	7.115***	13.19	9.117***	15.92
DPOR	−0.0014	−0.06	−0.008	−0.32	−0.013	−0.53	–	–	–	–	–	–
DYR	–	–	–	–	–	–	−0.0047	−0.17	−0.145	−1.79	−2.464	−0.23
Islamic dummy	0.054	0.16	−0.040	−0.21	−0.010	−0.08	−0.074	−0.25	−0.061	−0.09	−0.562	−0.12
SIZE	0.481***	4.64	0.573	0.84	0.334	0.42	0.492***	4.75	0.578	0.89	0.341	0.49
FCR dummy	−4.82**	−2.24	−4.27**	−2.30	−3.973	−2.14	−5.01**	−2.27	−4.39**	−2.47	−4.12	−2.36
ASC dummy	−5.21**	−2.39	−4.65**	−2.48	−4.392	−2.34	−5.40**	−2.54	−4.72**	−2.69	−4.402	−2.52
Constant	3.008**	2.39	1.265	0.64	0.181	0.66	4.143***	3.74	2.76	1.08	2.089	1.04
R-squared	38.5%		43.7%		44.9 %		39.7%		45.9%		47.62%	
Lagrange multiplier *T*	109.57***						109.85***					
F-test			7.64***						8.49***			
Hausman-Test				10.40**						11.69**		
DW	1.54		1.59		1.55		1.58		1.61		1.66	
Country*year FE	Yes		Yes		Yes		Yes		Yes		Yes	
Number of observations			1,782						1,843			

Note(s): The table presents coefficient estimates and *t*/*z* statistics. *,** and *** show significance at 10, 5, 1% levels, respectively. The pooled OLS and fixed effects methods are corrected for heteroscedasticity by employing White's corrected heteroscedasticity robust regression

The dataset collected from 144 banks listed on different stock markets in eleven MENA countries over the period 2000–2015.

The estimate of the pooled OLS method is statistically significant at the 1% level, as reported by the F-statistic. Likewise, the estimations of the random effects and fixed effects methods (panel methods) are statistically significant at the 1% level, as reported by the Wald Chi^2 and *F*-statistic, respectively.

The results of the Lagrange multiplier test statistics are (547.54) and (623.12); this is statistically significant at the 1% level, which implies that the random effects method is more favorable than the pooled method for two models. Additionally, the results of the *F*-tests which are (5.52) and (6.17) are statistically significant at the 1% level, which means that the fixed effect method is favored over the Pooled OLS method. Therefore, panel effects are present. The results of the Hausman specification tests are (10.98) and (11.49) which are statistically significant at the 5% level, suggesting that the fixed effects method is more appropriate than the random effects method. The findings of the Ohlson (1995) model are presented based on fixed effect estimations.However, the disadvantage of fixed effect models is that they ignore between-unit variation, remove all time constant effects and do not provide solutions to all sources of endogeneity bias (McManus, 2011). In addition, the Durbin–Watson statistic results show that the serial correlations in the models are not significant (see Tables 5 and 6).

According to the R^2 values in Table 5, the extended Ohlson (1995) model are able to explain 64.7 and 61.9% of the variation in market value of MENA commercial banks. This is consistent with the findings of Al-Hares *et al.* (2012), who report R^2 values of 66.2 and 61.3% in Kuwait and Budagaga's (2017) R^2 value of 63.2% identified in Turkey. This suggests that Ohlson's (1995) residual income model adequately explains the market value behavior of banks listed on different stock markets in MENA region countries over the period 2000–2015.

The findings pertaining to the extended Ohlson (1995) residual income model provide evidence of the relevance of book value and residual income (abnormal earnings) to firms' market value. The coefficient estimation on book value (BV variable) is positively and statistically significant at the 1% level. This indicates that the book value has a positive and statistically significant effect on the market value of banks in the MENA region. This positive relationship is consistent with findings of previous research conducted in both developed and emerging markets (Hand and Landsman, 1999; Graham and King, 2000; Hodder *et al.*, 2006; Swartz *et al.*, 2006; Higgins, 2011; Al-Hares *et al.*, 2012, and Budagaga, 2017). Similarly, the coefficient estimation on residual income (RI variable) is positively and statistically significant at the 1% level, suggesting that residual income (abnormal earnings) has a positive and statistically significant impact on the market value of banks in the MENA region. Overall, these findings are consistent with the theoretical residual income model. This affirms that Ohlson's (1995) model can be applied to explain the market value behavior of banks listed on stock markets in MENA region countries over the period 2000–2015.

Contrary to expectation, the fixed effects (panel) Ohlson (1995) estimation provides no evidence that dividend payout ratios (DPOR) and dividend yield ratios (DYR) are a good surrogate for relevant "other information" (the "*V*" variable). The coefficient of DPOR and DYR are not statistically significant in this model. Though the findings suggest a negative correlation between dividend payouts, dividend yield and the market value of banks (in line with Lee's (1979) research study), this negative correlation is not statistically significant, in line with Al-Saedi's (2010) empirical research.

This is contrary to earlier findings (Hand and Landsman, 1999, 2005; Swartz *et al.*, 2006; Budagaga, 2017) that describe a positive relationship between dividends and firms' market value. These studies resulted in and the subsequent inclusion of a dividend's variable into Ohlson's (1995) basic residual income model and lent support to the information theory of

dividends. Furthermore, when a dummy for Islamic banks has been included in the regression analyses, the coefficient is observed to be insignificant at Islamic banks, which is in line with the findings of the conventional banks.

The findings of this study are consistent with the Ohlson (1995) model's assumption that asymmetric information does not exist, and there is therefore no role for dividends as a signaling device (Hand and Landsman, 1999). According to Ohlson (1995), dividends reduce the current book value of equity but not the current earnings; thus, a firm's market value is not affected by its cash dividend payments. To some extent, this is consistent with Miller and Modigliani (1961) irrelevance theory of dividends. The evidence presented in this study is consistent with the findings of prior studies including Watts (1973); Black and Scholes (1974); Miller and Rock (1985); Miller (1986); Bernstein (1996); Conroy *et al.* (2000); Chen *et al.* (2002) and Al-Saedi (2010), as well as emerging market analysis by Ben Naceur and Goaied (2002). Therefore, the author fails to reject *Hypothesis 0: that the cash dividend payment does not affect the market value of banks listed in MENA emerging markets.*

4.4 Further analyses

In this sub-section, additional tests are applied to confirm the primary results. This is accomplished by using an alternative market value measure, namely annual bank share returns [4]. It is commonly used in literature to examine the effect of dividend policy on market value of firms (Black and Scholes, 1974; Lee, 1979). Models (9) to (10) are restated, respectively, as

$$\text{Model 3}: \ \text{SR}_{i,t} = \alpha + \beta_1 \,\text{BV}_{i,t} + \beta_2 \,\text{RI}_{i,t} + \beta_3 \,\text{DPOR}_{i,t} + \beta_4 \,\text{Islamic}_{i,t} + \beta_5 \,\text{SIZE}_{i,t} + \beta_6 \,\text{FIC}_{i,t} + \beta_7 \,\text{ASC}_{i,t} + \text{Year Dummy} + \text{Country Dummy} + \varepsilon_{i,t} \tag{9}$$

$$\text{Model 4}: \ \text{SR}_{i,t} = \alpha + \beta_1 \,\text{BV}_{i,t} + \beta_2 \,\text{RI}_{i,t} + \beta_3 \,\text{DYR}_{i,t} + \beta_4 \,\text{Islamic}_{i,t} + \beta_5 \,\text{SIZE}_{i,t} + \beta_6 \,\text{FIC}_{i,t} + \beta_7 \,\text{ASC}_{i,t} + \text{Year Dummy} + \text{Country Dummy} + \varepsilon_{i,t} \tag{10}$$

At first glance, the results in Table 6 display that pooled OLS method is statistically significant at the 1% level, as reported by *F*-statistic. Likewise, the estimation of the random effects and fixed effects (Panel) methods are statistically significant at the 1% level, as reported by Wald Chi^2 and *F*-statistic, respectively. However, the results of Lagrange multiplier test statistics are (109.57) and (109.85) and statistically significant at the 1% level: that means that the random effect method is more favorable than the pooled method. In addition, the results of the *F*-tests, which are (7.64) and (8.49) are statistically significant at the 1% level, which means that the fixed effect method is favored over the pooled OLS method. Furthermore, the Hansuman specific test is (10.40) and (11.69) and statistically significant at 5% level, suggesting that the fixed effect method is more appropriate than the random effects method. Therefore, the following results are drawn from the fixed effects method.

The empirical results show that the fixed effects residual income estimations, when the share return is used as the dependent variable, provides very similar results consistent with the previous results regarding the market value of banks. The bank's share returns are significantly affected by the same variables with the same significance level and the same directional effects as in the case of the market value of banks. Particularly, the share return is significantly and positively affected by book value and abnormal earning (residual income), whereas the results show no significant relation between dividend payout, dividend yield and return on banks' shares in the MENA countries. This is consistent with Black and Scholes (1974). Consequently, when the panel regression estimates are used to examine the impact of cash dividends on the market value of banks in MENA countries, by using an alternative

dependent variable, namely share returns, the results show very similar evidence confirming the robustness of the primary results from the panel residual income regression applied to the market value of bank in the MENA region. The summary of the analysis findings for the study hypotheses is presented in Table 6.

5. Conclusion

This paper discusses the impact of cash dividend payments on the market value of banks operating in various MENA emerging markets. Particularly, it empirically examines whether the cash dividend affects the market value of 144 banks listed on different stock markets in eleven MENA region countries (Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia and United Arab Emirates) from 2000 to 2015. The analysis considers 1,782 and 1,843 bank-year observations and applies an extended Ohlson (1995) residual income model (an accounting model) which uses the dividend payout and the dividend yield as a surrogate for other relevant information (V) in order to examine the effects of cash dividends on MENA banks' market value. Furthermore, the analysis uses rigorous statistical techniques (pooled OLS, random effect and fixed effect) to provide reliable and consistent findings.

The empirical findings from the extension of Ohlson's (1995) residual income model show that, by adding the cash dividends variables, an Islamic dummy variable, and controlling variables (size, FCR and ASC) into the basic Ohlson equation, the adjusted models have substantial explanatory power (R^2 values) in explaining cross-sectional market values. The findings also indicate that a firm's book value and residual income (abnormal earnings) are positively and statistically significant factors in determining the market value of banks in the MENA region. This is consistent with the theoretical residual income model. Overall, these findings support the use of the Ohlson (1995) model to adequately explain the behaviors of MENA banks' market values from 2000 to 2015. This is consistent with earlier research in different emerging markets (Al-Hares *et al.*, 2012; Budagaga, 2017).

However, contrary to expectations, the empirical findings of this study suggest that dividend payouts and dividend yield have no significant association with the market value of banks in the MENA region. In other words, current dividend payouts and dividend yield do not provide information relevant to the establishment of market values in MENA emerging markets; thus, they have no material impact on MENA banks' market values. This is inconsistent with prior studies (Hand and Landsman, 1999; Swartz *et al.*, 2006; Budagaga, 2017) that showed that dividends play a signaling role to investors by serving as a proxy for other relevant valuation information.

In larger sense, this lack of a current cash dividend payment effect is consistent with Miller and Modigliani (1961) dividend irrelevance assumption: there is no evidence of either an informational or real cash inflow effect of current dividend payments. Their argument is based on perfect market conditions; though in the real world, market imperfections are observed (e.g. taxes, transaction cost, information asymmetry, conflicts of interest between managers and shareholders). This study's real-world findings can be attributed to the fact that the majority of the included MENA commercial banks operate in tax-free environments where investors are subject to neither corporate nor income taxation. In addition, external monitoring bodies such as governments and regulators eliminate or reduce the role of dividend payments as a mechanism for mitigating agency cost problems. Furthermore, MENA banks may be forced to place more emphasis on allocating money for investment instead of paying dividends given them they are subject to liquidity requirements for investment, expansion, general operations and compliance with regulations. Only after all these financial needs are met can the remaining funds be distributed as cash dividends to shareholders. Therefore, cash dividends represent earnings residual rather than an active decision variable that impacts a firm's market value.

This is consistent with the residual dividend hypothesis, which is the crux of Miller and Modigliani (1961) irrelevance theory of dividends.

6. Practical implications for theory and business

The results of this study have some important implications for theory and banks' dividend policymakers. It will extend the literature on dividends puzzle by exploring for the first time the impact of cash dividends on market value of banks in the MENA region using residual income model (an accounting model). Dividend policy empiricists usually exclude the banking institutions from empirical analyses due to special features of balance sheets and income statements structures as well as accounting methods. Furthermore, based on the empirical results, dividend policymakers in MENA emerging countries seem to follow residual dividend policy, in which they distribute dividends according to what is left over after all acceptable investment opportunities have been undertaken. This makes for inconsistent and unstable dividend policy trends, making it difficult for investors to predict future dividend decisions. This practice may deliver information to shareholders about a lack of positive future investment opportunities, and this may negatively affect the share value of banks.

Notes

1. Dividend payouts: It is an accounting measure which reflect the managers perspective (directly influenced by managerial choice), which could be subject to management manipulating. While dividends yield is market measure at to some extent not control by managers. Furthermore, the analysis is restricted to cash dividends, which is the most popular means of earnings distribution to shareholders in the MENA markets.
2. Each research variable has 1,938 firm-year observations, except dividend payout ratio (DPOR), which has 1,877 firm-year observations.When the bank has losses, its net income (earnings) become a nonpositive value. Despite the fact that banks distribute some dividends to its shareholders, its payout ratio will be a negative value since dividend payout ratios are measured as dividends per share to earnings per share, Thus, the study excludes the nonpositive payout ratio observations from the analysis.
3. In 112 bank-year observations, the residual income value is negative. To avoid unrealistic representation of negative residual incomes, the researcher set residual income for those bank-years equal to that bank's time-series mean residual income. For the few banks with negative time-series mean residual incomes, the researcher set the negative residual income for year t equal to 0.01.
4. Share return variable (denoted as SR) is simply calculated as the share price at year t minus the share price at t-1 dividend by the share price at year t following Agusman *et al.* (2009). The descriptive statistics of SR are illustrated below.

Variable	Observations	Mean	Standard deviation	Min	Max	Skewness	Kurtosis
SR	1,938	0.010	0.319	−1.970	2.242	1.7123	4.449

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