

DETERMINANTS OF FIRM PROFITABILITY: EMPIRICAL EVIDENCE FROM JORDAN'S SERVICE SECTOR

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Abstract. This paper examines the financial factors affecting profitability across the listed Jordanian service companies. Insufficient attention has been paid to the influence of profitability specifically revealed by financial indicators. This study adopts the firm effect model. The investigation is established on panel data from 2015 to 2020, based on annual company reports. Regression was used to test the study hypotheses. The research sample is collected from the 46 public service firms listed. The profitability of Jordan's service firms is measured by three proxies, including, Return on Equity (ROE), Earnings Per Share (EPS) and Return on Assets (ROA). The results reveal that firm size and liquidity positively and significantly impact profitability. Conversely, the findings verify that company efficiency and market power have no significant impact on profitability. Moreover, among Jordan's service firms' financial indicators, the findings confirm that neither firm nor sales growth have a significant influence on profitability, while sustainable growth rate has a positive, significant effect on profitability. The firm effects are higher for ROE than ROA and EPS. The study provides beneficial insights for managers and investors by providing effective policies designed to improve profitability. The results also provide shareholders with statistics that will ensure the profitability of companies operating in developing countries, such as Jordan.

Keywords: profitability, service companies, return on equity, return on assets, earnings per share.

JEL Classification: M13, M31, F21.

Introduction

Companies across the world have experienced rapid technological changes associated with strong competition and investment growth. Thus, organisations which seek to maximise sustainable growth should take both the external and internal factors which influence profitability into account; successful strategies are based on the ability of managers to precisely ascertain those factors as the main aim of establishing a business to maximise income. Hermanson and Edwards (2005) define profitability as a firm's ability to create income, while Seissian et al. (2018) classify it as an organisation's earnings from turnover, after deducting all liabilities over a specific period. This implies that profitability must be assessed in both the past and the present with regards to the value of stock, with the aim of increasing profitability. The aim of a company's financial administration is to maximise the EPS stock (Lim & Rokhim, 2021). Moreover,

understanding that profitability has different aspects and not only the theoretical concept is the basis of a firm's strategic intention and management.

Profitability does not operate in a vacuum; in fact, it is associated with driving forces which need to be thoroughly understood in order to be maximised. Understanding factors affecting profitability may reduce risks and maintain financial stability by implementing the appropriate actions promptly. Stierwald (2010) describes two distinct models which can be used to control changes in profitability. The first is termed the structure-conduct-performance model, which considers market concentrations as a determinant of profitability. The second is the firm effect model, which deals with the interior processes influencing profitability. Stierwald's (2010) study refers to company-level factors, such as the age of a firm, liquidity, firm growth, leverage, tax, firm size, working capital, tangibility, business risk, market power, company efficiency, etc. This study adopts the firm effect model.

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There are many studies which have attempted to examine the determinants of profitability (such as Abdulla, 2020; Seissian et al., 2018; Nanda & Panda, 2018; Habib et al., 2016; AlGhusin, 2015; Lee, 2014; Mohd Zaid et al., 2014; Yazdanfar, 2013; Almasria, 2021; Adrian & Shin, 2010; Goddard et al., 2006; Roper, 1999). However, there are no standardised findings, seeing as they contradict each other in terms of place, time, sector and type of variables. Hence, it is difficult to generalise across the board. Therefore, this paper focuses exclusively on profitability in Jordan.

The service sector in Jordan is one of the biggest drivers of economic development, with a contribution of 31.8% to the GDP, reflecting the sector's operational and economic importance. Although profitability is a considerable concern for Jordanian service companies, very few studies, such as Gharaibeh and Bani Khaled (2020), have tested the factors influencing profitability. Hence, this research varies from the literature in several respects. Firstly, a number of the variables in this study have previously not been examined in Jordan, such as market power. Secondly, it addresses a recent time period, including the effects of the Covid-19 pandemic. Thirdly, it uses three measures to assess profitability; ROE, ROA and EPS. Consequently, this paper investigates the factors impacting on the profitability of Jordanian service companies; firm size, efficiency, liquidity, market forces, together with company growth.

1. Literature review and hypothesis development

Recent research has empirically linked the different factors which have an impact on profitability, for instance firm size and profitability (Alsharari & Alhmoud, 2019); company efficiency and profitability (Eling & Jia, 2019); market power and profitability (Spierdijk & Zaouras, 2016; Alhassan et al., 2016); working capital and profitability (Alarussi & Alhaderi, 2018); liquidity and profitability (Damar et al., 2013); company growth and profitability (AlGhusin, 2015) and leverage with profitability (Gharaibeh & Bani Khaled, 2020; Adrian & Shin, 2010). The existing literature also emphasises other variables which may relate to profitability, such as market share, capital intensity, exports, firm age, R&D, level of indebtedness, risk, capacity utilisation, working assets, industry type, long-term financing, etc. Consequently, previous studies do not exhibit standardised results. Moreover, the findings vary from one study to another, owing to variance in the time periods, sector differentiation (i.e. banks, industrial firms, service companies, etc.), study scale (i.e. macroeconomic and firm size), besides geographical location, seeing as economic conditions in developing countries differ from those in developed countries (Almasria et al., 2018; Masadeh et al., 2021). The results of previous research have broadly highlighted various variables that have a relationship with firms' profitability (Almaqtari et al., 2019; Dimitrić et al., 2019; Nguyen & Nguyen, 2020).

Numerous economic measures, for instance firm size, company efficiency, company leverage, liquidity and

working capital, have been investigated in other research with ROE and EPS as its measurement of profitability (Alarussi & Alhaderi, 2018; Pervan et al., 2019; Alawaqleh et al., 2021; Masadeh et al., 2023; Almasria, 2022b). Nanda and Panda (2018) investigated the factors affecting profitability for 173 companies listed in India between 2000 and 2015. Findings reveal that profitability is significantly influenced by size and liquidity. Likewise, Lim and Rokhim (2021) explored the features influencing profitability for ten listed pharmaceutical firms in Indonesia covering the period 2014 and 2018. The results indicate that ROA is influenced significantly and positively by both firm size and market power, but EPS is influenced significantly and negatively by both firm size and market power. Similarly, Yazdanfar (2013) analysed the profitability factors for 12,530 non-financial micro firms in the manufacturing sector in Sweden between 2006 and 2007. The findings suggest that profitability is positively and significantly affected by firm size, lagged profitability, company growth and productivity level. Amponsah-Kwatiah and Asiamah (2020) studied the determinants of profitability for 20 listed manufacturing firms in Ghana from 2015 to 2019. The empirical results reveal that profitability is positively and significantly correlated with efficient inventory management, account receivables, account payables, cash conversion cycle, current assets, current ratio and company size (Alduais et al., 2022a; Almasria, 2022c). However, leverage tended to have a significant and negative impact on profitability. Yazdanfar and Öhman (2014) examined the relationship between a set of factors and profitability for 13,797 small and medium-sized enterprises in Sweden from 2008 to 2019. Findings suggest that firm size, age and industry affiliation have a significant impact on profitability.

Profitability is less developed in Jordan. There have been few studies that have investigated factors that affect it (Airout et al., 2023). Gharaibeh and Bani Khaled (2020) examined factors influencing profitability for 46 listed service companies in Jordan from 2014 to 2018. The results demonstrate that tangible assets and leverage have a reverse and substantial effect on profitability. However, firm size, growth and risk have a significant positive impact on profitability. Alsharari and Alhmoud (2019) studied the components of profitability for 28 Sharia-compliant Jordanian firms between 2013 and 2015. The findings indicate that profitability is related positively and significantly to profitability from the previous year, leverage, organisational structure, size of the audit company and disclosure. Nonetheless, the findings also suggest that profitability is not influenced by firm size, ownership ratio over 5%, liquidity, the proportion of non-Jordanian ownership, in addition to company age (Alduais et al., 2023; Alawaqleh & Almasria, 2021).

There are a number of measures to assess profitability, including ROA and ROE (e.g. Gharaibeh & Bani Khaled, 2020; Amponsah-Kwatiah & Asiamah, 2020; Alsharari & Alhmoud, 2019). In spite of this, several studies have used EPS with ROE and/or ROA to measure profitability (e.g.

Lim & Rokhim, 2021; Alarussi & Alhaderi, 2018). Lim and Rokhim (2021) investigated the effect of firm size, firm efficiency, liquidity, market power and firm growth on ROA, ROE and EPS.

Extensive empirical research conducted to investigate the factors of profitability in a number of countries, revealed that factors influencing profitability vary from country to country and from measure to measure (for example, ROA, ROE and EPS) for example, Habib et al. (2016) conclude a significant adverse relationship exists between total debt and profitability in Pakistan, a developing country, while Ma et al. (2020) discovered that debt does not significantly impact profitability in New Zealand. Justification for this contradiction is related to the cost of debt, which tends to be high in the developing world, in countries such as Jordan compared to the developed world (Almasria et al., 2021). Previous research has attempted to identify the financial measures associated with profitability by analysing different factors that have practical and hypothetical correlations with profitability, namely company size (Yazdanfar, 2013), company efficiency (Rehman et al., 2014), liquidity (Nguyen & Nguyen, 2020), market forces (Lim & Rokhim, 2021), company growth (Lee, 2014), ROA (Narwal & Pathneja, 2016), ROE (Almaqtari et al., 2019) and EPS (Pratiwi et al., 2020).

This research aims to investigate the principal financial values, using firm size, efficiency (assets turnover), market power (lender index), liquidity (current ratio) and growth (both sales and sustainable growth rate) as predictors. Profitability as a dependent variable is assessed by ROA, ROE and EPS.

1.1. Firm size

An increase in firm size provides opportunities for greater profitability (Orser et al., 2000; Alduais et al., 2022b). Yazdanfar (2013) discovered that there firm size has an impact on profitability, based on micro-firms operating within the industrial sector in Sweden. Amponsah-Kwattah and Asiamah (2020) verified that there is a positive association between firm size and ROA and ROE within listed manufacturing firms in Ghana, while Stierwald (2010) indicates that firm size has a positive impact on profitability based on non-manufacturing firms in the US and large firms in Australia. In contrast, a few papers emphasise that a negative relationship exists between firm size and profitability, because smaller firms often have a greater margin of risk, while investors seek higher profits. Goddard et al. (2006) has examined the determinants affecting profitability for manufacturing and service companies in Belgium, France, Italy and the UK and determined that size has a negative impact on profitability. Likewise, Al-Harbi (2019) concluded that firm size does not have any effect on profitability. Based on the above, this study suggests the following hypothesis:

H1: Firm size has a positive influence on profitability.

1.2. Firm efficiency

There is no fixed result in terms of the relationship between firm efficiency and profitability. Abdulla (2020) found that firm efficiency had a positive influence on profitability for 88 firms listed in Bahrain and Qatar during the period between 2007 and 2016. Similar results were obtained by Rehman et al. (2014), who ascertained a significant relationship existed between total assets turnover ratio and the net profit margin of 14 petrochemical companies in Saudi Arabia between 2008 and 2012. Warrad and Al Omari (2015) suggested that ROA was significantly influenced by firm efficiency in Jordanian industrial firms during the period 2008 and 2011. In contrast, Keramidou et al. (2013) established that the relationship between efficiency and profitability in 40 manufacturing firms in Greece covering the period between 1994 and 2007 was insignificant. This study suggests there is a positive relationship between company efficiency and profitability using assets turnover ratio to assess profitability. Hence, this study proposes the following hypothesis:

H2: Company efficiency has a positive influence on profitability.

1.3. Liquidity

Studies in the current literature propose that liquidity affects profitability in two directions; either negative or positive. For example, maintaining high liquidity without investment, with regard to high opportunity cost, may reduce profitability. Seissian et al. (2018) asserted that profitability has a negative impact on profitability, and that low liquidity may result in low profitability, while Nguyen and Nguyen (2020) concluded that liquidity has a positive impact on both ROA and ROE in their empirical study on 1,343 industrial firms in Vietnam during the period from 2014 to 2017. Similarly, Mohd Zaid et al. (2014) observed a positive connection between current ratio and profitability for construction companies in Malaysia. Likewise, Serrasqueiro and Nunes (2008) determined that profitability is positively correlated with liquidity. In the short term, maintaining liquidity may negatively influence profits; however, it may increase profits in the medium to long term (Nanda & Panda, 2018). Therefore, this relationship can be hypothesised as:

H3: Liquidity has positive influence on profitability.

1.4. Market forces

The degree to which competition plays a role in increasing profits has been extensively considered by researchers. Hamid (2017) assessed the influence of market forces on profitability using 130 commercial banks in several Asian countries (Indonesia, Malaysia, the Philippines, Singapore and Thailand) between 2001 and 2013. Empirical findings disclose that market forces have a positive impact on profitability. Tan (2017) adopted the Lerner Index to assess

the profitability of commercial banks in China between 2003 and 2013. Empirical results reveal a substantial association existed between the degree of competition and profitability. The Lerner Index equation can be formulated as follows:

$$L = \frac{(P - MC)}{P}$$

with *P* the market price determined by the company and *MC* the company’s marginal cost. Whilst the Lerner Index is a positive value, accessibility to perfect value (i.e., zero) is reliant upon profit-maximising behaviour (Spierdijk & Zaouras, 2016). As a result, the relationship between market forces and profitability can be expressed as follows:

H4: Market forces have a positive influence on profitability.

1.5. Company growth

There is a contradiction in the literature in investigating the association among growth and profitability, which might be positive or adverse. For instance, Dobson and Bill (1989) demonstrated that the relationship between company growth and profitability runs in both directions in the Leeds Engineering Sector. Geroski et al. (2003) analysed the data from 271 large, quoted UK firms from 1976 to 1982, revealing a positive, significant relationship existed between growth rates and profitability. Lee (2014) reports that company growth has a positive influence on profitability. AlGhusin (2015) evaluated profitability for 25 listed industrial companies in Jordan, using data between 1995 and 2005. The empirical results indicate growth has a positive effect on profitability. In contrast, the study conducted by Bhutta and Hasan (2013) discovered that an insignificant relationship existed between growth and profitability for 12 firms listed on the Karachi Stock Exchange between 2002 and 2006, while Roper (1999) in the context of firms in Ireland and Gschwandtner (2005) as regards American firms, also conclude that the association between growth and profitability is insignificant. This research proposes the subsequent hypothesis:

H5: Company growth has a positive influence on profitability.

2. Research methodology and empirical data

Data was obtained from the annual financial reports of service companies listed on the Amman Stock Exchange (<https://www.exchange.jo/>). This study has examined all of the companies (a total of 46 companies) listed from 2015 to 2020. Table 1 presents the measurement for variables in this empirical study.

To meet the objectives of this study, the Pooled Ordinary Least Regression model was adopted in relation to the reliability of the three models employed. Furthermore, the estimation of profitability was established using three distinct models as follows:

Model 1:

$$ROE = \alpha + \beta_1TS + \beta_2CE + \beta_3LQ + \beta_4MP + \beta_5SG + \beta_6LSGR + \epsilon;$$

Model 2:

$$ROA = \alpha + \beta_1FS + \beta_2CE + \beta_3LQ + \beta_4MP + \beta_5SG + \beta_6LSGR + \epsilon;$$

Model 3:

$$EPS = \alpha + \beta_1FS + \beta_2CE + \beta_3LQ + \beta_4MP + \beta_5SG + \beta_6LSGR + \epsilon,$$

where α and β_1 – β_6 represent the coefficients of predictors and ϵ represents the margin of error.

Table 1 illustrates the main variables with their measurement which have been developed based on reviewing the relevant literature.

Table 1. Measurements and sources for financial indicators

Type of Variable	Variable	Acronym	Definition and Measurement	Source
Dependent variables	Return on Assets ROA	ROE, ROA, EPS	Net Profit/ Total Assets	Narwal and Pathneja (2016)
	Return on Equity ROE	TS	Net Profit/ Total Equity	Almaqtari et al. (2019)
	Earnings Per Share (EPS)	CE	Company's net profit divided by the number of common shares	Pratiwi et al. (2020)
Independent variables	Firm size	LQ	Total sales	Yazdanfar (2013) Orser et al. (2000)
	Company efficiency	MP	Total asset turnover ratio	Rehman et al. (2014) Keramidou et al. (2013)
	Liquidity	SG SGR	Current ratio	Goddard et al. (2006) Nguyen and Nguyen (2020)
	Market forces		Lerner Index	Lim and Rokhim (2021) Tan (2017)
	Company growth		Sales growth & Sustainable growth rates	Lee (2014) Jang and Park (2011)

3. Results

Table 3 illustrates the descriptive data for the research variables. The total number of observations between 2015 and 2020 was 276. The mean of the ROE is 0.035, a negative minimum value, reflecting loss. Furthermore,

the mean of the ROA is 0.032, with a negative minimum value. The findings reveal that the mean of EPS is 0.076 and the minimum value is negative. With respect to the following, firm size is 7.743; company efficiency is 2.191; liquidity is 2.277; market forces is 0.401; sales growth is -2.190, whilst the mean of the sustainable growth rate is 1.790. Table 2 illustrates research descriptive statistics.

Table 2. Descriptive statistics

Variable	Mean	Minimum	Maximum	S.D.
ROE	0.035	-0.640	0.410	0.391
ROA	0.032	-0.673	0.391	0.412
EPS	0.076	-0.341	0.942	0.951
TS	7.743	6.234	9.213	0.653
CE	2.191	1.345	2.854	0.424
LQ	2.277	1.123	9.270	1.845
MP	0.401	0.149	0.630	0.181
SG	-2.189	-3.365	0.723	0.485
SGR	1.790	-0.801	-2.943	0.427

Note: $n = 276$.

Table 3 presents the correlations between the independent and dependent variables. ROE is correlated positively with both firm size and sustainable growth rate, while ROA is positively correlated with firm size, sustainable growth rate and liquidity. EPS is correlated positively with sustainable growth rate and negatively with market forces. The results indicate that market forces are correlated negatively with both firm size and company efficiency. Furthermore, sustainable growth rate is correlated positively with company efficiency. In addition, liquidity is correlated negatively with both company efficiency and sales growth. The highest correlation value is 0.431 between sustainable growth rate and ROE. Similarly, Lim and Rokhim (2021) determined a positive correlation between sustainable growth rate and ROE. Finally, the lowest correlation value between firm size and ROA is 0.294.

Regression analysis was utilised to examine the research hypotheses, with the regression model providing important information related to the R^2 and adjusted R^2

values. In Model 1, the R^2 value for ROE is 0.336, in Model 2, the R^2 value of ROA is 0.298 and in Model 3, the R^2 value for EPS is 0.225. In all three models, the adjusted R^2 values are perfectly close to the R^2 values. Table 4 demonstrates that the F -ratio values of all three models, specifically ROE, ROA and EPS, are significant ($P < 0.05$). The variance inflation factor (VIF) employed to assess multicollinearity reveals that no values outstripped the acceptable maximum level of 10. Homoskedasticity was assessed using Breusch-Pagan/White. Table 4 reveals there is no evidence to support heteroskedasticity. All models were estimated using pooled least squares, with a fixed-effect estimator to obtain further explanation. Fixed-effect t-statistics are employed for isolated company characteristics which are not measurable or observable.

The first model in Table 4 tests the association between six independent variables and ROE. The findings reveal that firm size has a positive association with ROE, with a coefficient value of 0.157, supported at a 0.05 significance level. Furthermore, sustainable growth rate has a positive association with ROE, with a coefficient value of 0.870, supported at a 0.01 significance level. This signifies that an increase of 0.01 in sustainable growth would result in an increase in ROE by 0.01. Likewise, the empirical findings indicate that liquidity has a positive effect on ROE, with a coefficient value of 0.059, supported at a 0.01 significance level. Velnampy and Anojan (2014) established a positive association between liquidity and ROE for service firms (telecommunication) in Sri Lanka. This implies that a country may differ from others with regards to service company characteristics. It also infers that Jordanian service companies should ensure they have more substantial available assets and a lower level of current obligations in order to induce ROE in Jordan. It has been established that firm size and market forces have a positive relationship, but do not significantly impact ROE. Furthermore, company efficiency and sales growth were ascertained to have an insignificant relationship with ROE and that the direction of the relationship tends to be negative.

The ROA model in Table 4 reveals that firm size (with a coefficient value of 0.192), liquidity (with a coefficient value of 0.087), market forces (with a coefficient value

Table 3. Correlation matrix

Variable	ROE	ROA	EPS	TS	CE	LQ	MP	SG	SGR
ROE	1.00								
ROA	0.646**	1.00							
EPS	0.532**	0.442**	1.00						
TS	0.380**	0.294**	0.235**	1.00					
CE	0.0478	-0.0958	0.040	0.182	1.00				
LQ	0.154	0.346**	-0.0467	0.411	-0.306	1.00			
MP	-0.115	0.157	-0.291**	-0.382**	-0.331**	-0.091	1.00		
SG	0.0865	-0.0631	0.117	-0.163	0.245	-0.400	0.042	1.00	
SGR	0.631**	0.451**	0.687**	0.255	0.461**	-0.139	-0.201	0.242	1.00

Note: **Significant level is 0.05 or less.

Table 4. Regression analysis

Vs	Expected Sign	Model 1: ROE		Model 2: ROA		Model 3: EPS	
		Coefficients	t- value	Coefficients	t- value	Coefficients	t- value
TS	+	0.157	3.056**	0.192	3.227***	0.527	3.101**
CE	+	-0.210	-1.832	-0.039	-0.298	-0.368	-1.026
LQ	+	0.059	3.974***	0.087	4.745***	0.048	3.014
MP	+	0.428	1.862	1.642	5.891***	-1.652	-2.121**
SG	+	-0.006	-0.032	-0.032	-0.583	-0.219	-1.214
SGR	+	0.870	11.257***	0.512	6.847***	2.001	8.135***
Con			-0.695		-3.986***		3.484***
F- Ratio		F = 38.68 (P < 0.05)		F = 33.03 (P < 0.05)		F = 25.516 (P < 0.05)	
R ²		R ² = 0.436		R ² = 0.398		R ² = 0.325	
Adjusted R ²		Adjusted R ² = 0.431		Adjusted R ² = 0.394		Adjusted R ² = 0.321	
Sample (n)		n = 276		n = 276		n = 276	
Main VIF		1.032		1.032		1.032	
Heteroskedasticity test							
Breusch–Pagan		$\chi^2 = 0.724$		$\chi^2 = 0.112$		$\chi^2 = 0.008$	
White		$\chi^2 = 30.85$		$\chi^2 = 26.74$		$\chi^2 = 19.41$	

Notes: ** significant is $p \leq 0.05$ and *** significant is $p \leq 0.01$.

of 1.642), and sustainable growth rate (with a coefficient value of 0.512), all have a substantial positive effect on ROA. These findings are supported by a 0.01 significance level. The results of the second model are in line with the first, in which company size, sustainable growth rate, along with liquidity all impact positively on profitability. However, the results indicate that both company efficiency and sales growth have a negative, albeit insignificant relationship with ROA.

The EPS model presented in Table 4 illustrates that firm size, with a coefficient value of 0.527 has a positive, significant impact on EPS, as does liquidity, with a positive, significant effect and a coefficient value of 0.048. Market forces tend to have a negative, significant impact on EPS, with a coefficient value of -1.652. However, sustainable growth rate has a positive, significant impact on EPS, with a coefficient value of 2.001. The findings indicate that company efficiency and sales growth have no significant impact on EPS and that the path of the relationship is negative.

4. Discussion of the findings

4.1. Firm size

The research findings reveal that firm size has a positive and significant effect on profitability, with ROE (t-value is 3.056), ROA (t-value is 3.227) and EPS (t-value is 3.101). As a result, firm size has a direct, positive and significant effect on profitability, and thus the first hypothesis is fully accepted. Serrasqueiro and Nunes (2008) argue that increased total sales lead to an increase in profitability. It appears that increasing the size of a company is very relevant in terms of increasing profitability, since it provides heightened opportunities for diversification of products, services and hence financial returns/facilities. The results

imply that Jordanian service companies have avoided making negative decisions. Literature has discovered a positive, significant association between firm size and profitability, such as Gharaibeh and Bani Khaled (2020), Getahun (2016), and Stierwald (2010).

4.2. Company efficiency

The statistics relating to Hypothesis 2 reveal that company efficiency (asset turnover ratio) does not impact significantly profitability in the three models; ROE, ROA and EPS, with t-values of -1.832, -0.298 and -1.026, respectively. As a result, company efficiency has a positive, significant impact on profitability. Based on this argument, Hypothesis 2 is completely rejected. This result is in accordance with Warrad and Al Omari (2015), who also established that the asset turnover ratio does not have a significant association with profitability in Jordanian service companies. Other studies (e.g. Dhillon & Vachhrajani, 2012) have also found that there is no significant relationship between company efficiency and profitability.

4.3. Liquidity

Regression findings reveal that liquidity (current ratio) has a positive and significant impact on ROE, ROA and EPS, with t-values of 3.974, 4.745 and 3.014 respectively. The empirical findings reveal liquidity has a positive influence on profitability, and as a result, Hypothesis 3 is fully accepted. This suggests that Jordanian service companies with higher liquidity are more likely to be profitable, because they have the ability to access sufficient funds when faced by financial challenges. Therefore, the empirical findings reflect the effectiveness of maintaining a surplus for existing assets and reducing existing obligations in order to enhance.

ROE, ROA and EPS. These findings are in line with Nguyen and Nguyen (2020), who established a positive and significant relationship between liquidity and profitability for industrial firms in Vietnam and Mohd Zaid et al. (2014), who verified a positive and significant relationship exists between liquidity and profitability for construction companies in Malaysia.

4.4. Market forces

The regression statistics demonstrate that market forces (Lerner Index) have a positive and significant impact on ROA (t-value equals 5.891) and a negative impact on EPS (t-value equals -2.121). However, market forces have no significant impact on ROE (t-value equals 1.862). Thus, Hypothesis 4 is completely rejected. These findings imply that a low level of profitability mirrors strong competition among Jordanian service companies; this is in accordance with the findings of Lim and Rokhim (2021) who found that market forces have no significant impact on profitability in Indonesian pharmaceutical companies. Similarly, Alhassan et al. (2016) determined that market forces have no significant impact on bank profitability in Ghana.

4.5. Company efficiency

The statistics relating to hypothesis reveal that company efficiency (asset turnover ratio) does not impact significantly on profitability in relation to the three models; ROE, ROA and EPS, with t-values of -1.832, -0.298 and -1.026, respectively. Consequently, company efficiency has a positive, significant impact on profitability. Based on this argument, Hypothesis 2 is completely rejected. This result is in accordance with Warrad and Al Omari (2015), who also established that the asset turnover ratio does not have a significant association with profitability in Jordanian service companies. Previous studies, e.g. Dhillon and Vachhrajani (2012) have also established that there is no significant relationship between company efficiency and profitability.

Conclusions and recommendations

This paper examines the determinants influencing the profitability of service firms in Jordan. Factors include firm size, company efficiency, liquidity, market forces, and firm growth. Data was collected from the 46 public service firms listed covering the period from 2015 to 2020, based on annual company reports and regression was used to test the study hypotheses. The findings reveal a positive, significant impact of firm size on profitability, as measured by ROE, ROA and EPS. Liquidity also has a positive, substantial effect on profitability for ROE and ROA, but not for EPS. The paper also determined that while sales growth has no considerable influence on profitability, sustainable growth rate has a positive, significant effect. Market forces have a positive, meaningful effect on ROA, a negative impact on EPS, but no substantial influence on ROE (Almasria, 2022a).

It is evident that neither sustainable growth nor market forces are able to improve profitability concerning the Jordanian service sector. Thus, the Jordanian service sector should introduce policies to enhance the effectiveness of strategies used to enhance sustainable growth and market forces, in order to increase profitability.

There are a number of limitations to this research, which can be seen as opportunities for future study. The study was conducted on 46 listed firms from 2015 to 2020. One of the limitations is that, due to time considerations, this study has considered five factors with six financial indicators influencing profitability; therefore, future research should take into account other factors, for instance leverage and working capital (Abdulnafea et al., 2022). However, this research is beneficial for both managers and investors, as it provides empirical evidence for factors affecting profitability for Jordanian service companies. If the results of this study were put into practice, it would result in a better response to factors affecting profitability and more accurate decision-making. Finally, a comparison of the empirical findings from this research with the results reported in similar developing countries would contribute to increased knowledge.

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