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ARTICLES

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Review

Impact of compensation incentives on corporate cash holdings: Evidence from non-financial listed companies at Karachi Stock Exchange

Khalil-Ur-Rehman Wahla[1*], Syed Zulfiqar Ali Shah[1] and Iftikhar Mehboob[2]

[1]Faculty of Management Sciences, International Islamic University, Islamabad, Pakistan.
[2]Faculty of Management Sciences, National University of Modern Languages, Islamabad, Pakistan.

This study examined the relationships between corporate cash holdings (corporate liquidity policy) and compensation incentives, offered by Karachi Stock Exchange listed non-financial companies, to their CEOs, Directors and Executives, keeping in view the managerial shareholding of the firm, levered capital structure and firm size. The regression results suggested that the CEO Compensation and Executive Compensation have a significant positive relationship with Corporate Cash Holdings. Size of the firm - a control variable - also has a significant positive relationship with Corporate Cash Holdings. We however, found that Leverage and Managerial Shareholdings have a significant negative relationship with the Corporate Cash Holdings. It is concluded that management of the companies do have influence on Corporate Cash Holdings positively, but at the expense of debt holders, as we have observed a significant negative relationship between leverage and corporate cash holdings viz-a-viz corporate liquidity policy. Another important conclusion drawn from the observed results is that managers having share in the ownership of the companies tend to influence the corporate liquidity policy of the companies.

Key words: Karachi Stock Exchange, compensation incentives, corporate liquidity policy.

INTRODUCTION

Background

It is generally an acceptable phenomenon that managers should make those decisions related to financing and investment due to which the market value of capital is maximized. In practical world, managers who are risk averse and do not believe in diversification may forgo net present value with more risk and prefer those choices in which less risk is involved and in some cases the net present value is often negative. The compensation based on equity helps in overcoming the risk aversion of managers and so they do more alignment of their interests with interests of shareholders, but due to this type of compensation the conflicts among stockholder

and bondholder may get aggravated. Compensation based on equity and particularly stock options can aggravate incentives which shift the risk, motivating managers for adopting risky policies due to which the market value of firm's capital can be increased. Researchers have been finding from longer period of time that how possible is the bad incentive impacts of compensation based on equity on the choices of company policy and how bondholders try mitigating or protecting themselves from the feasible negative results of these choices. The liquidity policy of company would consider to be the perfect although more ignored policy in which exploring the relationship between incentives related to compensation and conflicts among stockholder and bondholders (Francis et al., 2015).

Most of the companies hold assets in the form of cash. At one side, since the decision of holding and deploying cash to great extent at the choice of management with less external scrutiny, the risk averse cash policy and managers with less diversification may be different from the preference of shareholders. In efficient structure of compensation there must be alignment between managers' interests and interest of shareholders. This helps in limiting the investment in the form of cash to funds which are required for supporting operations (Tong, 2010).

Literature on finance found that maintaining an optimal level of liquid assets is always a challenge for firm managers and it remained on the discretion of managers to hold what level of cash assets to maintain. Keeping in view the agency perspective, Quigley (2008) said that the decision to hold assets in the form of cash (large amount of cash or less amount of cash) rests on the discretion of the management of the firms. Cash is mainly required for running day to day business of the firms and they prefer more cash on less to avoid liquidity risk, that is, a risk arising from non fulfillment of liabilities in time. Liu and Mauer (2011) recently found links between compensation incentives and stockholder-bondholder conflicts by exploring the corporate liquidity policy. Managers having no equity compensation participation would be risk averse and under diversified (Liu and Mauer, 2011). However, managers having equity based compensations can adopt risky policy choices to increase the market value of equity at the expense of bond holders (Quigley, 2008).

Problem statement

The primary objective of the firm managers is to maximize the shareholders' wealth, whereas in practice, risk averse managers usually avoid those projects having risky positive net present value. For the purpose to overcome the issue of risk aversion by the firm managers, equity based compensation plans are to be used (Tong, 2010). In this way managers' interest are got in line with the interests of the shareholders as managers

also participate in risk taking. However, risk taking by managers, adds value to the shareholders wealth at the cost of debt holders' interests and this results in agency problems between shareholders and bond holders' interests (Liu and Mauer, 2011). In a lot of documented efforts, it was found that a significant relationship exists between equity based compensation incentives and corporate policy choices and its subsequent effects on the interests of the bond holders. Research studies on corporate finance are continuously exploring the determinants of compensation incentives of managers and its impact on corporate policy choices. Our concern in this study is mainly to focus on corporate liquidity policy.

Objective of research

The objective of this study is to explore the significant relationships between Compensation Incentives and Cash Holdings of the firms, keeping in view the stockholder-bondholder conflicts and ownership of the firms held by managers, in Pakistani perspective.

Significance of research

Our study makes different contributions in the literature. First of all, the study is beneficial for all the non-financial companies listed in KSE. This would help them in knowing how compensation incentives can have an impact on corporate cash holdings. The focus of the study is on "liquidity policy" due to which a new view will be provided that relationships between stakeholders of firm can get affected. The analysis will help to know how the CEO compensation incentives can affect the level as well as value of cash holdings.

LITERATURE REVIEW

Yu et al. (2013) suggested that conflicts arise among shareholders and bondholders, when managers make those decisions that best fit the stockholders' interests at the expense of bondholders' interests. Four main sources of conflict between bondholders and stockholders identified by Yu et al. (2013) are dividend payouts, claim dilution, asset substitution and underinvestment. Conflict of interest also arises among managers and shareholders. They found that there are three conflicts which arise among managers and claimholders of the firm. Firstly managers opt to have a choice of effort. Secondly, managers are more concerned about the total risk faced by the firm, as it is a fact that investment in firm specific human capital is characterized by a significant portion of the managers wealth; whereas the shareholders diversify away most of the risks they face. Consequently, a

manager makes those decisions which help out the firms to diversify their risks. Thirdly, conflicts arise among managers and shareholders, due to difference of perspectives.

Chief executive officer's compensation incentives

Historically, financial literature suggested that elementary transformations in the culture of corporations occurred when employees participated in firm ownership, holding the value of the firm constant as argued by O' Dowd (2008). He further elaborated that firms having growth in sales of about 10% raise the remunerations of its CEOs by 2 to 3%. They also found that the relationship between size of the firm and pay of the CEO is causal. CEOs are found to increase their remuneration as the firm's size increased, no matter if the market value of the firm is falling.

In exploring the links between compensation of CEOs and firms' specific risks, it was found that pay performance sensitivity decreases firm specific risks (Jin, 2002). It also suggested increase in the incentives of managers, when a firm's market risk level increases. Jin (2002) documented that the higher the productivity of efforts the higher the pay performance sensitivity. In a comparative study, keeping in view the impact of CEOs' compensation incentives on firms' performance, Kato and Kubo (2006) found significant relationships between CEOs' compensation and the performance of the firms in Japan. He suggested that the estimation of elasticity in the CEOs' cash compensation with regard to shareholder value does appear, that the link of CEOs' pay to stock market performance is weaker in Japan as compared to United States and the bonus system of Japan makes CEOs' compensation more sensitive to firms' performance.

Shah et al (2009) explored the determinants of CEOs' compensation in Pakistani perspective and found that performance variables are insignificant in explaining CEOs' compensation; however, size affects CEOs' compensation positively. Corporate governance represented by various proxies also has significant impact on compensation of CEOs.

Corporate cash holdings

Various studies have been conducted to determine the optimum level of corporate cash holdings and factors affecting cash holding of the firms. Francis et al. (2015) argued that firms need liquidity to defray their current expenses. Firms have to raise funds in capital markets or to liquidate existing assets. But, there are imperfections in capital markets and transaction costs are also involved. These can be avoided by holding sufficient amount of cash assets. One could expect firms to increase their cash holdings as outside funds are expensive and the access to capital markets is difficult.

In recent decades, Di and Hanke (2013) found that firms having strong growth opportunities, riskier activities, and small size tend to hold comparatively more cash. On the other hand, firms having maximum access to the capital market, large sized with good credit ratings hold less cash. He suggested that the companies choose to hold more liquid assets with an objective to invest in days when cash flows will be low, relative to long term investments or due to the reason that outside funds are relatively expensive. On the other hand, Isshaq et al. (2009) argued that an additional unit of cash holdings does not have any statistically significant impact on share prices, return of additional cash to shareholder or on investing it in those projects which look financially viable and preferred to storing it on the balance sheet.

Islam (2012) suggested that firms hold cash due to certain reasons, most important among which is to fulfill immediate financial obligations. In his study in Bangladeshi context, Tobin's Q, net working capital and cash flows volatility were found insignificant in determining cash holdings of the manufacturing firms. However, assets (current asset, intangible asset, and net cash), debt (short term debt, total debt), operating income, size, leverage ratio and tangibility ratio were found to be significantly affecting cash holding of the firms.

Likewise, Bigelli and Sánchez-Vidal (2012) in search of determinants of corporate cash holdings found that those firms characterized by smaller size, riskier cash flows and lower effective text rates hold significantly higher amount of cash reserves. Moreover, firms with higher financing deficits hold significantly lower amounts of cash.

Links between compensation incentives and corporate cash holdings

The possibility of any link between compensation incentives and corporate cash holding is still ambiguous as various viewpoints are found in literature. A prominent study found on corporate cash holdings and corporate governance is that of Ozkan and Ozkan (2004), where he found that managerial ownership plays an important role in determining corporate cash holdings in UK firms; however, this relationship was found to be non-monotonic. Other corporate governance variables such as board composition and the presence of ultimate controllers are found not to be significant in explaining corporate cash holdings. An important finding by Ozkan and Ozkan (2004) was that higher cash holdings are associated with lower levels of bank debt and leverage. In continuation, Dittmara and Mahrt-Smith (2007) also explored the relationship between corporate governance and the value of cash holdings. They found that the value of a dollar of cash is substantially less, if a firm has poor corporate governance. Moreover, poorly governed firms waste access cash resources and thus destroy firms'

Table 1. Descriptive statistics.

	CHOLD	CECOM	DRCOM	EXCOM	MHOLD	SZ	LEV
Mean	18.05940	14.14550	12.56322	16.06539	0.236645	22.27816	0.612775
Maximum	23.50880	21.31110	22.09520	23.70230	2.060300	26.29420	0.992500
Minimum	10.81980	0.000000	0.000000	0.000000	0.000000	18.59780	0.005900
Std. Dev.	2.378510	4.732399	6.175887	4.952968	0.281626	1.383934	0.208949
Observations	420	420	420	420	420	420	420

value (Al-Amarneh, 2015). He suggested that the cash policy may matter very little whether a firm holds excess cash-if it is well governed.

Contrary to the above, Acharya et al. (2007), in their seminal work, found that cash holdings play an important role in the optimization of firms' financial policies and there is an important hedging dimension to standard financial policies such as cash and debt in the presence of financing frictions. Harford et al. (2008), however, found that firms' cash position and their governance affect the future profitability. In his findings he suggested that low insider ownership is negatively related to firms' value and the presence of excess cash does not exacerbate the relation.

To highlight the risk preferences of CEOs in a firm, Quigley (2008) suggested that CEOs' risk-preferences affect leverage and cash-holding policies and CEOs' risk-preference, arising out of his personal portfolio of stocks and options in the firm, influences the firm's cash holding policies in a significant manner. Liu and Mauer (2011) argued that those firms which promote risk-taking by CEOs tend to hold more cash keeping all else constant. He further confirmed that firms with low cash holdings tend to be large, have high working capital, and have larger acquisition activity. His results are found consistent with the costly contracting hypothesis, which states that bondholders expect higher risk-taking in those firms which have high Vega, thus involved higher liquidity (McCormack, 2008). They stated that benefits of cash to equity holders of financially constrained high Vega firms to compensate for the benefit that greater liquidity provides to the bond holders.

Data and descriptive statistics

Annual Reports of 183 non-financial companies listed at KSE for the year 2009 to 2011 were analyzed and data on the observing variables were collected. Few companies are excluded from the sample due to missing information against some variables. Companies which have negative equity are also excluded from the sample as eliminated by Faulkender and Wang (2006) and Liu and Mauer (2011). The finalized sample consists of 140 companies x 03 years. Descriptive statistics of the variables used in the analysis are reported in Table 1.

Corporate Cash Holding (CHOLD): Data regarding Corporate Cash Holdings, the dependent variable is taken from the balance sheets of the companies. Corporate Cash Holdings are measured as a ratio of cash to net assets, where net assets comprised total assets minus cash. Opler et al. (1999) and Liu and Mauer (2011) measured corporate cash holdings as a sum of cash plus marketable securities. But we considered only cash to measure the corporate cash holdings viz-a-viz corporate liquidity policy as cash is most liquid asset (not need further conversion).

Compensation Incentives: We followed Liu and Mauer (2011), but not remained limited to them, as we employed CEO Compensation (CECOM) as well as Directors Compensation (DRCOM) and Executive Compensation (EXCOM) in our study also. The compensation package of CEOs, Directors and Executives of the Pakistani listed non-financial companies includes managerial remuneration, retirement benefits, utilities, medical expenses and leave encashment. Data regarding Compensation of CEOs, Directors and Executives are provided in the notes to the financial accounts of the companies, as it is mandatory to disclose under the Code of Corporate Governance in Pakistan. For the purpose of analysis, we took log of all these variables i.e. CEO, Director and Executive Compensation.

Leverage, Managerial Shareholdings and Firm size are used as control variables. Leverage (LEV) is measured as sum of long term and short term debt divided by the book value of assets. Data regarding leverage are also collected from annual financial statements. Managerial Shareholding (MHOLD) is worked out as percentage shares held by managers, CEOs etc. Data regarding managerial shareholding are collected from the pattern of shareholdings annexed with the annual reports of the companies. As far as firm size (SZ) is concerned, it is calculated with the same methodology used by Bates et al. (2009) and Liu and Mauer (2011). It is measured by taking logarithm of net assets of the companies. Descriptive Statistics of the variables are presented in Table 1.

Pearson correlation

The Pearson Correlation test is carried out to see how

Table 2. Pearson correlation results.

	CHOLD	CECOM	DRCOM	EXCOM	MHOLD	SZ	LEV
CHOLD	1.000000						
CECOM	0.165333	1.000000					
DRCOM	0.048845	0.260884	1.000000				
EXCOM	0.301754	0.130718	-0.006932	1.000000			
MHOLD	-0.404544	-0.165985	0.024021	-0.273977	1.000000		
SZ	0.642469	0.052129	0.061665	0.333057	-0.279501	1.000000	
LEV	-0.285778	-0.118500	-0.037736	-0.127451	0.113628	-0.030247	1.000000

much correlation existed among the variables. Results of Pearson Correlation are given in Table 2.

The correlation test conducted on our data showed that some independent variables have a positive correlation with the dependent variable, that is, Corporate Cash holdings and some have a negative correlation with it. CEO compensation (CECOM) has a low positive correlation with corporate cash holdings (CHOLD). Same is the case with Director Compensation (DRCOM); its value is 0.04 and age is 0.029. Executive Compensation (EXCOM), however, has a slightly higher correlation with corporate cash holdings. Its value is 0.30. The highest positive correlation is found between size and corporate cash holding as evidenced from its value, 0.64. A negative correlation is found between managerial shares holding (MHOLD); its value is -0.40. Leverage is also found to be negatively correlated with corporate cash holdings (CHOLD); the value of correlation is -0.28.

Some independent variables are also found correlated with each other. Size and executive compensations are found to be positively correlated as the correlation value is 0.33. Director compensation and CEO compensation are also found positively correlated as evidenced from the value, 0.26. Executive compensation and managerial shareholding are negatively correlated; the value of their correlation is -0.27. The correlation value of firms' size and managerial shareholding is also -0.27.

The correlation analysis evidenced that there are inter-correlations among the explanatory variables like Size and Executive Compensation (0.333), CEO Compensation and Director Compensation (0.26). This shows the existence of multi-collinearity issues among the independent variables. When we run a multiple regression model we assume that there is no perfect linear relationship between the independent variables. This can also be stated as the absence of perfect multi-collinearity. If it exists in data, it leads to the fact that the regression model cannot give estimates for the population parameters. We first employed Variance Inflation Factor (VIF) to check the severity of multi-collinearity among the independent variables. For two variables it can be calculated by the following formula:

$$VIF = \frac{1}{1 - R_i^2}$$ …………….…..……………Eq. (i)

Here R_i^2 is the coefficient of determination of the regression equation that runs between two certain variables. If the value of VIF is below 4 or 5, we can say that the severity of multi-collinearity is ignorable. We applied it on our data as it has been observed that the VIF value of size of the firm and executive compensation is 0.8912 and the VIF value of CEO compensation and Director Compensation is 2.108. As these values are less than 4, we are sure that there is no issue of multi-collinearity among these variables.

Underlying methodology

The data consist of both cross sectional and time series data, therefore yearly panels of the data have been developed. We estimated the following multiple regression model.

$CHOLD_{it} = \alpha_{it} + \beta_1 CECOM_{it} + \beta_2 DRCOM_{it} + \beta_3 EXCOM_{it} + \beta_4 LEV_{it} + \beta_5 MHOLD_{it} + \beta_6 SZ_{it} + \varepsilon_i$ …………….……Eq. (ii)

In this equation:

CHOLD	=	Corporate Cash Holdings
CEOCOM	=	CEOs Compensation
DRCOM	=	Directors Compensation
EXCOM	=	Executive Compensation
LEV	=	Leverage
MHOLD	=	Managerial Shareholdings
SZ	=	Firm Size

Results

The results of regression equation (ii) carried out on panel data are reported in Table 3 and discussed in this section. The probability (F-Statistic) of the model is 0.00 which shows that the model is highly significant. Value of R square is 0.53, which shows that the dependent variable is 53% explained by these independent variables. The regression model is run in e-views with the assumption of White cross-section standard errors and covariance (d.f. corrected). It allows general contemporaneous correlation between the firm residuals. The

Table 3. Regression results.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Dependent Variable: CHOLD				
Method: Panel Least Squares				
Sample: 2009 2011				
Cross-sections included: 140				
Total panel (balanced) observations: 420				
White cross-section standard errors & covariance (d.f. corrected)				
CECOM	0.037536	0.008797	4.266839	0.0000
DRCOM	-0.003743	0.001973	-1.896828	0.0585
EXCOM	0.008135	0.007274	1.118351	0.2641
LEV	-2.675364	0.238869	-11.20013	0.0000
MHOLD	-1.699251	0.171600	-9.902392	0.0000
SZ	0.979959	0.004601	212.9897	0.0000
C	-2.345401	0.272149	-8.618076	0.0000
R-squared	0.531872	Mean dependent var		18.05940
Adjusted R-squared	0.525071	S.D. dependent var		2.378510
F-statistic	78.20633	Prob(F-statistic)		0.000000

word "cross-section" is employed to mention that covariance is allowed across cross-sections.

The regression results as presented in the annexed Table 3 showing that CEO compensation is highly significant in explaining the corporate cash holdings of the KSE listed companies. The value of its t-Statistic is 4.26 with a P value of 0.00. Director compensation is significantly negative in explaining the corporate cash holdings; however, its relationship is slightly weak. The value of its t-Statistic is -1.89 at a 5.85% confidence level. Executive compensation had insignificant relationship with corporate cash holdings. T-statistic is 1.11 at a P-value of 0.26.

Leverage has negatively and significant relationship with corporate cash holdings; the value of its t-statistic is -11.20 at a P-value of 0.00. This showed that as the leverage of the firms increased it affected the corporate liquidity policy of the firms in a negative manner. The managerial shareholding has also highly negatively and significant relationship with corporate cash holdings. The value of its t-statistic is -9.90 and the P-value is 0.00.

However, size of the firms has highly positively significant relationship with corporate cash holdings as evidenced from the value of t-statistic, 212.98. This shows that the large firms hold cash in bulk.

We further employed an Auxiliary Regression between the squared residuals of the regression results (dependent variable) and all the independent variables of the regression model as mentioned in equation (ii). This regression is run to check the existence of Heteroskedasticity among the variables. The auxiliary regression equation is estimated as under:

$$RES^{\wedge 2} = \alpha_{it} + \beta_1 CECOM_{it} + \beta_2 DRCOM_{it} + \beta_3 EXCOM_{it} + \beta_4 LEV_{it} + \beta_5 MHO$$

$$LD_{it} + \beta_6 SZ_{it} + \varepsilon_i \ldots\ldots Eq. \text{ (iii)}$$

The results of auxiliary regression reported in Table 4 showed that no independent variable has a significant relationship with the squared residuals of the regression model. This ensured the non-existence of heteroskedasticity among the variables.

Conclusion

This study is conducted with an objective to explore the relationships among corporate cash holdings (corporate liquidity policy) and compensation incentives offered by the KSE listed non-financial companies to their CEOs, Directors and Executives, keeping in view the managerial shareholding of the firm, leverage and the size of the firms represented by it net assets. We employed data of non-financial sectors of Karachi Stock Exchange for the periods of 2009 to 2010. We have fixed the issues of multi-collinearity and heteroskedasticity, if any. The results suggested that the CEO Compensation and Executive Compensation has a significant positive relationship with the corporate cash holdings. The size of the firm, which is employed as a control variable, also has a significant positive relationship with corporate cash holdings. But with these results we also found that leverage and managerial shareholdings have a significant negative relationship with the corporate cash holdings. It is concluded that the management of the companies does have influence on corporate cash holdings positively, but at the expense of debt holders, as we have observed a negatively significant relationship between leverage and corporate cash holdings viz-a-viz corporate liquidity policy. Another important conclusion drawn from

Table 4. Auxiliary regression results.

Dependent Variable: RES^2				
Method: Panel Least Squares				
Sample: 2009 2011				
Cross-sections included: 140				
Total panel (balanced) observations: 420				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
CECOM	0.076044	0.055497	1.370248	0.1714
DRCOM	-0.011005	0.041743	-0.263634	0.7922
EXCOM	0.034860	0.054590	0.638588	0.5234
LEV	1.552650	1.203240	1.290391	0.1976
MHOLD	1.081830	0.947810	1.141399	0.2544
SZ	0.275223	0.194511	1.414949	0.1578
C	-6.194319	4.366128	-1.418721	0.1567
R-squared	0.015948	Mean dependent var		2.642037
Adjusted R-squared	0.001652	S.D. dependent var		5.065805
F-statistic	1.115526	Prob (F-statistic)		0.352292

the observed results is that managerial shareholdings are influencing the corporate cash holdings in a significantly negative manner. Managers having shared in the ownership of the companies tend to influence the corporate liquidity policy of the companies.

These results are consistent with today's theory on the relationships between compensation incentives of the firms' management and corporate liquidity policy. However, further research in Pakistani perspective is essentially required to make clear understanding of these relationships, keeping in view the other determinants of corporate liquidity policy, that is, firms' age, industry factors, access to capital markets, growth opportunities and riskier cash flows.

Conflict of Interests

The authors have not declared any conflict of interests

REFERENCES

Acharya VV, Almeida H, Campello M (2007). Is cash negative debt: A hedging perspective on corporate financial policies. J. Financial Intermediation, 16:515–554.

Al-Amarneh A (2015). Corporate Cash Holdings and Financial Crisis: Evidence from Jordan. Int. Bus. Res. 8(5).

Bates TW, Kahle K, Stulz R (2009). Why Do U.S. Firms Hold so Much More Cash than They. J. Financ. 64:1985-2021.

Bigelli M, Sánchez-Vidal J (2012). Cash holdings in private firms. J. Banking Finance, 36:26-35.

Di H, Hanke S (2013). The impact of double taxation on small firms' cash holdings. Appl. Financ. Econ. 23(16):1349-1359.

Dittmara A, Mahrt-Smith J (2007). Corporate governance and the value of cash holdings. J. Financial Econ, 83: 599-663.

Faulkender M, Wang R (2006). Corporate Financial Policy and the Value of Cash. J. Financ 61:1957-1990.

Francis B, Gupta A, Hasan I (2015). Impact of compensation structure and managerial incentives on bank risk taking. Eur. J. Oper. Res. 242(2):651-676.

Harford J, Mansi SA, Maxwell WF (2008). Corporate governance and firm cash holdings in the US. J. Financial Econ. 87:535-555.

Islam S (2012). Manufacturing Firms' Cash Holding Determinants: Evidence from Bangladesh. Int. J. Bus. Manage. 7(6).

Isshaq Z, Bokpin GA, Onumah JM (2009). Corporate governance, ownership structure, cash holdings, and firm value on the Ghana Stock Exchange. J. Risk Finance, 10(5):488-499.

Jin L (2002). CEO compensation, diversification, and incentives. J. Financial Econ. 66:29-63.

Kato T, Kubo K (2006). CEO compensation and firm performance in Japan: Evidence from new panel data on individual CEO pay. J. Jpn. Int. Econ. 20:1-19.

Liu Y, Mauer D (2011). Corporate cash holdings and CEO compensation incentives. J. Financial Econ. 102(1):183-198.

McCormack J (2008). Selecting the "Best" Government-Sponsored Defined Benefit Annuity: An Example Using the Teacher Retirement System of Texas: New research documents the impact of multiple factors on cash flows from annuities in defined benefit plans. Compensation Benefits Rev. 40(1):28-34.

O' Dowd A (2008). Cash incentives might help to change behavior, MPs told. BMJ, 336(7652):1036-1036.

Opler T, Pinkowitz L, Stulz RH, Williamson R (1999). The determinants and implications of corporate cash holdings. J. Financ. Econ. 52:3-46.

Ozkan A, Ozkan N (2004). Corporate cash holdings: An empirical investigation of UK companies. J. Banking Finance, 28: 2103–2134.

Quigley J (2008). Compensation and Incentives in the Mortgage Business. Economists' Voice 5(6).

Shah SZA, Javed T, Abbas M (2009). Determinants of CEO Compensation, Empirical Evidence from Pakistani Listed Companies. Int. Res. J. Financ. Econ. Issue 32.

Tong Z (2010). CEO Risk Incentives and Corporate Cash Holdings. J. Bus. Finance Account. 37: 1248-1280.

Yu H, Sopranzetti B, Lee C (2013). The impact of banking relationships, managerial incentives, and board monitoring on corporate cash holdings: an emerging market perspective. Rev. Quantit. Financ. Account. 44(2):353-378.

Full Length Research Paper

Facebook from socializing to advertising: An empirical study on the effect of Facebook as an advertising tool in Egypt

Azer Jaylan

Cardiff Metropolitan University, United Kingdom.

This research aims to investigate if Facebook has a significant effect as a tool of advertising in Egypt and to present to marketers practical trends to use in order to close this gap of the missing formula. Quantitative approach based on an online survey of 400 Facebook users from Cairo and Alexandria governorates was used in this work. To achieve the research objectives, descriptive analysis was used to test the data, factor analysis was used to reduce the variables, and regression analysis was used to test the proposed hypotheses. The results demonstrate that Facebook has a consumption stimulation effect. The findings are limited to only two governorates in Egypt. The research findings give ideas about how firms can utilize Facebook communities to enhance their advertising campaigns using the consumption stimulation effect. Based on the reviewed literature approached Facebook, no other research managed to find the consumption stimulation as an effect of Facebook.

INTRODUCTION

The Internet is becoming very important to a lot of people nowadays. Rao (1997) ascertained the impossibility of ignoring the internet and it is true as it recently grew to include advertising where consumers can have better control over the amount of advertising they want to get exposed to (Korgaonkar and Wolin, 2002). What was really missing back then was the interaction option (Royo-Vela and Casamassima, 2011) till the social network sites began to have popularity among the internet users. Facebook is one of the most famous social network sites (Nielsen Company, 2009). The trend toward consumers' involvement made marketers in a

challenge to use these technologies to keep their clients and attain new ones (Ahrens et al., 2013).

This growth in popularity of Facebook in Egypt affected the amount of time people spent online and so their behavior (Coulter and Roggeveen, 2012). The word of mouth effect is being experienced through the Facebook in an easier and a faster way than before, users share whatever they like or don't like through the Facebook status, video, and pictures upload (Ahrens et al., 2013), which is very challenging for marketers. So far, there are few empirical studies on the effect of Facebook as an advertising tool, most of the effects shown in previous

researches were within the sharing of contents (Anklam, 2009) and the word of mouth effect (Royo-Vela and Casamassima, 2011).

Moreover, it was demonstrated by Nielsen Company (2009) that the current level of advertising activity on Facebook isn't as big as the size of the audience supposed to be targeted. Consequently, we know very little about the significant effect the Facebook can have on its Egyptian users when used as an advertising tool.

The paper is structured as follows; first, the main concepts of Facebook, advertising activities, relationship constructs, and their hypothesized relationships, second, the methods of research followed by an analysis of findings, and finally, a conclusion offering marketing implications, and future research directions.

Facebook from socializing to advertising

Mostly Facebook is seen as one of the online social networking services that succeeded to replace even the social network sites that preceded it (Mital and Sarkar, 2011), a personal weblog that opens users' thinking through sharing links or blogs that opens a door for interaction (Anklam, 2009), and a vital tool in the daily lives of many of the university – aged students (Chan, 2011).

Facebook succeeded to be one of its most popular features because it encourages users to interact with companies (Hutter et al., 2013); supporting this point, Ruiz-Mafe et al. (2014) confirmed that this has a positive effect on consumers' brand awareness and purchase intention because users easily can have a wide range of fan pages with different products and services from which to choose. But from this point we can mirror something else that people are interested to give their feedback and opinion to companies, which can be very important for establishing long term relationships with audience for successful marketers. Generally, Facebook succeeded to bring people together being a social networking site, but Okazaki and Taylor (2013) approached this socialization activity from another angel attesting that such activity enables marketers to build their brands with larger audiences.

Traditional means of advertising

Arguments increased around the traditional mass media advertisements for instance; O'Donohoe (1994) argued that consumers choose to pay attention to the advertisements while, Jobber (2006) argued that consumers find advertisements annoying, exaggerating, mistrustful, and repetitive. Which means it isn't only an issue of awareness and communication; it must be presented in a manner that is preferable by the audience (Rotfeld, 2002). Fam et al. (2013) proved that consumers

can avoid commercials when they consider it a source of irritation. But according to Jobber (2006) the exposure rate and repetition are important to avoid such irritation.

Generally, traditional means of advertisements are facing several challenges; among them the mistrust and boredom which according to the literature reviewed in this regard, puts a heavy challenge on the marketers to communicate to their targeted audience.

Online advertisements

The advantage of this type of advertisements is the ability to interact at a personal level (Ching et al., 2013) which has a favorable effect on consumers' behaviors. Of course this is not the only advantage of the online advertisements, Korgaonkar and Wolin (2002) discovered that consumers prefer online advertisements because they have control over advertising exposure while marketers prefer it as it administer close relationship with millions of customers faster than the traditional media (Royo-Vela and Casamassima, 2011).

Moreover, internet advertising includes keywords and e-referrals (Ahrens et al., 2013) which makes searching for products or services easier. Also, in case of applying a rewarding system to motivate customers to watch, hear or read advertisements, in traditional media it should be done manually which is impractical, while on the Internet, can be done easily (Yuan et al., 1998). The core of effective marketing communications relies on both the sender and receiver interaction which cannot be done through traditional advertising means (Hede and Kellett, 2011).

Current advertising activities on Facebook

From the reviews found there was no agreement about the success of marketing on Facebook till date, for instance Hansen (2011) attested that the knowledge to gain practical trends from social media networks is still primitive, another instance Nielsen Company (2009) reported the current level of advertising activity on social networks to be not up to the huge size of the audience. Moreover, Hadija et al. (2012) stated that advertisers have to consider the different needs of the Facebook users and Gummerus et al. (2012) supported this attestation and added that marketers are still in need to create content that engage customers.

Goldsmith and Lafferty (2002) from the other hand doubted that marketers evaluated the role of internet advertising in a right way. Ruiz-Mafe et al. (2014) argued that still marketers know a little about how to use word of mouth of Facebook users.

It is obvious that researchers although didn't agree upon a way to successfully advertise through the Facebook, they agreed that still Facebook isn't used

effectively in marketing activities. Some researches tried to give recommendations with no ensured reliability to apply on different cultures; one these recommendations was rewarding customers for viewing advertisements (Yuan et al., 1998), and the other about a conversation model of advertising (Nielsen Company, 2009).

Based on the above, a positive relationship between Facebook and advertising is expected. So that the most convenient advertising campaign used through Facebook, the higher customer engagement, which leads to higher perceived benefits by marketers:

H1: Facebook has a significant effect as a tool of advertising in Egypt

METHODS

Research strategy

This research investigates the effect of Facebook as an advertising tool in Egypt; using the Interpretivisim paradigm because this paradigm is preferred when it comes to Social Sciences that involve people as well as things (Greener, 2008). Since the research deals with Facebook users who are humans and there are differences between humans, the mentioned paradigm is the most appropriate to adopt (Bryman and Bell, 2007). Swanson and Holton (2005) stated that 'this paradigm assumes that knowledge and meaning are individual interpretations'. In order to explore the relationship between Facebook and Advertising and how advertising on Facebook can be successful in Egypt; Explanatory research is considered as an appropriate methodology because it is the design that shows the reason behind and configures this relationship (Bryman and Bell, 2007) and this is exactly what is needed to reflect the effect of Facebook when used as a tool for advertising in Egypt.

There are two main approaches to adopt in any research, either a quantitative approach or a qualitative approach. In general, quantitative research shows numerical assignment to the research under study, whereas qualitative research shows only textual descriptions of the research under study (Vanderstoep and Johnston, 2009).

Seeking accurate results in order for this research to benefit other researchers and practitioners; the research will adopt the quantitative approach to investigate the effect of Facebook as an advertising tool in Egypt because the data collected will be more accurately reflecting the overall population of Egypt from which the sample is drawn, also because this research is proposing hypothesis to be tested, analyzed and evaluated (Swanson and Holton, 2005).

For this research to be reliable and can be generalized, investigating to what extent there is an effect of Facebook as an advertising tool or there isn't and what kind of effect, can be implied accurately using the quantitative approach (Jonker and Pennink, 2010).

Survey will be the most appropriate tool to collect the data in a consistent way, simple in developing hypotheses, easy to construct and consume short time to collect data from a big sample size (Kothari, 2004). We will ask individuals about their opinions and their behavior regarding the Facebook and the advertisements being the independent and the dependent variables respectively, so the survey methodology is used in research as it helps to get individuals' behavior, opinions, and preferences (Yang and Miller, 2008).

Sampling and data collection

Sampling is very important because, in this case as it is not practical to study all the members of the Egyptian population who own Facebook accounts. Generally, there are two ways to sample, either randomly or non -randomly. The random sampling is the technique in which all members in the sample frame are equal in the chance to be selected (Vanderstoep and Johnston, 2009), accordingly, the research will adopt the random sampling for its flexibility to increase the sample size and so a close reflection of the big population will be granted.

The sample size is 400 Facebook users located in Cairo; the Capital of Egypt and Alexandria; the second important governorate, with the range of age from 25 to 50 years old to ensure monthly income, earning a monthly income above 3000 Egyptian Pounds to ensure the purchase power, using Facebook at least twice a week to ensure interest and updated knowledge.

The research will investigate the relationship between two variables one is the independent (Facebook) and the other is the dependent (Advertising) in order to know the effect of Facebook as an advertising tool in the Egyptian community. Accordingly, one hypothesis is proposed signifying the effect of Facebook when used as a tool of advertising in Egypt; (*H1: Identify if Facebook has a significant effect as an advertising tool* in Egypt).

The most common survey methods used in other researches are telephone surveys, mail surveys, email surveys and face-to-face interviews. After checking the advantages and disadvantages of each type, it was found that the telephone surveys provide a high response rate, but with a high risk of bias in selection; mail surveys are cheap but provide low response rates; Email surveys less expensive however unit analysis should be computer literates; face-to-face interviews provide the highest response rate with high cost of money and time (Vanderstoep and Johnston, 2009).

Accordingly, and to reduce potential risks, both Face- to Face interviews and online surveys were chosen to collect the data. Face to face interviews will be used as a pilot test on 40 respondents of the total sample that is 400 to ensure the questionnaire quality before proceeding, thereby collecting rich information (Mooi and Sarstedt, 2011). Since we will be targeting Facebook users, online survey with its popularity as a result of the increase in the number of internet users, will be used after the pilot test (Yang and Miller, 2008). The idea behind using both kinds is to ensure the advantages of both; the high response, and the low cost reaching big sample size.

Questionnaire is vital to collect quantitative data about opinions of individuals in order to be able to investigate the relationship between the variables under study (Mooi and Sarstedt, 2011). The questionnaire was designed in an easy way so that everyone can understand the questions and so that the respondents will easily recall the answers needed. To avoid unwillingness to answer the survey, checkboxes were used so that respondents will only mark the boxes accordingly. Closed-ended questions were used to encourage participants to give accurate answers and to avoid lower response rates (Mooi and Sarstedt, 2011). Lengthy surveys are not preferred by the Egyptian people as they easily feel bored, so, a relatively not long survey was developed to avoid reluctance of participation.

Questions in the questionnaire used Likert scale and respondents will have to choose their answers from 1 to 5 where 1 (totally disagree) and 5 (totally agree). Likert scale is appropriate as it is developed in a way that facilitates analysis. Kothari (2004) defined it as the scale of a number of statements expressing favorable or unfavorable attitudes towards a certain issue. It is designed of 40 questions testing the participants' opinions about several activities and criteria of Facebook and advertising reflecting the research aims and objectives through the research questions and hypothesis as well as the points raised by other researches reviewed in relative

Table 1. Reliability test for pilot data.

Cronbach's Alpha	Number of Items
0.912	40

literatures. The questionnaire is appended in (Appendix A).

Framework for data analysis

Descriptive analysis is used to test the feel of data being a standard procedure for checking the data for inaccuracies, which by its turn provides information about the representativeness of the sample, and the data necessary for other researchers to consider (Marczyk et al., 2005). In a quantitative study, reliability is about the consistency of the results and whether it is free of random error (Quinton and Smallbone, 2006). Reliability becomes very important when data is developed from Likert scale. To ensure reliability of the research, Cronbach's alpha was developed to provide a measure of the internal consistency of the test (Tavakol and Dennick, 2011). Malhorta (2010) stated that 'it is the average of all possible split-half coefficients which varies from 0 to 1, and a value of 0.6 or less generally indicates unsatisfactory internal consistency reliability'. Moreover

Cronbach's alpha is the most common way in research to assess the reliability data. Since the research is a deductive one where theories already exist, so hypothesis is developed to be the proposed prediction about what might happen according to former existing theories (Vanderstoep and Johnston, 2009).

In order to test the research hypothesis, Regression Analysis was used to decide rejecting or retaining null hypothesis being a statistical technique to determine the relationship between two or more variables showing how variation in one variable can be explained through variation in another (Hall, 2010) which was also confirmed by Lee and Forthofer (2006) as powerful in testing the relationship between a variable and a set of variables, which will be the exact need for testing the variables of the advertising being the dependent variable in this study, against the independent variables of Facebook after the factor analysis reduce and removes the duplications from the correlated variables. Factor analysis is appropriate in this study because it is concerned with correlation between a group of variables (Landau and Everitt, 2004) which will be needed to summarized as there will be many variables in this study in order to facilitate the analysis and make sense of virtual dimensions (Krippendroff, 2004).

Generally to fulfill the aims of this research and maximize the benefits marketers and practitioners can get out of this study, an empirical one is carried out to reflect in more reliable and valid results. Based on a survey of 400 Facebook users from Cairo and Alexandria governorates, data will be collected using online survey after a face-to-face interview survey carried out as a pilot testing for the quality of the questionnaire. The research adopted the quantitative approach to examine the relationship between Facebook and advertising. To achieve the research objectives and test the proposed hypothesis, descriptive analysis used to test the feel of data, Cronbach's alpha to ensure reliability of data, factor analysis for the reduction of variables and regression analysis for testing hypothesis.

RESULTS

Demographic data description

An online method of data collection and a face to face interview were selected because of their advantages concerning the efficiency of data collection, and the ability to reach a wide population of users. It was difficult to reach all the Facebook users, so online questionnaire was distributed to randomly chosen Facebook users with respect to the demographic criteria determined before. This was done through a message sent with a URL for the online questionnaire to the Facebook users within the two governorates Cairo and Alexandria in Egypt.

To avoid duplicate responses, IP addresses were recorded, and the questionnaire was designed in a way not to open using the same IP address twice. Face to face interviews were made as a pilot testing for the questionnaire before proceeding with the online questionnaire to ensure the relativity of the questions, and to get reliable data. Accordingly, Cronbach's Alpha was developed on the responses provided by 40 respondents as shown below in Table 1.

It showing a high percentage of reliability 0.912, values being closer to 1.0 encouraged to proceed with the survey indicating a stronger relationship (Vanderstoep and Johnston, 2009).

A total of 400 valid responses were collected, of which 40 were through face to face interviews and 360 responses through the online survey as shown in Table 2. It is clearly demonstrated that 50% of the respondents were below 30 years of age, 51% of the respondents were Females and 49% of them were males which ensured unbiasedness. 42% of respondents were earning an income between 5,000 EGP to 10,000 EGP per month and that ensured the purchase power of the respondents. 90.3% of the respondents had their Facebook accounts for more than 3 years, and 52% logged on to their Facebook accounts several times a day which ensured interest and updated knowledge that were mainly important to answer the questionnaire presented.

Factor analysis and reduction of data

Factor analysis was performed for both the Independent variable (Facebook) and the Dependent variable (Advertising), to identify the number of factors that explain most of the variance in the variables. The questionnaire comprise a multitude of 40 questions, so to evaluate all the responses, the Principle Components Analysis was performed to ensure the relativity of the questions, and to summarize the items within variables (Mooi and Sarstedt, 2011).

Two additional measures were used, as shown in Table 3, to determine whether the items are sufficiently correlated, the Kaiser–Meyer–Olkin (KMO) statistic and the Bartlett's test of sphericity. The KMO statistic used to indicate if the correlations between variables can be explained by other variables in the dataset (Mooi and Sarstedt, 2011).

Table 2. Demographic data of respondents.

Measures	Items	Frequency	Percentage
Age	Below 30	202	50.5
	35 - 45	158	39.5
	Over 45	40	10
Gender	Male	196	49
	Female	204	51
Monthly Income	3000-5000 LE	134	33.5
	5000 -10000 LE	168	42.0
	more than10000 LE	98	24.5
Time using Facebook	Less than 1 Year	1	0.3
	2- 3 Years	38	9.5
	More than 3 Years	361	90.3
Frequency of logging	Several times a day	208	52.0
	Daily	136	34.0
	Weekly	56	14.0

Table 3. KMO and Bartlett's Tests (independent variables).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**0.876**
Bartlett's Test of Sphericity	Approx. Chi-Square	4910.974
	Df.	300
	Sig.	**0.000**

It is clarified that the data adequacy is 0.876 which according to Mooi and Sarstedt (2011) is considered meritorious because it falls between 0.80–0.89. Bartlett's Test of Sphericity also showed significance and appropriateness of analysis as its value is less than 0.05 (Field, 2005).

Being helpful with large number of items, factor rotation was adopted as shown in Table 4, using the Principal Component Analysis and rotated using Varimax with Kaiser Normalization method as confirmed by Mooi and Sarstedt (2011) to be the most appropriate method to maximize the dispersion of loading within factors.

The Rotated Component matrix resulted in six independent variables that are renamed according to the set of questions they presented in the survey question-naire. First independent variable (IV1); Awareness which indicated the use of Fan pages, events, and profile pages to let people know about services, products and different events. Second independent variable (IV2); Socialization indicated the use of Facebook to improve the relation-ships, intimacy of relatives and friends. Third independent variable (IV3); Interaction indicated the extent to which

sharing contents and experiences on Facebook is perceived to be important. Fourth independent variable (IV4); Marketing indicated the tendency of using Facebook in marketing and promoting products and services. Fifth independent variable (IV5); Source of Information indicated the percentage of trusting the posts posted by others on Facebook. Sixth independent variable (IV6); Ethical use of data indicated the tolerance of users to accept the use of their data provided when constructed their personal profile pages. Same was done for the Dependent variables of Advertising, where KMO measure of adequacy showed a result of 0.718 which is considered middling according to Mooi and Sarstedt (2011) because it falls between 0.70 – 0.79. Bartlett's test of sphericity showed significance level as its value was less than 0.05 (Field, 2005) (Table 5). Proceeding with the Component Matrix shown in Table 6 used the Principle Component Analysis as an extraction method and the Varimax Kaiser Normalization as a rotation method. The Rotated Component matrix resulted in four dependent variables that are named according to the set of questions each represented in the questionnaire

Table 4. Rotated component matrix (Independent Variables).

Qs.	Component					
	1	**2**	**3**	**4**	**5**	**6**
Q1		.761				
Q2		.647				
Q3		.444				
Q4					.726	
Q5					.810	
Q6						.812
Q7	.456					.461
Q8		.627				
Q9	.719					
Q10		.424				
Q11	.533	.493				
Q12	.618					
Q13	.492	.426				
Q14	.719					
Q15	.689					
Q16	.820					
Q17	.761					
Q18	.452		.442			
Q19	.625					
Q20			.804			
Q21			.714			
Q37	.457			.551		
Q38				.630		
Q39				.726		
Q40				.729		

Table 5. KMO and Bartlett's test (dependent variables).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**0.718**
Bartlett's Test of Sphericity	**Approx. Chi-Square**	**1496.554**
	Df.	105
	Sig.	**0.000**

answered. First dependent variable (DV1); Recall and Trust indicated the extent to which consumers consider the traditional advertisements (TV/Radio/Printed Ads) to be a trusted source of information, and can by time recall them. Second dependent variable (DV2); Likeability indicated the type of advertisements that consumers like and get attracted to. Third dependent variable (DV3); Consumption Stimulation indicated the extent to which advertisements can stimulate consumers to consume a certain product or service. Fourth dependent variable (DV4); Repetition and Exposure indicated the rate of exposing consumers to commercials and if repetition and high exposure help in increasing awareness or boredom.

Reliability

Dealing with samples rather than studying the whole population must be accompanied by ensuring the reliability in order to generalize the results of the sample on the whole population from where the sample was picked (Muijs, 2004). Cronbach's alpha as an index of reliability, shown in Table 7, which was used to ensure reliability. Malhorta (2010) stated that a value of 0.6 or less generally indicates unsatisfactory internal consistency reliability.

As shown above, Cronbach's alpha is over 0.6 for the dependent scale showing an accepted reliability.

Table 6. Rotated component matrix (dependent variables).

Qs.	Component			
	1	2	3	4
Q22				.588
Q23	.698			
Q24			.475	.404
Q25				.760
Q26				.440
Q27				.580
Q28	.768			
Q29	.839			
Q30	.662			
Q31		.814		
Q32		.810		
Q33		.731		
Q34		.465		
Q35			.826	
Q36			.810	

Table 7. Reliability Testing (Cronbach's Alpha).

Variables	No of items	Cronbach's Alpha
Recall & Trust	4	0.786
Likeability	4	0.620
Consumption Stimulation	3	0.640
Repetition & Exposure	4	0.642
Total scale Dependent	15	0.627
Awareness	10	0.910
Socialization	5	0.716
Interaction	2	0.782
Marketing	4	0.662
Source of Information	2	0.760
Ethical use of data	2	0.607
Total scale Independent	25	0.907

Moreover it is around 0.9 for the independent scale which is an indication of a stronger relationship as values are closer to 1.0 (Vanderstoep and Johnston, 2009).

Testing hypotheses and framework development

The original hypothesis was: (H1: Identifying if Facebook has a significant effect as an advertising tool in Egypt). After the rotation applied the advertising variable got four new sub-variables; to be more precise and discover which specific criteria of Advertising that Facebook can have a significant effect through, this had to be done through testing each dependent variable against the independent variables of Facebook. Two main tests of hypotheses are usually used by statisticians; the parametric and the non-parametric tests (Kothari, 2004). Figure 1 was developed according to the results of the factor analysis mentioned above.

The figure shows the new hypotheses to be tested through regression:

H1a: Facebook has a recall and trust effect when used in advertising
H1b: Facebook has a likeability effect when used in advertising
H1c: Facebook has a consumption stimulation effect when used in advertising
H1d: Facebook has a repetition and exposure effect when used in advertising

To avoid relying on assumptions, non-Parametric tests were chosen in order not to rely on assumptions about the parameters of the population from which the sample was taken (Kothari, 2004). Mooi and Sarstedt (2011) declared that the regression analysis allows analyzing relationships between independent and dependent variables which benefited the study in several perspectives like indicating if independent variables of Facebook had a significant relationship with the dependent variable of Advertising, also the relative strength of effect of the independent variables on a dependent variable, accordingly it helped in making predictions. Accordingly, equations were developed to test the hypotheses using stepwise regression analysis.

Moreover, Mooi and Sarstedt (2011) stated the form of the regression equation and the meaning of it; $Y = a + b_1 X_1 + e$ where (Y) represents the dependent variable, and (X) the independent one, (a) the constant of the regression that assumes all the independent variables to value zero in order to indicate what the dependent variable would be in such a case, (b1) the coefficient of the independent variable, and (e) the residual or the error which represents the difference between each observation and the best fitting line.

H1a: Facebook has a significant recall and trust effect

To develop the models correlation matrix was made for the four dependent variables and the results for the first dependent variable (DV1) named recall and trust, showed that it was not significantly related to the six independent variables of Facebook. Linear Regression using the stepwise analysis showed that no variables were entered into the equation which proves that there is no correlation between the six independent variables of Facebook and the attitudes of consumers either to recall or trust advertisements presented through the traditional advertisements in Egypt.
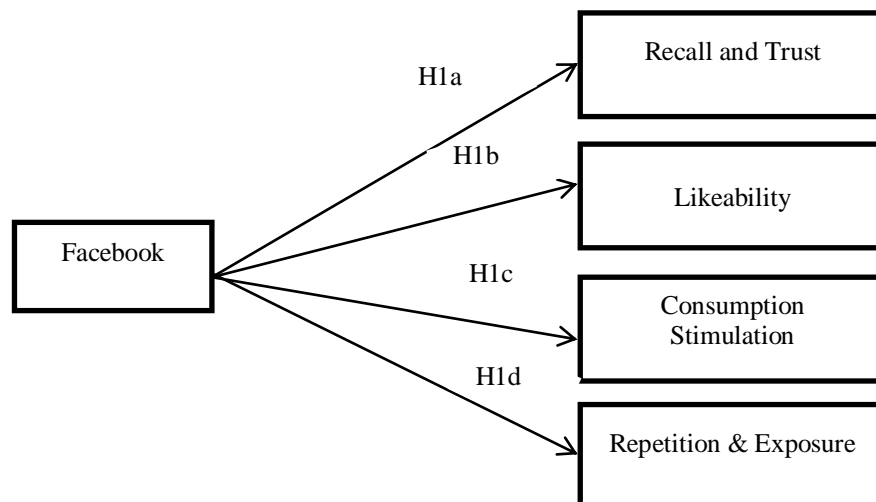
Figure 1. Hypotheses framework.

Table 8. Model summary of DV2.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
4	.494[d]	**0.245**	0.237	0.47544	**1.913**

d. Predictors: IV2, IV3, IV4, IV5.

Table 9. ANOVA (Analysis of Variance) for DV2.

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	28.900	4	7.225	31.962	.000[e]
4	Residual	89.288	395	.226		
	Total	118.187	399			

e. Predictors: IV2, IV3, IV4, IV5

H1b: Facebook has a significant likeability effect

The Coefficient of R square showed a value of 0.245 which means that 24.5% of the variations in the second dependent variable (DV2); likeability, can be explained by the variations in the independent variables Socialization (IV2), Interaction (IV3), Marketing (IV4), and Source of Information (IV5) (Table 8).
This dependent variable showed a significant Analysis of Variance (ANOVA) as shown in Table 9, less than 0.05 which means the overall model is significant (Mooi and Sarstedt, 2011). The residuals or errors are not auto correlated, and this was measured using Durbin Watson test.

Accordingly, the equation was constructed as follows: DV2=2.176+0.307(IV2) +0.134(IV3) +0.163(IV4) - 0.86(IV5) The independent variables mentioned in Table 10 are away from any multi-collinearity problems which happens when two or more independent variables are correlated, because the Variance Inflation Factor (VIF) values are less than 10 (Mooi and Sarstedt, 2011).

To make sure that we could proceed with the regression test, a last step should be made which was to make sure that DV2 did not suffer any problems of heteroskedasticity as shown in Figure 2.

According to Mooi and Sarstedt (2011), the points are often funnel shape spread out across the graph is of heteroskedasticity and indicates an increase in variance across the errors, and this wasn't the case with DV2. Accordingly, the regression test for this hypothesis was run; using the Kolmogorov Smirnov (K-M) as shown in Table 11.

Kolmogorov Smirnov (K-M) test with significance was 0.036 which is less than 0.05, and resulted in failing to

Table 10. Coefficients.

Model 4	Unstandardized Coefficients		Standardized Coefficients	t.	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tol.	VIF
Cons.	2.176	.205		10.591	.000		
IV2	.307	.049	.350	6.289	.000	.618	1.619
IV3	.134	.030	.219	4.479	.000	.799	1.251
IV4	.163	.054	.142	3.019	.003	.861	1.161
IV5	-.086	.033	-.136	-2.617	.009	.704	1.420
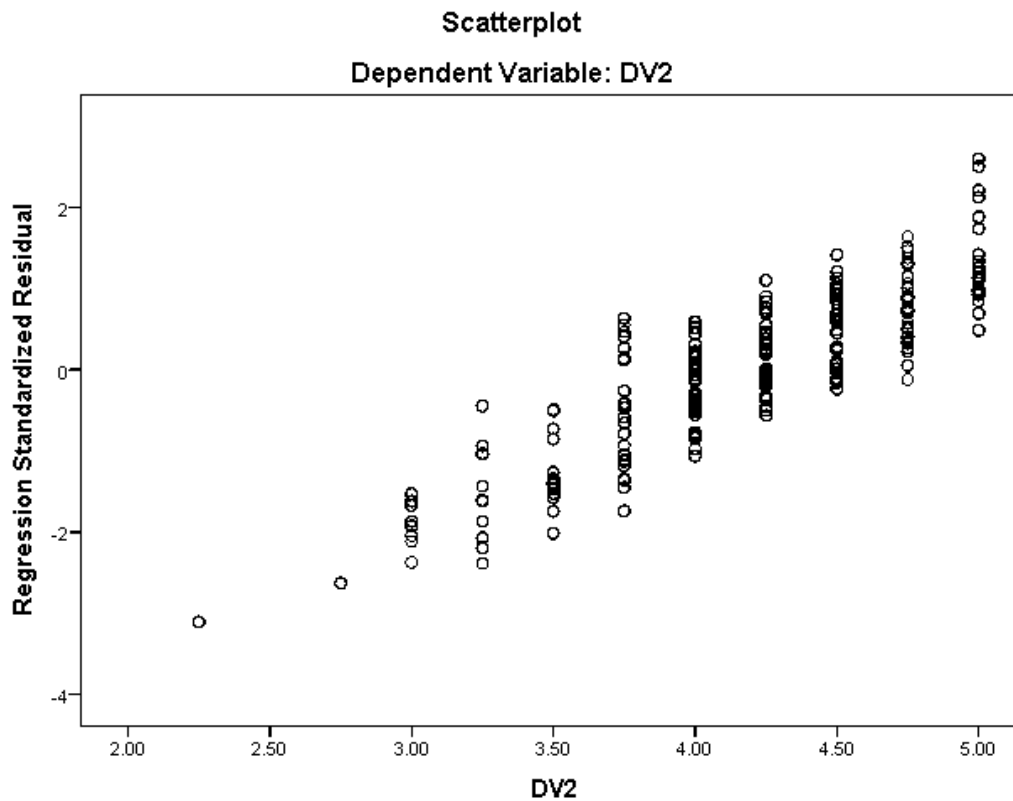
Figure 2. Scatterplot for DV2.

retain this hypothesis (Sheskin, 2004).

H1c: Facebook has a significant consumption stimulation effect

Proceeding with the next hypothesis to check if would be retained or not, it showed better results and it was retained. This dependent variable is DV3 is the Consumption Stimulation. As shown in Table 12, the Coefficient of R square value is 0.72.

Such a high percentage means that 72% of the variations in the third dependent variable DV3; the Consumption Stimulation can be explained by the variations in the independent variable Marketing (IV4). Also, as shown in Table 13, this dependent variable has a significant ANOVA results less than 0.05 which means the overall model is significant (Mooi and Sarstedt, 2011). The residuals or errors are not auto correlated, and this was measured using Durbin Watson test which got a value of 1.809 as shown in Table 12, and it means there is no evidence of positive correlation (Berenson et al., 2012).

Accordingly, the Equation was constructed to be: DV3= 1.728+0.392(IV4).

The independent variable (IV4) as shown in Table 14 was

Table 11. Kolmogorov-Smirnov Test for H1b.

Null hypothesis	Test		Sig.	Decision
The distribution of Standardized Residual is normal with mean -0.000 and standard deviation 0.99	One-Sample Smirnov Test	Kolmogorov-	0.36	Reject the null hypothesis (H1b)

The significance level is 0.05.

Table 12. Model Summary for DV3.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.269[a]	**0.072**	0.07	0.6686	**1.809**

a. Predictors: IV4

Table 13. ANOVA (Analysis of Variance) for DV3.

Model 1	Sum of Squares	Df	Mean of Square	F.	Sig.
Regression	13.859	1	13.859	31.005	.000[b]
Residual	177.905	398	.447		
Total	191.764	399			

b. Predictors: IV4.

Table 14. Coefficients.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tol.	VIF
1	Constant	1.728	.252		6.855	.000		
	IV4	.392	.070	.269	5.568	.000	1.000	1.000

not having collinearity problem as the VIF is less than 10 (Mooi and Sarstedt, 2011). It also had no heteroskedasticity problems proved by Figure 3.

Accordingly, it was safe to proceed with the regression test for this hypothesis (H1c) using the Kolmogorov Smirnov (K-M) test (Table 15). As shown, the Kolmogorov Smirnov (K-M) test and significance was **0.291** being more than 0.05 resulted in retaining this null hypothesis (Sheskin, 2004).

H1d: Facebook has a significant repetition and exposure effect

The hypothesis H1d is the last one, also was tested but it wasn't retained it is concerned with the dependent variable DV4 repetition and exposure. It showed a value of 0.46 for R Square as shown in Table 16.

This means that 46% of the variations in this variable can be explained by the variations in the independent variables: Interaction (IV3), Awareness (IV1), Ethical use of data (IV6), and Socialization (IV2). The residuals or errors are not auto correlated, and this was measured using Durbin Watson test which got a value of 1.959 as shown in Table 16, after referring to Durbin Watson tables, there was no evidence of positive correlation (Berenson et al., 2012). Also, as shown in Table 17, this dependent variable has a significant ANOVA results.

ANOVA less than 0.05 means the overall model is significant (Mooi and Sarstedt, 2011). Based on the results from Table 18, the equation was constructed as follows: DV4= 1.169+0.397(IV3) + 0.258(IV1) +0.134(IV2) -0.113(IV6)

The independent variables mentioned in Table 18 are not showing multi-collinearity problem as the VIF values are less than 10 (Mooi and Sarstedt, 2011). Moreover there were no heteroskedasticity problems proved by the scatterplot shown in Figure 4.

Accordingly, it was safe to proceed with the regression test for this hypothesis using the Kolmogorov Smirnov (K-

Scatterplot
Dependent Variable: DV3
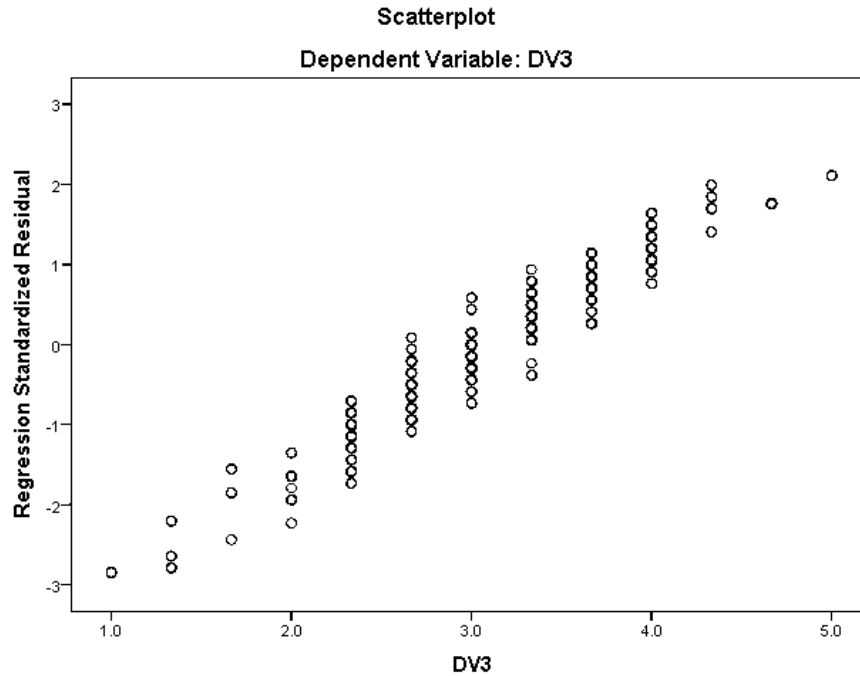
Figure 3. Scatterplot for dependent variable DV3.

Table 15. Kolmogorov-Smirnov Test for H1c.

Null hypothesis	Test	Sig.	Decision
The distribution of Standardized Residual is normal with mean -0.000 and standard deviation of 1.00	One-Sample Kolmogorov-Smirnov Test	0.291	Retain the null hypothesis (H1c)

The significance level is 0.05.

Table 16. Model Summary for DV4.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
4	.637[d]	.406	.400	.6387	1.959

d. Predictors: IV3, IV1, IV6, IV2.

Table 17. ANOVA (Analysis of Variance) for DV4.

Model4	Squares Sum	df	Mean Square	F	Sig.
Regression	110.199	4	27.550	67.524	.000[e]
Residual	161.160	395	.408		
Total	271.359	399			

e. Predictors: (Constant), IV3, IV1, IV6, IV2.

M) test as shown in Table 19.

K-M test, showing of only 0.049, which was slightly less than 0.05 resulted in rejecting this null hypothesis (Sheskin, 2004). The main results shown are retaining one hypothesis (H1c) out of three null hypotheses (H1b, H1c, and H1d) according to the regression analysis made

Table 18. Coefficients.

Model 4	Unstandardized Coefficients		Standardized Coefficients	t.	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tol.	VIF
Constant	1.169	.211		5.546	.000		
IV3	.397	.044	.430	8.983	.000	.657	1.522
IV1	.258	.061	.235	4.271	.000	.498	2.007
IV6	-.113	.040	-.117	-2.815	.005	.864	1.157
IV2	.134	.066	.101	2.022	.044	.607	1.648
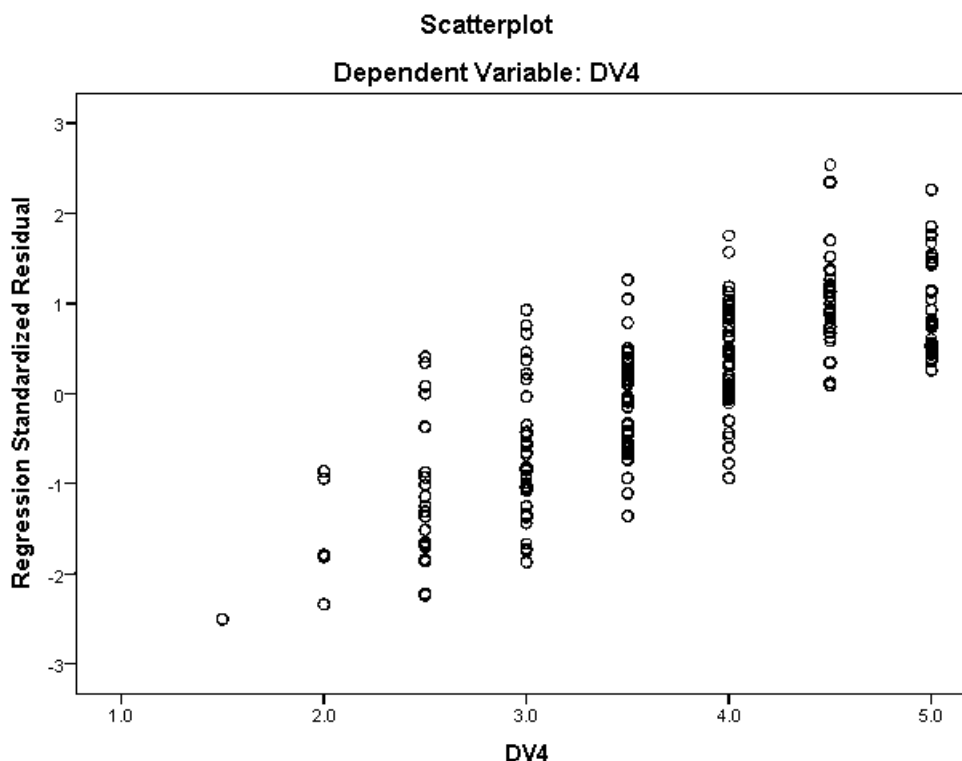
Figure 4. Scatterplot for DV4.

Table 19. Kolmogorov-Smirnov Test for H1d.

Null hypothesis	Test	Sig.	Decision
The distribution of Standardized Residual is normal with mean -0.000 and standard deviation 0.99	One-Sample Kolmogorov-Smirnov Test	**0.049**	Reject the null hypothesis (H1d)

for each. While H1a did not reach the step of testing because it showed no relationship between the independent variable and the dependent variable proposed through it. The one retained is the hypothesis H1c that stated that Facebook has a significant effect on consumption stimulation when used as a tool of advertising in Egypt.

Conclusion

From the demographic results of the participants in the

survey, we can conclude that Facebook is making an important role in the daily life of its users, around more than 50% of the sample, log on to their accounts several times daily. This is a high percentage of interest in a social network site especially in Egypt and this matched what Mital and Sarkar (2011) discovered about the success of Facebook to get popularity. Moreover, the results showed that the age of the users is not only as expected to be the younger audience but it became broader and included the older too (Nielsen Company, 2009) as around 40% fall in the bracket age of 35 years old to 45 years old. Popularity of Facebook in Egypt in the last three years also attested in the years of usage of Facebook in the demographic results; over 90% of the sample have got their accounts for more than 3 years, which is from our opinion a result of the word of mouth about the Facebook itself.

It is said that the Egyptians did not have such interest in social network sites before 2011, although Facebook existed before this by years, but it didn't get such popularity in Egypt before 2011. This is proved to be a success achieved by Facebook to bring people together just as discovered by Okazaki and Taylor (2013) who said that such large audience is an opportunity to be used by marketers to build their brands. This was also reflected in the age and gender of the Egyptians who are interested in the Facebook recently which is an indication that it isn't restricted to any specific social demographic class.

It was also shown in the empirical results how the word of mouth through Facebook is growing tremendously in the Egyptian society, the independent variable (IV2); Socialization appeared in all the equations of the hypotheses tested, with a high value. This variable related to a group of questions tested the interest of the respondents in sharing their opinions either textual or through audio or video contents, and inviting people to their special events using Facebook and if they see Facebook as a source of word of mouth. The results were integrated with the opinion attested by Coulter and Roggeveen (2012) that the Facebook has a powerful word of mouth effect which can indicate the way people behave and also that attested by Anklam (2009) that the sharing of contents and blogs is important to open users' thinking and can open a door for interaction, which was another independent variable (IV3) that shared in two equations out of three with high values proving its importance .This variable in the questionnaire related to a group of questions tested people's eagerness to interact with companies and if they will give their feedback if they were asked to.

This leads to another independent variable (IV4); Marketing which was revealed by Royo-Vela and Casamassima (2011) as a successful was to establish long term relationships with consumers and this was proved by this research to be effective and powerful in Egypt too. This variable related to a group of questions

tested the respondents about their opinions concerning the advertisements found on Facebook, and if they notice or get attracted to them or not. Those questions were made to cover some points raised by O'Donohoe (1994) that consumers choose to pay attention to advertise-ments, by Yuan et al. (1998) that consumers to search advertising sources they expect the benefit of search to cover its cost, and by Nielsen Company (2009) that marketers yet did not succeed to market for their products or services on Facebook. Those three independent variables IV2, IV3, and IV4 affected several dependent variables DV2; likeability, DV4; repetition and exposure, and DV3; consumption stimulation, respectively.

The second Dependent Variable (DV2); Likeability related to a group of questions tested the preferences of people concerning advertisements; if audience were attracted to humor advertisements, innovative ones or only when related to their current needs. This variable when tested against the independent variables showed that around 25% of the variations in this variable can be explained by the variations in four independent variables of Facebook; among them was IV2; Socialization with the highest value in the equation. This means that likeability is an important criterion for the advertisers, as confirmed by Fam et al. (2013) who declared its importance to get the attention of the audience and so their awareness.

Concerning the role of Facebook in this point, independent variable (IV2) appeared to have an effect on both dependent variables (DV2) the likeability and (DV4) the repetition & exposure where the latter related to a group of questions concerning the opinion of the participants about the exposure rate and the repetition of the advertisements and their answers integrated to what Jobber (2006) discovered concerning the annoyance of consumers from the repetition of the advertisements.

The empirical results showed that 40% of the variations in the repetition and exposure (DV4) can be explained by the variations in four independent variables where (IV3) interaction is of the highest score of effect among them. The retained hypothesis was testing the effect of Facebook as an advertising tool where the advertising criterion in this hypothesis was the consumption stimulation. The model testing the dependent variable (DV3); consumption stimulation showed that 72% of the variations in it can be explained by the variations in the fourth independent variable (IV4); Marketing only. Finding this result with such a high percentage of R Square made it clear that this is the area of specialization of Facebook to do successful marketing in Egypt.

The Marketing feature of Facebook was confirmed by Royo-Vela and Casamassima (2011), Hutter et al. (2013), Ruiz-Mafe et al. (2014) and Rauniar et al. (2014) but they all tackled it through different perspectives than relating it to consumption stimulation. For instance using word of mouth in marketing (Royo-Vela and Casamassima, 2011) (Ruiz-Mafe et al., 2014), considering different needs

of Facebook users (Hutter et al., 2013), and re-evaluating the Facebook role in advertising (Goldsmith and Lafferty, 2002) but no approach for the consumption stimulation effect that Facebook proved to have on its users if used in advertising. This dependent variable (DV3) related to group of questions tested tendency of the respondents to purchase or try a product because they got stimulated by its advertisement. From this we can conclude that Facebook can stimulate consumption of products or services advertised through it.

Contribution to knowledge

Marketers can use the word of mouth raised through Facebook to know the preferences of audience, even if those advertisements will continue to be on mass media, Facebook can make it even easier for marketers to decide how the advertisements can be designed. It can be the shortest way to ensure the likeability of their advertisements. Interaction on Facebook is made through several activities; one of the most popular is the product fan page. Marketers can use the fan pages to decrease high exposure to advertisements through mass media. They can use the interaction done through these fan pages to interact with their audience and this will have better results and will be more powerful to get consumers aware of the products or services offered and even can affect their purchase intention as confirmed also by Hutter et al. (2013).

Consumption stimulation comes first even before thinking about the product or thinking about making a decision of purchase, which is from our opinion the most critical step for any marketer. It is important according to the results of our study that marketers concentrate on how to use Facebook to stimulate their audience to consume their products or services, rather than concentrating on all the aspects of advertising on Facebook, it would be easier to concentrate on one aspect, using the activities of Facebook in order to get ultimate results.

RECOMMENDATIONS

It is believed that around 16 million Egyptians are Facebook users; such huge size of audience that is still growing must be used effectively by marketers to advertise through it, using the importance of Facebook to all of these users. Nielsen Company (2009) in its report declared that there is a magic formula to help in using the social networks in advertising that is still missing and if this formula is found there will be incredible results.

Our objective was to investigate the effect of Facebook as a tool of advertising and to present to marketers with practical trends to use in order to close this gap of the missing formula. Our conclusions stated that the most

important and effective characteristic of advertising that the Facebook can have a significant effect through is the consumption stimulation, accordingly marketers are recommended to concentrate on this part rather than concentrating on all aspects of Facebook which are a lot. Otherwise, it is recommended that stressing on the stimulation of consumption becomes the main task, while using the features of Facebook as supporting for it.

It is concluded from the findings that Facebook is playing a big role in most of the lives of the Egyptians, while they used to be interested in traditional means of advertising more in the past, recently the clutter problem is a challenge for a lot of marketers especially in Egypt due to the high repetition and rate of exposure pushed to the audience in commercial breaks. The growing trend of usage of the Facebook in Egypt has to be considered, marketers won't target only young ages but also older ones and this shift can open up the possibility of advertising to a much wider audience.

Marketers have to admit that the Facebook is not only a social network nowadays, but a way of communication as much as the traditional means, keeping in mind that people are spending much of their time on Facebook recently. Accordingly, the way of thinking about the advertising through the Facebook shouldn't be a supplementary choice, but one of the main. This should be reflected on the way marketers plan their advertising campaigns. These campaigns should be made specifically and separately for the Facebook using the activities of the Facebook that are totally different from the traditional means of advertising.

The current trend adopted by most of marketers in Egypt is planning the advertising campaigns for the mass media and then users on Facebook share them in case they liked them and that's why the Facebook is still a site of interaction and sharing, but not a main tool of advertising in spite of the fact that according to the literature reviews and results, it should be taking more attention from the advertisers who seek brilliant success.

The results of the survey showed that the interaction on the Facebook is an effective arm that can be used within the advertising plan on Facebook, already the word of mouth is of powerful effect and the interactive campaigns made especially for Facebook can be of a huge success among the users. What is recommended is that marketers plan for interactive campaigns when they approach the Facebook as an advertising tool. Such feature which is not found in mass media should be ultimately used. This doesn't mean to ignore the mass media, but it is recommended that different models of campaigns to be used on Facebook since Facebook has different features than the mass media; accordingly, campaigns also should differ to match those features.

How marketers can set their fan pages, is very important and cannot be ignored especially when talking about social networks. It was found in the results and the literature reviews that users are interested to share their

opinions and search for new updates about products and services through fan pages. Marketers shouldn't sit back and wait till the users are interested in their fan pages but they have to set their fan pages in a way that attract the attention of the users and stimulate their eagerness to consume their products or services. Fan pages are recommended to be discoverable, connected, and insightful. Marketers should make their pages vivid, and stimulating through the use of post updates, photos, videos, benefits, and reviews. Marketers should stress on what the audience want, be able to maximize the impact of the successful posts and ads, and of course to minimize what didn't get the desired goals.

Research limitations

Although this research has achieved its overall aim of investigating the effect of Facebook as an advertising tool, and it provided the marketers with some supportive ingredients to successfully get the magical formula of advertising through the Facebook, we have to acknowledge limitations in this research work. In the first instance geographically as it is applied only in Egypt, mainly Cairo and Alexandria, in the second instance demographically as it's approaching only a certain range of age with and frequency of use of Facebook, in the third instance the time limit didn't make it easy to split the population into clusters or made it possible to resample for data results validation.

Further Researches

It is expected as more researchers study the results discussed in this work, implement more in-depth researches, adopt different methods of data collection, select bigger sample size of wider range of demographic base in Egypt or in different countries, split population into clusters, and resample for validation of results that a better understanding of the points addressed will enrich the marketing research especially in the field of the social media that is emerging.

Conflict of Interests

The author has not declared any conflict of interests.

REFERENCES

Anklam P (2009)."Ten years of network". The Learning Organization 16(6):415-426.
Arhens J, Coyle J, Strahilevitz M (2013)."Electronic word of mouth: the effects of incentives on e-referrals by senders and receivers". Euro. J. Market. 47 (7):1034-1051.
Berenson M, Levine D, Krehbiel T (2012). Basic Business Statistics. Boston: Prentice Hall.

Bryman A, Bell E (2007), Business Research Methods. Oxford: Oxford University Press, Incorporated.
Chan C (2011), "Using online advertising to increase the impact of library Facebook page". Library Manage. 32(4):361-370.
Ching R, Tong P, Chen J, Chen H (2013)."Narrative online advertising: identification and its effects on attitude toward a product". Internet Res. 23(4):414-438.
Coulter K, Roggeveen A (2012), "Consumer responses to word of mouth communication in on-line social network." Manage. Res. Rev. 35(9):878-899.
Fam K, Waller D, Cyril de Run E, He J (2013)."Advertising dislikeability in Asia: Is there a relationship with purchase intention and frequency?" Asia Pacific J. Market. Logist. 25(1):144-161.
Field A (2005), Discovering Statistics Using SPSS. London: Sage Publications.
Goldsmith R, Lafferty B (2002). "Consumer responses to websites and their influence on advertising effectiveness." Internet Res. Electronic Network Appl. Policy 12(4):318-328.
Greener S (2008), Business Research Methods. London: Dr. Sue Greener & Ventus Publishing APS.
Gummerus J, Liljander V, Weman E, Pihlström M (2012). "Consumer engagement in a Facebook brand community". Manage. Res. Rev. 35 (9):857-877.
Hadija Z, Barnes BS, Hair N (2012). "Why we ignore social networking advertising". Qualitat. Market Res. Int. J. 15(1):19-32.
Hall J (2010). A Guide to Doing Statistics in Second Language Research Using SPSS. UK: Taylor & Francis Group.
Hansen D (2011), "Exploring social media relationships." On the Horizon 19(1):43-51.
Hede A, Kellett P (2011). "Marketing communications for special events: analyzing managerial practice, consumer perceptions and preferences." Euro. J. Market. 45(6):987-1004.
Hutter K, Hautz J, Dennhardt S, Füller J (2013). "The impact of user interactions in social media on brand awareness and purchase intention." J. Prod. Brand Manage. 22(5):342-351.
Jobber D (1974). "Television advertising: A consumer viewpoint." Eur. J. Market. 8(2):158-167.
Jonker J, Pennink B. (2010). The Essence of Research Methodology. Berlin: Springer.
Krippendroff K (2004). Content Analysis: An Introduction to its Methodology. USA: Sage Publications, Inc.
Korgaonkar P, Wolin L (2002), "Web usage, advertising and shopping: relationship patterns." Electronic Network. Appl. Policy 12(2):191-204.
Kothari R (2004), Research Methodology: Methods & Techniques. New Delhi: New Age International (P) Ltd.
Landau S, Everitt B (2004). A Handbook of Statistical Analyses Using SPSS. Washington D.C.: Chapman & Hall/CRC.
Lee E, Forthofer R (2006).Analyzing Complex Survey Data. USA: Sage Publications, Inc.
Malhorta N (2010), Marketing Research: An Applied Orientation. India: Pearson Education.
Marczyk G, De Matteo D, Festiger D (2005). Essentials of Research Design and Methodology. Hoboken, NJ: John Wiley & Sons, Inc.
Mital M, Sarkar S (2011). "Multihoming behaviour of users in social networking web sites: A theoretical model." Inform. Technol. People 24(4):378-392.
Mooi E, Sarstedt M (2011). A Concise Guide to Market Research. Berlin: Springer.
Muijs, D. (2004), Doing Quantitative Research in Education with SPSS. London: Sage Publications.
Nielsen Company (2009). "Global faces and networked places", available at: http://www.nielsencompany.com (accessed 12 April 2014).
O'Donohoe S (1994). "Advertising uses and gratifications." Euro. J. Market. 28(8):52-75.
Okazaki S, Taylor C (2013). "Social media and international advertising: theoretical challenges and future directions." Int. Market. Rev. 30(1):56-71.
Quinton S, Smallbone T (2006).Postgraduate Research in Business. London: Sage Publications, Inc.

Rao S (1997). "Commercialization of the Internet." New Library World, 98(11):228-232.

Rotfeld H (2002). "Misplaced marketing, the real reason for the real bad advertising." J. Consumer Market. 19(4):299-301.

Royo-Vela, M. and Casamassima, P. (2011)."The influence of belonging to virtual brand communities on consumers' affective commitment, satisfaction and word of mouth advertising." Online Inform. Rev. 35(4):517- 542.

Ruiz-Mafe C, Martí-Parreňo J, Sanz-Blaz S (2014). "Key drivers of consumer loyalty to Facebook fan pages." Online Inform. Rev. 38(3):362-380.

Sheskin D (2004). Handbook of Parametric and Non-parametric Statistical Procedures. Boca Raton: Chapman & Hall/CRC

Swanson R, Holton E (2005). Research in Organizations: Foundations and Methods of Inquiry. California: Berrett- Koehler Publishers.

Tavakol M., Dennick R (2011). "Making sense of Cronbach's alpha". Int. J. Med. Educ. 2(1):53-55.

Vanderstoep S, Johnston D (2009). Methods for Everyday Life: Blending Qualitative and Quantitative Approaches. San Francisco: John Wiley & Sons.

Yang K, Miller G (2008), Handbook of Research Methods in Public Administration. Boca Raton: CRC press.

Yuan Y, Caulkins J, Roehring S (1998)."The relationship between advertising and content provision on the internet." Euro. J.Market. 32(7):677-687.

Appendix A

The Questionnaire

Thank you so much for your participation in this survey. This research is on investigating the effect of Facebook as a tool of advertising in Egypt. It should take 10 min to complete. Your participation is completely voluntarily, but it is very important to know your opinion. In each question you will be asked to rank your choice on a scale from 1 to 5 where 1 is when you strongly disagree (least frequent to do) while 5 is when you strongly agree (most frequent to do). Your responses will be strictly confidential. Thank you so much for your time and support.

No.	Questions	1 strongly disagree	2 disagree	3 neutral	4 agree	5 strongly agree
1	To what extent is Facebook vital for you as a Social Networking Site?					
2	Is it a way for you to express your opinions through blogs and read others' blogs too?					
3	To what extent do you like sharing contents like Audio, video &/ or textual contents?					
4	To what extent is Facebook your source of information?					
5	Do you believe in all what you see of posts on Facebook?					
6	What about Privacy on Facebook, Do you think using your data, that you provided while constructing your profile account, is ethical?					
7	To what extent do you agree with using your provided data in order for marketers to reach you with interesting products/services?					
8	To what extent you can use Facebook to invite your friends for a special event?					
9	To what extent is Facebook a reference for you for advertisements about new products/ services?					
10	Facebook is an effective source of word of mouth for you?					
11	To what extent you can ask people on Facebook to give you their opinions about a product/service you still didn't buy/try?					
12	To what extent you share your good experience with a product/ service, on Facebook?					
13	To what extent you share your bad experience with a product/ service, on Facebook?					
14	Do you think Fan pages are important for you to know more about the product/service?					
15	To what extent you engage in Fan Pages and interact with them?					
16	To what extent you [like] a product/service advertisement on Facebook?					
17	Do you [like] the product/service advertisement on Facebook because you really like them?					
18	Do you [like] the product/service advertisement on Facebook because you get a discount from the company owner of the advertisement?					
19	To what extent you encouraged to buy a product or try a service from an advertisement came across you on Facebook?					
20	Do you prefer when you buy a product to give a feedback to the company after using it?					
21	To what extent you think it is vital for you as a consumer to interact with the companies selling the products in the market?					
22	Will you give those companies your opinion about how you wish their marketing techniques could be?					
23	To what extent traditional means of advertising (TV/Radio/Print ads) are source of information for you?					
24	To what extent you agree that you can buy a product/service because you got stimulated by its Advertisements?					

25	Do you think exposure to advertisements through traditional means (TV/Radio/Print Ads) is too much?
26	To what extent you agree with the right for consumer to choose when/where and if or not to see an advertisement?
27	To what extent do you think online advertisements give you the choice to watch/listen/read them?
28	You watch or listen to all advertisements on commercial breaks on TV/Radio?
29	To what extent you pay attention to advertisements during the commercial breaks?
30	To what extent can you recall an advertisement you watched, listened to or read on TV, Radio or newspaper, respectively?
31	To what extent is it attractive for you, should the advertisement contain a sense of humor?
32	To what extent is it important to you, should the advertisement be of innovative idea?
33	To what extent is it entertaining for you should the advertisement use a celebrity figure?
34	To what extent is it interesting for you should the advertisement is about a product/service of your current needs?
35	To what extent do you see advertisements in Egypt as being attractive?
36	To what extent do you see advertisements in Egypt as being effective?
37	To what extent are you attracted to advertisements on Facebook?
38	To what extent do you think advertising on Facebook is targeting the right audience?
39	To what extent do you think marketers in Egypt didn't find the magical formula to advertise on Facebook yet?
40	To what extent do you agree that new, out of the box, innovative ideas are needed to improve marketing on Facebook?

Demographic questions

1- What is your age group?
a.   Less than 30, b. 35-45, c. More than 45
2- What is your gender?
a.   Male,   b. Female
3- What is your income range per month in EGP?
a.   More than 3000, b. 5000-10,000,   c. More than 10,000
3- How long have you been using Facebook?
a.   Less than a year
b.   More than one year but less than 3 years
c.   More than 3 years
4- How frequently do you log into your Facebook account?
a.   Several times a day
b.   Daily
c.   Weekly

Full Length Research Paper

Application of vector auto regressive analysis on financial sector and economic growth in Ethiopia

Gutu Tesso

Institute of cooperative and development studies, Ambo University, Ethiopia.

The direction of causality between financial sector and economic growth has remained contentious in Ethiopia. This study investigated their linkage for the period of 1980 to 2014. Granger causality test revealed the existence causality that runs from financial sector to economic growth and not the vis-a-versa, while Johnson cointegration analysis confirmed the existence of long-run relationship between financial sector, labor, foreign aid and economic growth. In the short run, however, saving and foreign aid had impact on economic growth. The error correction indicated a full adjustment to the long run equilibrium takes 10 years. The study implies the need for appropriate financial sector development policy, and setting up of appropriate strategy for saving mobilization, increased foreign direct investment and reduction of heavy dependence on foreign aid.

Key words: Vector auto regressive, Johnson cointegration, Granger causality, impulse response, short run dynamics, financial sector development, economic growth, Ethiopia.

INTRODUCTION

The debate of whether the causal relationship runs from financial sector to economic growth or vise-a versa has not settled yet. As different views held by economists, this relationship can be classified into four perspectives that can be categorizing into supply and demand sides. The supply-side states that financial development has a positive effect on economic growth. For instance, Schumpeter (1912) states that well-functioning banks spur technological innovation by funding entrepreneurs successfully implement innovative products and production processes. Similarly, Hicks (1969) argue that financial development played a critical role in igniting industrialization in England by facilitating the mobilization of capital. According to this view, financial intermediation contributes to economic growth. On the other hand the demand side, Robinson (1952) views that where enterprise leads finance follows. According to this view, as the economy expands, its demand for financial services increases, leading to the growth of these services. Empirical support for this demand-side view is provided by Demetrides and Hussein (1996) and Friedman and Schwartz (1963).

The third perspective of the relationship between financial development and economic growth postulates that the two variables are mutually causal. As stated by Greenwood and Smith (1997), the two variables have bidirectional causality.

Finally, the fourth perspective though not as widely held

as the other views, states that financial development and economic growth are not causally related at all (Lucas, 1998). This one is in line with the traditional neo-classical literature on growth suggests that financing is not important. They emphasized that if the financial system is to play a role it can be through its effects on factor accumulation or on innovation. The Ethiopian economy has been controlled by the state through a series of industrial development plans since the imperial government of Haile Selassie (1930 to1974) up until present period. The country has passed through three politically distinct regimes: - the imperial government (1930 to 1974), the pre-reform period/ the Derg regime (1974 to 1991) and the post-reform period (1991 to present). The current economic system of the country is transformed; the economy is seen to be market-based system, though the lion-shared part of the economy is owned by government affiliated companies. The government's expenditure was higher than its revenue generation capability which led to the poor performance of the economy (MEDaC, 1999). Extensions of credit to sectors other than the central government grew slowly because of the restrictions on the economic activities of the private sector. The fragile and inefficient state-dominated banking sector that existed during the Derg regime was a major hindrance to economic growth (Bezabih and Asayehgn, 2014). The Derg policy of expanding the public and socialized sector at the expense of the private sector also proved to be a failure because of inadequate monetary policy which impaired the development of the financial sector. Relative stability in macroeconomic situations was achieved at the cost of overall economic growth because of the restriction on private sector participation and low productivity of the social sector (MEDaC, 1999).

During all these varieties of reforms efforts were made aiming at improving macroeconomic stability, accelerating economic growth, and reducing poverty. The government adopted a market-oriented economic policy which brought about a significant change in the functioning of the financial sector in recent years. Since it took power in 1991, the current government has implemented a number of reforms that have led to marginal improvements in efficiency and competition; there is a great need for additional market oriented reforms to further enhance the sector's role in mobilizing savings and allocating funds to their optimum usage (Bezabih and Asayehgn, 2014). Even though state control has been reduced in recent years and domestic and foreign (private) investment promoted, the state still plays a dominant role in the economy today. The financial sector is highly regulated by means of credit restriction, equity market control and foreign exchange control. Furthermore, the banking sector remained isolated from the impact of globalization. The policy makers understand the potential importance of financial liberalization, but it is widely believed that

liberalization may result in a loss of control over the economy and may not be economically beneficial (Wondaferahu, 2010). In this connection, the financial sector needs deep understanding so as to find the clear impact it has on the economy. Hence, the primary objective of this study is to examine the relationship between financial sector and the economic growth of the country over the recent three decades.

METHODOLOGY

The structural equation

To establish the relationship between financial sector development and economic growth, the neo-classical growth model which was developed by Solow and Swan (1956) was used. According to Aghion and Howitt (1992), the building block of this model is an aggregate production function with a Cobb-Douglas form that exhibit constant returns to scale was used.

$$y_t = f (L_t, S_t, PRIVY, FA, OPP, FDI) \quad (1)$$

Where Y_t is the gross domestic product (GDP), L_t is labor force, S_t is the ration of saving rate to GDP, PRIVY is ratio of private credit to GDP, FA is foreign aid, OPP is degree of openness measured by the ration of volume international trade to GDP and FDI is foreign direct investment

The vector auto regressive model (VARM)

In developing the structural equation, basically economic theory was referred to model the behavioral relationship among the variables of interest. Unfortunately, economic theory is not often rich enough to provide a dynamic specification that identifies all of these relationships. Estimation and inference are complicated by the fact that endogenous variables may appear on both the left and right sides of the equations in the model. However, the VAR (vector auto regressive) approach sidesteps the need for structural modeling by treating every variable as endogenous in the system as a function of the lagged values of all endogenous variables in the system (Rahman, 2004). The general VAR system of equations can be specified as:

$$\Delta y_t = \alpha_0 + A_1\Delta y_{t-1} + A_2\Delta y_{t-2} + \dots + A_k y_{t-k} + \varepsilon_t \quad (2)$$

Where Y_t is an nx1 vector that contains n variables in the system. α_o is an nx1 vector of constants and A_1 up to A_n are nxn and ε_t is vector of white noise process, with mean zero and constant covariance. Since there are only lagged values of the endogenous variables appearing on the right-hand side of the equations, simultaneity is not an issue and ordinary least squares (OLS) yields consistent estimates. The forecasts obtained by the VAR method are better than those obtained from the more complex simultaneous-equation models.

The vector error correction model (VECM)

Since time-series variables have been widely noted to be non-stationary, the results that are obtained from the level VAR are

spurious[1] and misleading (Mukhopadhyay and Pradhan, 2010). Moreover, utilizing properly differenced variables in the VAR may lead to model miss-specification if the level variables share the long run relationship or are co-integrated. In this case the VAR should be written in a VECM form as indicated below (Mukhopadhyay and Pradhan, 2010). The VECM captures both the short and long-run relationships, which can be specified as:

$$\Delta y_t = \alpha_0 + \pi y_{t-1} + \Gamma_1 \Delta y_{t-1} + \Gamma_2 \Delta y_{t-2} + \ldots + \Gamma_{k-1} \Delta y_{t-k} + 1 + \varepsilon_t \tag{3}$$

Where $\Gamma = -(A_{j+1} + \ldots + A_k)$, j = 1, ..., k-1 and $\pi = -I + A_1 + A_2 + A_3 + \ldots + A_k$

The VEC specification restricts the long-run behavior of the endogenous variables to converge to their co-integrating relationships while allowing a wide range of short-run dynamics. The co-integration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments.

The augmented Dickey Fuller (DF) test

Estimation of non-stationary data will cause spurious regression problems in that the least square estimators of the intercept and slope coefficients are not consistent (Wooldridge, 2000). In order to have non-spurious estimation outcome, unit root test using the augmented Dickey Fuller test was applied. The functional form for the test is specified as follows:

$$\Delta y_t = \Psi y_{t-1} + \sum_{i=1}^{p} \alpha_i \Delta y_{t-1} + \mu_t \tag{4}$$

Where y_t is variable of interest, t is time trend and p is lag length. In the above model Ψy_{t-1} captures the long run relationship, while Δy_{t-1} captures the short run dynamics. The ADF test can be biased towards accepting the null hypothesis of unit root in the series if the series exhibits significant structural breaks (Harris, 1995). Therefore, the data should be first tested for the existence of structural breaks. Differencing may lead to a considerable loss of long run properties of the data. So it is appropriate to develop a statistical tool which suits for capturing long-run relations between non-stationary variables in a right manner. Engle and Granger (1987) developed the theory of co-integration relation so as to provide a solution for this problem.

The Johansen co-integration method

The idea of cointegration is to take care of the non-stationarity of the variables and confirm whether there exists a long-run equilibrium relationship. The m x 1 series Yt is co-integrated if Yt is I(1) yet there exists , m x r, of rank r, such that Z=β'γ is I(0). The r vectors in are called the cointegration vectors. Even if individual series are non-stationary, their joint distribution can be stationary. For this purpose, the Johansen co-integration method was used, for its known advantage over the Engle-granger approach as expressed below.

$$Y_t = \lambda_1 y_{t-1} + \lambda_2 y_{t-2} + \cdots + \lambda_p y_{t-p} + \psi z_t + \varepsilon_t \tag{5}$$

---

[1] When two variables are trending over time, a regression of one on the other could have a high R^2 even if the two are totally unrelated

The VECM describes how variables are adjusted towards the long-run equilibrium state. The coefficients of the error-correction terms indicate the proportion by which the long-run disequilibrium in the dependent variables is corrected in the short-term period. Johansen represented Ho: π = αβ' and α and β are (mxr) matrices where the rows of β' are the r co-integrating vectors while the matrix represents the coefficient of speed of adjustment. This approach enables us to determine the number of co-integrating vectors and estimate the co-integrating vectors. According to Enders (1995), the number of co-integrating vector can be identified based on:

$$\lambda_{trace}(r_0) = -T \sum_{i=r_0+1}^{m} \ln\left(1 - \lambda_i\right) \tag{6}$$

Where λ is the characteristics root and T is the number of observations. Ho: $r \leq r_0$ and Ha: $r_0 < r \leq m$. The null hypothesis under this test is that the number of distinct cointegration vector is less than or equal to r_{00} against the general alternative.

$$\lambda_{max}(r_0) = -Tln(1 - \lambda_{r_0+1}).$$ $H_0 := r \leq r_0$ and H_a: $r = r_0+1$. Lack of cointegration between variables suggests that there exist no long-run relationship between them.

RESULTS AND DISCUSSIONS

Unit root test result

Based on the ADF test (Table 1), the absolute values of the calculated test statistics for all variables are less than its critical value at 5% level of significance, which indicates that all variables are non-stationary at level, that is, the series appears to have unit root. However, after applying the first difference, the data appears to be stationary at first difference. Hence the variables are said to be integrated of order 1.

Direction of causality between Private credit as per cent of GDP (PRIVY) and RGDP

The Pair-wise Granger causality between GDP and financial development indicator PRIVY   indicate the acceptance of the null hypothesis that LRGDP does not Granger cause PRIVY, but this study reject the null hypothesis that PRIVY does not Granger cause LRGDP. Therefore, it is shown that granger causality runs one way from PRIVY to GDP and not the other way. Hence, causality is uni-directional from financial sector development to economic growth (Table 2). Therefore, this is a major sign that Ethiopia is still a developing country. This scenario is not different from that of the developed countries: the more the country is developed, the more the financial development is useful to forecast GDP growth (Hurlin and Venet, 2008).

The uni-directional causality from financial development to economic growth may be justified by the fact that: the financial reform of Ethiopia has an immediate effect on economic growth as it facilitate investment and ensure easy flow of finance from one end of the economy to the

Table 1. ADF test for stationarity of variables; Augmented Dickey-Fuller tests for unit root.

Variable	ADF (test statistics)	Critical value at 5% level of significance	P-Values
(A) Variables in level			
lnRGDP	3.059310	-2.954021	1.0000
lnLAB	1.015069	-2.954021	0.9958
LnSAV	0.745214	-2.954021	0.9914
PRIVY	-1.377316	-2.954021	0.5813
LnFA	0.023423	-2.960411	0.9538
LnOPP	0.031421	-2.952031	0.8456
LnFDI	0.024521	-2.964321	0.7821
(B) Variables at first difference			
Δ*lnRGDP*	-4.197088	-2.957110	0.0025
Δ*lnLAB*	-4.863556	-2.957110	0.0004
Δ*LnSAV*	-7.296750	-2.957110	0.0000
Δ*PRIVY*	-4.826819	-2.957110	0.0005
Δ*LnFA*	-7.336523	-2.960411	0.0000
Δ*LnOPP*	-3.256789	-2.952031	0.0000
Δ*LnFDI*	-5.482732	-2.964321	0.0000

Source: Model result, Δ denotes first difference.

Table 2. Granger causality test.

Null hypothesis	Obs	F-Statistic	Prob.
PRIVY does not granger cause LNRGDP	32	0.42478	0.6582
LNRGDP does not granger cause PRIVY	-	19.07722	0.0010

Date: 04/010/15   Time: 02:43; Sample: 1980- 2013 Lags: 1.

other; the presence of financial constraints that are imposed on the financial sector, manifest itself in constraining the aspired economic growth rate of the nations. This can be justified by the fact that they interest rates on deposits are centrally controlled, the government interferes with the credit allocation decisions of private banks. Credit is often rationed in favor of larger and more established businesses, where the state-owned enterprises have much better access to credit than private businesses. The state-owned Development Bank of Ethiopia only lends to support the government's industrial development initiatives, selectively providing capital to firms in sectors were the government wants to promote. Moreover, the National Bank has a directive ordering private commercial banks to buy government bonds worth 27% of the loan disbursements they have made. This measure was set to earn 3% interest while the deposit rates set by the National Bank stand at 5%.

The long-run model

Even though the Johansen trace statistics suggested two co-integrating vectors, based on the objectives of this study only the unrestricted co-integrating vector with ad-hoc normalization on LnRGDP is estimated. Table 3 presents the result. The normalized cointegration equation can be written as:

$$LRGDP = -16.218 + 0.687lnLAB - 0.086lnSAV$$
$$(0.136) \quad\quad (0.6235)$$
$$+ 1.120PRIVY + 0.201FA + 0.167OPP + 0.361FDI$$
$$(0.1421) \quad\quad (0.0140) \quad (0.123) \quad\quad (0.112)$$

In this empirical analysis, the covariates are elasticity as the model is specified in log-linear with respect to real GDP. The labor force, financial sector development, foreign aid and FDI have an impact on the real GDP

Table 3. Estimates of β coefficients normalized to lnRGDP.

Variable	lnRGDP	lnLAB	lnSAV	PRIVY	lnFA	LnOPP	LnFDI	βo
β -coefficients	1	0.687	0.086	1.120	-0.201	0.167	0.361	-16.218
T-statistic	-	3.452	-6.855	2.725	-4.233	6.435	3.582	-
p-values	-	0.001	0.365	0.000	0.0331	0.1461	0.003	-

Source: Model result.

growth in the long run. Holding other factors constant, a 1% increase in labor force increased real GDP per capita by 0.687% which is consistent with endogenous growth theory. Labor force has significant long-run impact on the Ethiopian economy. The possible explanation for this is that the current struggle that Ethiopia is making in transiting from smallholder agriculture based to small and medium enterprise development is highly demanding for labor power. In fact the recent double digit economic growth of Ethiopia is primarily from the labor based productivity and production growth. Saving which is assumed to be the driving force for investment growth remains insignificant detriment of economic growth in the long run. The negative sign contradicts the basic economic theory that saving is the base of economic growth through its impact on investment. Nevertheless, this should be understood from the point of view that domestic saving in Ethiopia has historically remained low and instead development is financed by foreign aid.

With regard to the long run relationship between financial sector development and real GDP growth, there is a strong and positive relationship that is significant at 1% probability level. Holding other things constant, a 1% increase in PRIVY (ratio of credit to private sector to GDP), in the long-run, resulted in 1.12% increase in real GDP. This means, in country like Ethiopia, the most constraint is finance and hence, the development of this sector is crucial for sustainable economic growth. This positive effect of financial sector development on economic growth is theoretically and also empirically supported in the literature by McKinnon (1973). The other critical factor of economic growth in Ethiopia is foreign aid. After several decades, the Ethiopian economy is still dependent on foreign aid. In this regard, the empirical result shows that a 1% increase in foreign would lead to 0.201% in real GDP in the long run, holding other factors constant.

Theoretically and empirically, foreign direct investment is another critical factor for the growth of economy. The growth of the foreign direct investment in Ethiopia has shown significant progress in recent years, especially the past two decades, following the liberalization of certain economic sects. From the empirical result, a 1% increase in the flow of FDI into Ethiopia brings a 0.361% increase in real GDP, while other factors were held constant. This

relationship is statistically significant at less than 5% probability level.

Short-run models and VEC

The VEC has cointegration relations built into the specification so that it restricts the long-run behavior of the endogenous variables to converge to their co-integrating relationships while allowing for short-run adjustment dynamics (Harris, 1995). The co-integration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments. The error correction terms was lagged by one period (Table 4).

Short-run causality between PRIVY and lnRGDP could be tested from the error correction model using χ^2 value of wald statistics. The null hypothesis is that coefficient of DPRIVY is equal to zero against the alternative hypothesis that the coefficient is not equal to zero. The p-value of the chi-square test statistic (Table 5) is more than 5% (0.05). Hence, this study fails to reject the null hypothesis of no short-run causality running from PRIVY to lnRGDP.

In the short-run, all coefficients lagged one period including the dummy variable for regime change are statistically insignificant except for saving and foreign aid. In the short-run domestic saving has statistically significant effect on real GDP. Even though there is still lack of continuous saving behavior in Ethiopia over time, which is still around 19% of the GDP, the empirical result indicate that it is the source of economic growth in the short run. The low level of saving rate in the economy has necessitated increasing reliance on foreign aid to finance investment requirements of the country. Hence, this is evidenced by the fact that foreign aid significant determinant in the empirical result. However, according to Bencivenga and Smith (1991) economic theories though financial development can still promote economic growth, the paramount impact of the shortage of saving cannot be underemphasized, because of the strong linkage it has with investment.

The insignificant coefficient of PRIVY in the short-run might be due to the time lag of the contribution of the

Table 4. ECM with lnRGDP as dependent Variable.

Variables	Coefficients	Standard error	Prob
ΔlnRGDP(-1)	0.233069	0.321943	0. 2210
ΔlnLAB (-1)	-0.288450	0.886321	0.1124
ΔlnSAV (-1)	0.063711	0.022412	0.0432
ΔPRIVY(-1)	-0.140580	0.703468	0.8432
ΔlnFA (-1)	0.043211	0.011021	0.0321
ΔlnOPP (-1)	0.002113	0.023780	0.6578
ΔlnFDI (-1)	0.00821	0.011141	0.4482
Constant	0.053211	0.055553	0.0824
DUM	-0.020023	0.040792	0.6314
ECT(-1)	-0.101121	0.100271	0.0591

Source: Model result.

Table 5. Wald test for short-run causality between lnRGDP and PRIVY.

Test Statistic	Value	df	Probability
t-statistic	0.199838	25	0.8432
F-statistic	0.039935	(1.25)	0.8432
Chi-square	0.039935	1	0.8416
Null hypothesis: C(5)=0	-	-	-
Null hypothesis summary	-	Value	Std. Err
Normalized restriction (= 0)	-	0.140580	0.703468
C(5)	-	-	-

Restrictions are linear in coefficients.

private sector to economic growth showing the under-development of the financial sector for short-run impact. Similarly, degrees of openness, foreign direct investment and labor force have a positive but statistically insignificant effect on RGDP in the short-run, unlike their strong impact in the long run. The error correction term is -0.107514 measuring the adjustment of real GDP towards the long-run steady state path, which an implication that each year, about 10.75% of it will be adjusted towards its long-run equilibrium. For full adjustment to take place it needs almost 10 years which shows a slow process.

Impulse response

Impulse response function is used to trace the effect of a one standard deviation shock to one of the innovations on current and future values of the endogenous variables. It is possible to identify the positive or negative impact of the variables and determine how long it would take for that effect to work. It is a method of assessing the interaction among the variables in the VAR. This study used the generalized impulse response function because it does not require orthogonalization of innovations and is invariant of the ordering of the variables in VAR.

The results of the impulse-response functions (IRF) for the real GDP reveals that in response to one standard deviation shock of lnRGDP and LRGDP itself increases by 0.074 in the first year and continues to grow in the long-run reaching 0.62 in 10th period (Table 6). A one standard deviation disturbance originating from PRIV produces a 0.006 increase in GDP in the first year. Its effect continues to grow as the forecast horizon is extended and reaches 0.47 at the 10th year (Table 6). PRIVY which has a minimum impact on GDP at present and its effect in the current year does not die out, rather it continues to grow over years. In other words, financial development has a long- run impact on economic growth which is consistent with the above findings. The impact of saving and foreign aid which is significant in the current year as compared to PRVIY is also permanent, while their effects vanish in the long-run as compared to PRVIY.

Similarly the impulse response for the PRIV shows that

Table 6. Impulse response of lnRGDP.

Period	lnRGDP	PRIVY
1	0.073508	0.006659
2	0.136705	0.025470
3	0.183002	0.060824
4	0.230540	0.102377
5	0.287468	0.153270
6	0.352609	0.208014
7	0.419230	0.268005
8	0.485317	0.332492
9	0.552049	0.400854
10	0.620733	0.472423

Source: model result.

Table 7. Impulse Response for PRIVY.

Period	lnRGDP	PRIVY
1	0.182783	2.017775
2	2.061355	3.301188
3	4.551326	4.948988
4	7.080950	6.939021
5	9.479266	8.995791
6	11.80650	11.37526
7	14.28567	13.84556
8	16.889	16.45690
9	19.55627	19.16370
10	22.23422	21.96195

Table 8. Variance decomposition of lnRGDP.

Period	S.E	LnRGDP	PRIVY
1	0.073508	100.0000	0.000000
2	0.099937	94.09100	1.460934
3	0.115682	86.23782	7.779839
4	0.131745	79.51116	12.44785
5	0.153054	72.74724	16.37747
6	0.176358	68.43469	18.40536
7	0.199076	64.90618	20.30798
8	0.220956	61.63362	22.08679
9	0.242763	58.61456	23.53274
10	0.264693	56.03743	24.62017

Source: Model result.

The study focuses on the relative importance of endogenous variables in explaining the variation in lnRGDP and PRIVY; hence, the study only decomposes the forecast error variance on lnRGDP and PRIVY. The variance estimates indicate that a greater proportion of the variation in RGDP is due to its own innovations (Table 8). During the first year the variation due to other variables is almost negligible. Over a period of 10 years, the variation due to the other variables grows and reaches a maximum of 43.06. The remaining 56.04% are due to changes in GDP growth itself within the period under consideration. Private credit as percent of GDP has the highest effect on GDP growth followed by foreign aid and labor. In general, 24.62% of future changes in GDP are due to changes in PRIVY, showing the importance of financial development to economic growth.

in response to one standard deviation shock of PRIV, PRIV itself increases by 2.02 in the first year and continues to grow in the long-run reaching 21.96 in 10th period (Table 7). A one standard deviation disturbance originating from lnRGDP produces a 0.18 increase in PRIVY in the first year. However, its effect continues to grow and reaches 22.23 at the 10th year.

Variance decomposition

While impulse response functions trace the effect of a shock to one endogenous variable on the other variables in the VAR, variance decomposition separates the variation in an endogenous variable into the component shocks to the VAR. The relative importance of each random innovation in affecting the variables in the VAR can be seen by the variance decomposition results. It highlights the proportion of the movements in the dependent variables as a result of their own shocks, against shocks from the other variables.

CONCLUSION

From the empirical result, it can be learned that there existences uni-directional causality from financial development to economic growth. This implies that development of appropriate financial sector drives economic performance over longer period of time. In light of this, the slow progress of the real GDP in the country, which is significantly determined by financial sector development, clearly indicated that the financial sector of the country is still underdeveloped. Hence, it is worth concluding that the substantial gap between saving and investment, which the Ethiopian financial sector is unable to bridge, leads to foreign borrowing to finance investments. Moreover, past performance, saving rate, foreign aid, foreign direct investment and foreign aid in the economy also plays significant role in the present economic conditions. In the long run, the economic improvement initiated by the financial sector creates an economy that will have a resonance of its own; where by

present level of the GDP determines the future level of the GDP.

POLICY IMPLICATION

The policy implication from this study could be summarized as follows:

1. The financial sector remained not competitive irrespective of the reform which is said to have taken place over a couple of decades, hence, means has to be in place to improve the competitiveness, efficiency and effectiveness of the industry. This will lay a base that can in turn speed the envisaged double digit economic growth targeted for the 2016 to 2020 growth and transformation plan II. One way of such reform in the financial sector could be subjecting it to some form of competition through the licensing of new banks, of course, taking into account the size of the Ethiopian market. This will help increase the volume of lending and possibly reduce the lending rates and service fees as banks compete for customers. Some of the banks, in a competitive environment, may even start to avail funds to small and medium scale enterprises without collateral security; something which is not significantly happening in Ethiopia in the interim. In addition, the government of Ethiopia may need to relax the regulatory restrictions on private banks in the country and enable the diversification source of its revenue for public investment rather than heavily relying on financial sector as a potential source of ''easy'' resources for the public budget.
2. Given the potential role of saving, the government should enable the national bank to take affirmative action's like better interest rate on deposit, expansion of branches of financial institutions across the country so as to get closer to the community, diversification of financial services, promotion of education on financial literacy and more. The government should also do more to attract foreign direct investment, diversify the investment ventures and open up the economy for better portfolio investment.

Conflict of Interests

The authors have not declared any conflict of interests.

REFERENCES

Aghion P, Howitt P (1992). Endogenous Growth Theory. The MIT Press. Cambridge, Massachsets London, England.

Bencivenga VR, Smith BD (1991). Financial Intermediation and Endogenous Growth. Rev. Econ. Stud. 58:195-209.

Bezabih A, Asayehegn (2014). Banking Sector Reform in Ethiopia. Int. J. Bus. Commerce 3(8):25-38.

Demetriades P, Hussein K (1996). Does Financial Development Cause Economic Growth? Time Series Evidence from 16 Countries. J. Dev. Econ. 51:387-411.

Enders W (1995). Applied Econometric Time Series. Iowa State University, John Wiley and Sons, Inc.

Engle RF, Granger EC (1987). Co-Integration and Error Correction: Representation, Estimation, and Testing. Econometrica 55(2):251-276.

Freidman M, Schwartz Anna J (1963). A Monetary History of the United States: 1867 to 1960 with Princeton University Press, USA.

Greenwood J, Smith B (1997). Financial Markets in Development, and the Development of Financial Markets, J. Econ. Dyn. Control 21:145-181.

Harris R (1995). Using Co-integration Analysis in Econometric Modeling. London.

Hurlin C, Venet B (2008). Financial Development and Growth: A Re-examination on using a Panel Granger Causality Test.

Lucas RE (1988). On the Mechanics of Economic Development. J. Monetary Econ. 22:3-42.

Ministry of Economic Development and Cooperation (MEDaC), (1999). Survey of the Ethiopian Economy: Review of Post-reform Developments (1992/93-1997/98). Addis Ababa, Ethiopia.

Mukhopadhyay B, Pradhan R (2010). An Investigation of the Finance-Growth Nexus: Study of Asian Developing Countries Using Multivariate VAR Model. Inter. Res. J. Finance Econ. Issue 58.

Patrick H (1966). Financial Development and Economic Growth in Underdeveloped Countries. Economic Development Cultural Change, 14:174-189.

Rahman H (2004). Financial Development-Economic Growth Nexus: A Case Study of Bangladesh. Bangladesh Dev. Stud. 30(3/4):113-128

Robinson J (1952). The Generalization of the General Theory. In: The Rate of Interest and other Essays. London, Macmillan.

Schumpeter JA (1912). The theory of economic development. Leipzig: Dunker & Humblot; translated by REDVERS OPIE. Cambridge, MA: Harvard U. Press.

Solow M, Swan A (1956) Contribution to the Theory of Economic Growth. Quarter. J. Econ. 70(1):65-94.

Wooldridge MJ (2000). Introductory Econometrics: A Modern Approach", 2nd edition.

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