EuroMed Journal of Business

Number 1

1 Editorial advisory board
2 Demystification of the glass ceiling phenomenon: gender stereotyping and successful managers’ personality traits in Greece Konstantinos Vatsikis, Georgia Sakka and Christos Lemonakis
20 Performance of SMEs in Tangier: the interface of networking and wasita Yassine Sefiani, Barry J. Davies, Robin Bown and Neilson Kite
44 Modularity approach to improve the competitiveness of tourism businesses: empirical evidence from case studies Pasquale del Vecchio, Giustina Secundo and Giuseppina Passiante
60 Audit report timeliness: does internal audit function coordination with external auditors matter? Empirical evidence from Tunisia Ahmed Atef Oussii and Neila Bouila Taktak
75 Production technologies and low-technology knowledge-intensive venturing Glykeria Karagouni
86 Do glamour, self-sexualisation and scopophilia influence celebrity endorsement? Catarina Peixoto Carvalho and Antonio Azevedo
EDITORIAL ADVISORY BOARD

Professor Zafar U. Ahmed
University of Dammam, Saudi Arabia

Professor Duncan Angwin
Oxford Brookes University, UK

Emeritus Professor Michael J. Baker
University of Strathclyde, UAE

Professor Roger Bennett
London Metropolitan University, UK

Professor Richard Boyatzis
Case Western Reserve University, USA

Professor Dr. Bernd Britzelmaier
Pforzheim University, Germany

Professor Susan Cartwright
Lancaster University, UK

Professor Muris Cicic
University of Sarajevo, Bosnia and Herzegovina

Professor Cary L. Cooper CBE
Manchester Business School, UK

Professor Maria Crescimanno
Università di Palermo, Italy

Professor Carmen-Eugenia Costea
Spiru Haret University Bucharest, Romania

Professor Michael R. Czinkota
McDonough School of Business, Georgetown University, USA

Professor Leo-Paul Dana
University of Canterbury, New Zealand

Professor Rommert Dekker
Erasmus University, The Netherlands

Professor Manlio Del Giudice
University of Rome (Link Campus), Italy

Professor Simon L. Dolan
ESADE Business School, Spain

Professor Bayram Zafer Erdogan
Anadolu University, Turkey

Professor Christian Grönroos
Hanken School of Economics, Finland

Professor Ali Kanso
University of Texas at San Antonio, USA

Professor Zafar U. Ahmed
University of Dammam, Saudi Arabia

Professor Duncan Angwin
Oxford Brookes University, UK

Emeritus Professor Michael J. Baker
University of Strathclyde, UAE

Professor Roger Bennett
London Metropolitan University, UK

Professor Richard Boyatzis
Case Western Reserve University, USA

Professor Dr. Bernd Britzelmaier
Pforzheim University, Germany

Professor Susan Cartwright
Lancaster University, UK

Professor Muris Cicic
University of Sarajevo, Bosnia and Herzegovina

Professor Cary L. Cooper CBE
Manchester Business School, UK

Professor Maria Crescimanno
Università di Palermo, Italy

Professor Carmen-Eugenia Costea
Spiru Haret University Bucharest, Romania

Professor Michael R. Czinkota
McDonough School of Business, Georgetown University, USA

Professor Leo-Paul Dana
University of Canterbury, New Zealand

Professor Rommert Dekker
Erasmus University, The Netherlands

Professor Manlio Del Giudice
University of Rome (Link Campus), Italy

Professor Simon L. Dolan
ESADE Business School, Spain

Professor Bayram Zafer Erdogan
Anadolu University, Turkey

Professor Christian Grönroos
Hanken School of Economics, Finland

Professor Ali Kanso
University of Texas at San Antonio, USA

Professor Maria Kapardis
Cyprus University of Technology, Cyprus

Professor Constantine S. Katikis
Leeds University Business School, UK

Dr. Hans Rüdiger Kaufmann
University of Nicosia, Cyprus

Professor Philip J. Kitchen
University of Rennes, France

Professor Marios Koufaris
Baruch College, CUNY, USA

Professor Malcolm McDonald
Cranfield University, UK

Dr. Raphael Markellos
Athens University of Economics and Business, Greece

Professor Alberto Mattiacci
Sapienza, University of Rome, Italy

Professor Luiz Moutinho
University of Glasgow, UK

Professor Richard Alan Nelson
University of Nevada Las Vegas, USA

Duong Nguyen
University of Massachusetts Dartmouth, USA

Professor Niels Noorderhaven
Tilburg University, The Netherlands

Professor Stan Paliwoda
University of Strathclyde, UK

Professor Costas Pappis
University of Piraeus, Greece

Professor Bernard Parlane
Euromed Marseille, École de Management, France

Dr. Fotios Pasiouras
University of Bath, UK

Professor Asya Pazy
Center of Academic Studies, Israel and Tel Aviv University (Emeritus), Israel

Dr. Yiannis Polychronakis
University of Cyprus, Cyprus

Professor Orly Yeheskel
Tel Aviv University, Israel

Dr. Leyuan You
University of Alaska Anchorage, AK

Professor Stavros Zeniou
University of Cyprus, Cyprus

Professor Constantin Zopounidis
Technical University of Crete, Greece

Dr. Assem Safieddine
Olayan School of Business, American University of Beirut, Lebanon

Dr Grazi Santangelo
University of Catania, Italy

Professor Don Schultz
Northwestern University, USA

Professor Sadiq Sohail
King Fahd University of Petroleum and Minerals, Saudi Arabia

Dr Khaled Soufani
Concordia University, Canada, Visiting Fellow – University of Cambridge, UK

Professor Gunter Stahl
INSEAD, France and Vienna University of Economics and Business, Austria

Professor Peter Stokes
University of Chester, UK

Professor Constantinos Syropoulos
Drexel University, USA

Professor Giuseppe Tardivo
University of Torino, Italy

Professor Sultan N. Abu Tayeh
Hashemite University, Jordan

Dr Alkis Thrassou
University of Nicosia, Cyprus

Professor Nickolos G. Travlos
Athens Laboratory of Business Administration, Greece

Professor Jean Claude Usunier
University of Lausanne, Switzerland

Professor Jin Wang
Liverpool John Moores University, UK

Professor Yaakov Weber
College of Management, Israel

Professor Orly Yeheskel
Tel Aviv University, Israel

Dr Leyuan You
University of Alaska Anchorage, AK

Professor Stavros Zeniou
University of Cyprus, Cyprus

Professor Constantin Zopounidis
Technical University of Crete, Greece

EuroMed Journal of Business
Vol. 13 No. 1, 2018
p. 1
© Emerald Publishing Limited
Abstract

Purpose – The purpose of this paper is to examine the gender role phenomenon and the stereotyping of requisite managers’ personal characteristics in the Greek society of today.

Design/methodology/approach – Data were collected quantitatively based on the informants’ perceptions on successful managers’ personality traits and according to the informants’ personality characteristics. Questionnaires were administered online to two separate convenience samples. Reliability analysis (Cronbach’s α) was employed for scale refinement, while intraclass correlation coefficient (r′) and t-test analysis examined the similarity of respondents’ responses across the items of the refined scale.

Findings – The results indicate that gender role stereotypes are challenged. It seems that the perceived managers’ personality is comprised of both agentic/masculine and communal/feminine characteristics and this perception is not perceived differently by men and women. This debates on whether the “glass ceiling” exists due to other determinants.

Originality/value – The study contributes to the literature on gender role stereotyping research and perceptions of managerial personality characteristics in Greece.

Keywords Greece, Personality traits, Managers, Gender role stereotypes

Paper type Research paper

Introduction

The number of women in managerial positions has grown rather rapidly during the past decades and in certain organizational sub-units, such as HRM and PR, women even outnumber men (Ross-Smith and Huppatz, 2010). Women’s participation in senior management positions is also increased during the last three decades, despite “glass walls” – being hired in positions not leading to climbing the managerial ladder to the top – and “glass cliff” – being hired in the positions associated with increased failure risks (Ryan and Haslam, 2007; Basow, 2013). Nonetheless, men still outperform women in occupying, especially, upper-middle and senior management positions (Dezsö and Ross, 2012; Eddy and Sears, 2017). Over the years, an improvement has been noted in the way women are treated in workplace, but the glass walls have not yet been totally diminished (Mihail, 2006; Ryan and Haslam, 2007; Broadbridge and Hearn, 2008; Petraki-Kottis and Ventoura-Neokosmidis, 2011; Eddy and Sears, 2017).

There are several theories examining this phenomenon and specifically based on different relevant topics such as attribute women’s barriers, seizing managerial positions, inexperience, insufficient career opportunities, gender differences in socialization, psychological reasons (Schein, 1973, 1979, 2001, 2007; Kilian et al., 2005; Bac and Inci, 2010; Michelman, 2017). Alternative issues involve gender role and managerial personality...

In order to develop a sufficient understanding of the perceptual hurdles restraining women’s advancement towards climbing the managerial ladder, Schein (1973) introduced a 92-item index – Schein’s Descriptive Index (SDI) of human personality traits. The index was initially used towards enlightening genders’ perceptions of the personality characteristics of each other and the requisite managers’ personality characteristics. Subsequently and up to the present day, the SDI was used in quite a multitude of settings (Brenner et al., 1989; Schein et al., 1989; Orser, 1994; Dodge et al., 1995; De Pillis et al., 2008; Boysen and Nkomo, 2010) in researching Schein’s (1973) “think manager – think male” maxim. However, the majority of published studies on the subject reports findings from the protestant societies. Pursuing the investigation of gender role stereotyping across different cultures will supplement the current understanding on the topic, especially in view of certain “gender paradoxical” findings that have been reported. That is, gender role stereotyping and gender-related personality differences appear significantly wider in more gender-egalitarian cultures as compared to less egalitarian (Costa et al., 2001; McCrae et al., 2005).

The purpose of this study is to follow the research on gender role stereotyping and essential managers’ personality traits originated by Schein (1973) in Greece and not in in a protestant society that so far have hosted studies on the subject, as reported in the literature (Hofstede, 1980). Precisely, this study will examine the extent to which gender role and requisite personality characteristics of managers stereotyping exist in the contemporary Greek society.

The study adds to the literature on the gender role stereotyping research and perceptions of managerial personality characteristics, while the research on gender role stereotyping with evidence from Greece is scarce (e.g. Mihail, 2006). To the best of the authors’ knowledge, this is the first study, on evidence from Greece investigating the gender role stereotyping on the requisite management characteristics. The study unveils the lack of gender role stereotyping and significant similarity of personality traits across genders, both challenging, in the case of Greece, popular aphorisms such as the “think manager – think male”, “Old Boys Club,” etc.; even though the country’s cultural standing is not among the most gender-egalitarian across the globe (Hofstede, 1980).

Limitations of this study are certainly related to: drawing evidence from a convenience sample and surveying through the internet. However, attention was paid so that sampling bias was excluded to the greatest possible extent.

The structure of the study is as follows: the next section presents a literature review on gender role stereotyping and manager personality traits while the third section outlines the study’s methodological approach. The fourth section presents the data and the analytical results of the study while the fifth section discusses the study’s main findings. Finally, the sixth section summarizes the empirical findings, discusses the study’s implications and draws significant conclusions.

Literature review

Stereotyping “is seen as a normal cognitive process […] which represents reality in a simplified way to perform tasks including: group formation and identification, describing differences between groups, and helping to differentiate in-groups from out-groups” (Doug et al., 2006). Gender-related stereotyping, in particular, is related to gender role stereotypes, that is, presuming the personality attributes and behaviors as well as forming specific expectations for the behavior and abilities of individuals according to their gender (Hughes and Seta, 2003). Gender role stereotypes are contributing to the formation of social perceptions. For example, the capability or even suitability for certain working positions of
each gender, or even the job of a manager in workplaces and the performance of associated duties are gender stereotyped.

Over the past decades, shifts in social attitudes, improvement of women education, consumption patterns, gender-egalitarian political practices and structural changes in the economy that increased the number of jobs in the tertiary sector led to an increased participation of women in the workforce, as a whole, and particularly in decision-making positions (Ayman et al., 2009; Brink et al., 2016). Nevertheless, the representation of women in the labor market is still lacking. Postulated GDP per capita losses due to underrepresentation of women in the labor market in the area between 5 percent (in USA) and 34 percent (in Egypt) across regions (Aguirre et al., 2012; Cuberes and Teignier, 2014).

Further, despite evidence on that companies’ performance is positively impacted by the increased numbers of women on board or senior management positions, women underrepresentation in managerial positions is even more noticeable (Wolfman, 2007; McKinsey, 2008; Dezsö and Ross, 2012; Grant Thornton, 2012; Sahoo and Lenka, 2016; Eddy and Sears, 2017). Among others, female managers are found to be more capable of addressing the demands of women-dominated markets, while the risk associated with the financial transactions conducted by female decision-makers is usually much reduced as compared to their male counterparts (Coates and Herbert, 2008; Basow, 2013).

The term that epitomizes the barriers women (and other minorities) face in attempting to climb the organizational ladder is the “glass ceiling”. It was brought to wide attention in 1986 as the title of a Wall Street Journal report (Hymowitz and Schellhardt, 1986). It describes “the unseen, yet unbreakable barrier that keeps minorities and women from rising to the upper rungs of the corporate ladder, regardless of their qualifications or achievements” (Federal Glass Ceiling Commission, 1995) and is used to describe the practices, prejudices, stereotypes, traditions and other similar factors that prevent women and other minority from occupying higher management positions (Ryan and Haslam, 2007; Broadbridge and Hearn, 2008; Vinkenburg et al., 2011; Petraki-Kottis and Ventoura-Neokosmidis, 2011). In the higher levels of management, the “glass ceiling” is more unbreakable (Oakley, 2000), while the size of companies is positively correlated to the number and effectiveness of barriers women facing in their professional advancement (Schein, 1973, 1979, 2001, 2007; Jogulu and Wood, 2006; Broadbridge and Hearn, 2008; Budzińska, 2010, Vinkenburg et al., 2011; Petraki-Kottis and Ventoura-Neokosmidis, 2011; Powell and Butterfield, 2015). Barriers in the professional development of women come as a combination of social perceptions about their “nature” and the need for compliance with the personality characteristics of managers, usually presented as “masculinized” (Orser, 1994). Even if women do occupy senior managerial positions they continue to face criticism and negative attitudes from the society and their colleagues (Ryan and Haslam, 2007; Powell and Butterfield, 2015).

There is ample evidence in the literature that the “glass ceiling” phenomenon is highly stereotypical. Quite a number of empirical studies, across countries, have dealt with gender role stereotyping and the degree of resemblance of masculine to feminine characteristics (Heilman, 2001; Booyens and Nkomo, 2010; Brescoll, 2016). Stereotyping is found to be significantly related to the requisite managers’ personality characteristics that are considered to be masculine (Willemse, 2002; Ryan and Haslam, 2007; Michelman, 2017). It is suggested that the personality characteristics of men and women are different and that this prevents women from ascending beyond certain hierarchical levels (Schein, 1973, 1979, 2001, 2007; Schein et al., 1996; Heilman, 2001; Booyens and Nkomo, 2010; Brescoll, 2016). The general idea expressed in the literature is that not only the perceived requisite personality characteristics of successful managers are masculine but this perception is shared by both men and women (Wellington et al., 2003). Moreover, men significantly more than women identify their own personality characteristics to those perceived or successful managers (Powell et al., 2002).
As far back as the early 1970s, Schein (1973, 2001, 2007) introduced the “think manager–think male,” as she called it, a notion that is connected to the subsequently introduced “glass ceiling” concept. Schein (1973) initiated a research stream attempting to examine the phenomenon specifically from the gender role stereotyping viewpoint. In this course, she developed and introduced her 92-item index (SDI) of personality characteristics. At around the same time, Peters et al. (1974), recognizing the influence of stereotypes on subsequent discriminatory behavior towards women, developed the “Women as Managers Scale” that was designed to detect and assess stereotyping towards women as managers. In its original or in its enhanced: “Attitudes toward Women as Managers Scale” (Thomas and Kilmann, 1974, 2007) form, the scale was used in a series of empirical studies related to gender role stereotyping. This study follows Schein’s (1973, 2001, 2007) research trajectory providing a more solid benchmarking framework for its findings.

SDI is by no means beyond criticism. Terborg et al. (1977), for example, express the view that SDI is constructed to specially focus on middle management positions, and the personality characteristics going along with them, and is not a universal measure of the full range of attitudes toward women as managers. However, throughout the years, quite a number of studies have steadily followed Schein’s research trajectory, including SDI, to examine the existence and effects of gender role stereotyping in management (Schein, 1973; Ryan and Haslam, 2007; Booysen and Nkomo, 2010; Stoker et al., 2012).

Bosner (2008) used an SDI variation, to compare gender role stereotypes, about self, own gender and average man and woman, to perceived personality characteristics of successful managers. Both women and men were found to be subject to gender role stereotyping. Men had to be more assertive and emotionally stable than women who had to be more useful than men. A distinct finding of this study that Bosner (2008) interprets as indicating stereotyping was that most men and women in the sample rated their own capabilities significantly higher than those of their own or the opposite sex, on average. Bosner (2008) concludes that gender role stereotyping is a major obstacle standing in the way of both organizations, wanting to employ, promote and maintain a competent workforce, and individuals wanting to be employed and fairly rewarded. Regarding gender role stereotyping, Schein (2001) stresses the need to be diminished, as far as managerial positions are concerned, as well as the need for the development of legal and structural mechanisms that will protect women and provide them with the opportunity to progress hierarchically. She asserted that organizations and government regulators should work harder toward securing, to those women who do manage to occupy top management positions, the right to work in equal terms with their male counterparts (Schein, 2007). Booysen and Nkomo (2010) studied the “think manager–think male” phenomenon in South Africa, adding the race variable into the equation. They found that high correlation between perceptions of males’ and managers’ personality characteristics exist. Papalexandris and Bourantas (1991) attempted to correlate differences in attitudes toward women as managers in Greece with various respondents’ personal and organizational characteristics. They found that among personal characteristics, gender, age, and interaction with women managers were found to be significantly correlated to attitudes toward women as managers. On the other hand, education and managerial experience were found to be insignificant as determinants. Terborg et al. (1977) found that while organizational data do not correlate with attitudes toward women as managers, respondents’ gender and education can predict such attitudes. Later on, Mihaile (2006) found that the primary source of shaping respondents’ attitudes toward women as managers is their own gender and that other personal characteristics such as education, managerial experience, etc. do not have a measureable impact on stereotypic attitudes toward women in managerial positions.

The twin notion is dominant in the literature: that significant resemblance exists between masculine personality characteristics and the individualities that are appropriate for occupying...
a managerial position (Heilman, 2001; Powell et al., 2002; Duehr and Bono, 2006; Booysen and Nkomo, 2010) and that this perception is common for both men and women (Booysen and Nkomo, 2010).

Over the years, however, women’s view of a woman’s position in senior management has shifted (Schein et al., 1989; Brenner et al., 1989; Schein and Mueller, 1992; Schein, 2001; Eddy and Sears, 2017). In earlier studies, mainly on evidence from US samples, the findings unanimously proposed women’s belief that only men have the personality characteristics required in order to get an executive position (Schein, 1973, 1979). Over time, however, this almost consensual belief, among women, gradually gave way to the notion that both men and women do possess requisite managerial personality characteristics (Schein et al., 1989; Brenner et al., 1989; Schein and Mueller, 1992; Schein, 2001; Budzińska, 2010; Sahoo and Lenka, 2016). Orser (1994) using a sample of Canadian university students found that both men and women have the characteristics to hold a managerial position and these characteristics are more close to the characteristics of women than those of men.

Although women massively participate in the labor market (Mousourou, 2003; Eddy and Sears, 2017) and their participation rates in paid employment have increased steadily across countries (Grant Thornton, 2012), the “glass ceiling” phenomenon is still a fact, mainly on the grounds of gender role stereotyping, by both sexes, assigning difference characteristics and, hence, different job opportunities to each other (Heilman, 2001; Booysen and Nkomo, 2010; Eddy and Sears, 2017). This study will examine the existence of gender role and requisite personality characteristics of managers, stereotyping in the modern Greek society. On the grounds of existing literature already discussed, the following research hypotheses are tested:

\( H1 \). Managers’ requisite personality characteristics are predominantly agentic (masculine).

\( H2 \). Managers’ requisite personality characteristics perceived as more agentic by men as compared to women.

\( H3 \). Own personality characteristics of men are predominantly agentic as compared to characteristics of women that are predominantly communal.

\( H4 \). In terms of personality characteristics, men are seeing themselves more close to successful managers than women.

Methodology

Research setting

The study was conducted based on a sample of Greek informants. Gender equality in Greece is established in the Constitution, declaring that “The State shall arrange for the removal of inequalities existing in practice, in particular against women”, while the “General Secretariat of Gender Equality” of the Ministry of the Interior monitors the implementation of relevant constitutional requirements. Despite the egalitarian constitutional and legal framework, gender inequality reigns in the workplace as regards both labor force participation (58 percent of women against 79 percent of men) and unemployment rates (21 percent of adult women against 15 percent of adult men). In addition, although equal pay for equal work is constitutionally mandated, the female-to-male ratio of compensation for equal work is 65 percent as a result of low pay in the so-called “feminine” jobs. The female-to-male ratio in legislators, senior officials and managers is 34 percent, while in parliamentary seats 27 percent and in ministerial positions only 6 percent. Finally, Greece holds the 91st position, between 142 countries monitored, in the 2014 Gender Gap Index of the World Economic Forum (World Economic Forum, 2015).
Although in Greece, the number of women in managerial positions is increasing, they remain significantly underrepresented in upper-middle and senior management positions (Petraki-Kottis and Ventoura-Neokosmidis, 2011; Mihail, 2006; Alipradi - Maradou, 2008). However, Greece is not at the bottom of the list as regards women in top management positions. Greece’s 30 percent is just marginally lower than Germany’s 31 percent and higher than France’s 26 percent, Italy’s 24 percent, Spain’s 21 percent and Sweden’s 27 percent (Grant Thornton, 2014). However, the situation regarding board level positions is different. Women’s representation in the boards of the FTSE/ATHEX 20 index companies is as low as 7.9 percent significantly below the EU average of 15.8 percent, while no board chair or CEO position is held by women. At the same time, 82 percent of Greeks, against the European average of 75 percent, will favor pro-women legislation on the matter, under the condition of qualifications’ matching (European Commission, 2013).

Method
To allow for a solid benchmarking platform for its findings, this study adopted the methodology introduced in Schein’s (1973) original study and thereafter employed in several studies held across the globe.

Variables
The study’s variables are: “perceptions of successful managers’ personality characteristics” and “respondents’ personality characteristics”, both elicited through employing the SDI, a battery of 92 personality attributes, initially introduced by Schein (1973) in her attempt to test the theory that sex role stereotypes were obstructing women from climbing up the managerial hierarchy. Since its introduction, SDI has been repetitively employed to expose perceptions and evaluations of personality characteristics, in quite a number of research settings of managers, accountants, teachers, students, entrepreneurs, military personnel, leaders and further (Brenner et al., 1989; Schein et al., 1989, 1996; Schein and Mueller, 1992; Orser, 1994; Dodge et al., 1995; Stivers and Campbell, 1995; Tomkiewicz and Brenner, 1996; Deal and Stevenson, 1998; Schein, 2001; Powell et al., 2002; Boyce and Herd, 2003; Duehr and Bono, 2006; Gupta and Fernandez, 2009; Gupta et al., 2009; Booyesen and Nkomo, 2010).

Survey
Data were collected in two concurrent stages from an, overall, \( n = 404 \) convenience sample of adult men and women, divided into two sub-samples of \( n_1 = 236 \) and \( n_2 = 168 \) in Stages I and II, respectively. Eligible for the sample were adult individuals who, at the time of the survey, worked or had some prior working experience in either the private or public sector. Across the battery of the 92 SDI items, respondents of Sub-sample I provided their perceptions of successful managers’ personality characteristics while respondents of sub-sample II specified their own personality characteristics. Sub-samples I and II provided 134 (response rate: 67 percent) and 101 (response rate: 60 percent) usable responses. For studies following the interpretive and critical paradigms, non-random sampling is not an issue. In general, when generalizability is not the primary goal, convenience sampling is considered appropriate (Calder et al., 1981; Croucher and Cronn-Mills, 2014).

Survey instruments
Stage I survey instrument comprised two parts: demographics and the SDI (Schein, 1973), while Stage II instrument comprised three parts: demographics, the SDI and a single final question appraising the respondents’ perceptions of whether they possessed the personality characteristics of a successful manager. With the exception of demographics, all items were rated in identical Likert scales anchored at 1 = “not at all” and 7 = “absolutely.”
Both instruments were administered electronically (LimeSurvey) with personal e-mails inviting people to participate in the survey and subsequent reminders. Seven-point Likert scales are considered accurate in measuring respondent’s assessments especially in web surveys (Finstad, 2010). Scoring instructions across the SDI items were as follows:

(1) Stage I: “Your perceptions are sought of the personality characteristics of successful managers across the following battery of 92 items. Please rate each characteristic in terms of how typical you think it is of the personality of successful managers. Choose 7 if you think of a characteristic as absolutely typical or 1 if you think it is not at all typical. If your view is less adamant choose one of the grades in-between.”

(2) Stage II: “Your assessment is sought of the characteristics of your own personality across the following battery of 92 items. Please rate each characteristic in terms of how typical it is of your personality. Choose 7 if a characteristic is absolutely typical of your personality or 1 if it is not at all typical. If your view is less adamant choose one of the grades in-between.”

In Stage I, 57 males and 77 females provided usable responses. The respondents’ ages ranged from 18 to 65, 55 percent of them in the 31-45 age brackets, while their annual income mostly ranged below the €50,000 mark. In Stage II, usable responses were provided by 53 males and 48 females. The respondents’ ages ranged from 18 to 65, 55 percent of them in the 31-45 age brackets, while their annual income mostly ranged below the €50,000 mark. $\chi^2$ analysis provided no evidence of sampling bias between Stage I and Stage II sub-samples. The survey was conducted in Greek. Prior to being employed for data collection both instruments were piloted to control samples of 20 respondents each.

**Data analysis**

*Characteristics of successful managers*

Drawing from Gupta and Fernandez (2009), the first step of the analysis involved refining the SDI so that the personality characteristics of successful managers perceived by Stage I respondents are identified. Data were subjected to model $\alpha$ (Cronbach’s) reliability analysis. Items were kept for or excluded from further analysis on the grounds of the “$\alpha$ if item deleted” criterion. The analysis excluded 33 items, apparently those perceived by respondents as non-typical of the personality of successful managers, and resulted in a refined battery of 59 items (Table II). The $\alpha$ value for the refined scale was 0.93, indicating very high internal consistency.

*Intraclass correlation (ICC).* The agreement of perceived successful managers’ characteristics between Stage I men and women was assessed by ICC analysis (Schein, 1973; Schein et al., 1996; Booyens and Nkomo, 2010). ICC can assess the relative correspondence and the absolute agreement of ratings. In this analysis, the rated classes were the 59 SDI items perceived by the respondents as successful managers’ personality characteristics, while the raters’ scores were the mean ratings of men and women across the 59 items. The ICC value reflects the proportion of total variance explained by the variance between ratings across items. It ranges from 0 to 1, where the more in agreement ratings are, the closer the ICC value to 1 tends to be (Schein et al., 1996, p. 36). In the context of this study, high ICC values would reflect high level of agreement between Stage I men and Stage I women. For the analysis, the two-way random effects model was selected implying that the two raters (Stage I men and Stage I women) comprise a random sample from a population of similar raters (in this case, samples of men and women). Under the same assumption, reliability was calculated from single measures. To account for systematic differences among rating levels the absolute agreement type of analysis was employed. Finally, ICC
values were tested against 1, the value indicating absolute agreement between raters. The analysis output is indicated in Table I that follows.

The $F$-test revealed no significant deviation from 0.9999999 (the closest to 1 value that SPSS can accept as true test value) of the computed ICC value of 0.912.

Comparing mean ratings of men and women. In addition to the ICC analysis, independent samples $t$-test analysis was run to reveal possible significant differences ($p = 0.05$) between mean ratings of men and women across individual battery. For 50 out of the 59 items, no significant differences existed. For the remaining nine characteristics (creative, intelligent, sophisticated, forceful, having analytical ability, intuitive, having humanitarian values, self-controlled and self-confident) women’s ratings were significantly higher than men’s ($t$-test analysis results reported in Table II). All $\eta^2$ values calculated for these items (last column in Table II), however, indicate small to medium effect size (Cohen, 1988).

Own personality characteristic of Stage II men and women
Further analysis involved examining the similarity of own personality characteristics between Stage II men and women respondents.

ICC. Across the same lines as for successful managers’ characteristics perceived by Stage I respondents, the resemblance of own personality characteristics between Stage II men and women was also assessed by ICC analysis (Schein, 1973; Schein et al., 1996; Booyesen and Nkomo, 2010). The analysis output is indicated in Table III.

Although the resulted ICC value was not so high compared to the corresponding value of the Stage I analysis, the $F$-test also revealed no significant deviation from 0.9999999 (the closest to 1 that SPSS can accept as test true value).

Comparing mean ratings of Stage II men and women
$t$-test analysis of independent samples was also run to indicate possible significant differences ($p = 0.05$) between mean ratings of men and women across the 59 items battery. For 51 out of the 59 items of the scale no significant differences existed. For the remaining eight personality characteristics (sympathetic, interested in own appearance, talkative, forceful, sociable, being aware of feelings of others, firm and prompt) women’s ratings were significantly higher than men’s ($t$-test analysis results are reported in Table IV). All $\eta^2$ values calculated for these items (last column in Table IV), however, indicate small to medium effect size (Cohen, 1988).

Mean ratings of Stage II vs Stage I men and women
The analysis went on to compare, across the 59 items’ battery, own personality characteristics ratings provided by Stage II respondents against perceived successful managers’ personality characteristics by their Stage I counterparts. ICC coefficient analysis was employed in this respect. The analysis output is indicated in Table V that follows.

<table>
<thead>
<tr>
<th>Intraclass correlation</th>
<th>95% confidence interval</th>
<th>$F$-test with true value: 0.9999999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single measures</td>
<td>0.912$^a$</td>
<td>0.596 0.967 0.000 58 5 1.000</td>
</tr>
</tbody>
</table>

Notes: $^a$The estimator is the same, whether the interaction effect is present or not; $^b$type a intraclass correlation coefficients using an absolute agreement definition; 0.9999999 is the closest to 1 value that SPSS can accept as input for the analysis. This table shows a two-way random effects model where both people effects and measures effects are random
### Table II.
Personality characteristics of successful managers

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Descriptive statistics</th>
<th>Overall</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>E2. Consistent</td>
<td>6.70</td>
<td>0.66</td>
<td>6.65</td>
<td>0.61</td>
</tr>
<tr>
<td>E4. Sympathetic</td>
<td>4.40</td>
<td>1.47</td>
<td>4.33</td>
<td>1.48</td>
</tr>
<tr>
<td>E6. Adventurous</td>
<td>5.13</td>
<td>1.54</td>
<td>5.08</td>
<td>1.57</td>
</tr>
<tr>
<td>E7. Having leadership ability</td>
<td>6.70</td>
<td>0.61</td>
<td>6.74</td>
<td>0.55</td>
</tr>
<tr>
<td>E8. Valuing pleasant surroundings</td>
<td>6.54</td>
<td>0.74</td>
<td>6.40</td>
<td>0.80</td>
</tr>
<tr>
<td>E9. Neat</td>
<td>6.49</td>
<td>0.81</td>
<td>6.35</td>
<td>0.94</td>
</tr>
<tr>
<td>E11. Creative</td>
<td>6.61</td>
<td>0.70</td>
<td>6.44</td>
<td>0.89</td>
</tr>
<tr>
<td>E14. Frank</td>
<td>6.03</td>
<td>1.21</td>
<td>5.82</td>
<td>1.39</td>
</tr>
<tr>
<td>E15. Courteous</td>
<td>6.40</td>
<td>0.82</td>
<td>6.26</td>
<td>0.92</td>
</tr>
<tr>
<td>E16. Emotionally stable</td>
<td>5.95</td>
<td>1.17</td>
<td>6.02</td>
<td>1.19</td>
</tr>
<tr>
<td>E18. Interested in own appearance</td>
<td>5.49</td>
<td>1.28</td>
<td>5.58</td>
<td>1.35</td>
</tr>
<tr>
<td>E19. Independent</td>
<td>5.67</td>
<td>1.34</td>
<td>5.54</td>
<td>1.52</td>
</tr>
<tr>
<td>E20. Having desire for friendship</td>
<td>5.27</td>
<td>1.41</td>
<td>5.40</td>
<td>1.40</td>
</tr>
<tr>
<td>E22. Intelligent</td>
<td>6.31</td>
<td>1.12</td>
<td>6.02</td>
<td>1.32</td>
</tr>
<tr>
<td>E23. Persistent</td>
<td>5.37</td>
<td>1.06</td>
<td>5.04</td>
<td>1.12</td>
</tr>
<tr>
<td>E24. Vigorous</td>
<td>6.55</td>
<td>0.91</td>
<td>6.42</td>
<td>0.94</td>
</tr>
<tr>
<td>E26. Sophisticated</td>
<td>5.45</td>
<td>1.29</td>
<td>5.05</td>
<td>1.48</td>
</tr>
<tr>
<td>E27. Talkative</td>
<td>5.85</td>
<td>1.15</td>
<td>5.68</td>
<td>1.28</td>
</tr>
<tr>
<td>E28. Forceful</td>
<td>6.43</td>
<td>0.83</td>
<td>6.23</td>
<td>0.93</td>
</tr>
<tr>
<td>E30. Having analytical ability</td>
<td>6.40</td>
<td>0.95</td>
<td>6.18</td>
<td>1.17</td>
</tr>
<tr>
<td>E33. Cheerful</td>
<td>5.32</td>
<td>1.37</td>
<td>5.09</td>
<td>1.47</td>
</tr>
<tr>
<td>E34. Having high need for autonomy</td>
<td>4.87</td>
<td>1.48</td>
<td>4.72</td>
<td>1.52</td>
</tr>
<tr>
<td>E35. Able to separate feelings from ideas</td>
<td>6.13</td>
<td>0.95</td>
<td>6.07</td>
<td>0.96</td>
</tr>
<tr>
<td>E36. Competent</td>
<td>6.51</td>
<td>0.88</td>
<td>6.44</td>
<td>0.76</td>
</tr>
<tr>
<td>E37. Understanding</td>
<td>5.86</td>
<td>1.38</td>
<td>5.79</td>
<td>1.41</td>
</tr>
<tr>
<td>E38. Sociable</td>
<td>6.11</td>
<td>1.08</td>
<td>5.95</td>
<td>1.12</td>
</tr>
<tr>
<td>E41. Having high self-regard</td>
<td>5.67</td>
<td>1.48</td>
<td>5.79</td>
<td>1.37</td>
</tr>
<tr>
<td>E42. Grateful</td>
<td>5.57</td>
<td>1.38</td>
<td>5.44</td>
<td>1.28</td>
</tr>
<tr>
<td>E45. Being aware of feelings of others</td>
<td>5.91</td>
<td>1.35</td>
<td>5.84</td>
<td>1.39</td>
</tr>
<tr>
<td>E47. Objective</td>
<td>6.43</td>
<td>1.04</td>
<td>6.40</td>
<td>0.94</td>
</tr>
<tr>
<td>E48. Speedily recovering from emotional trauma</td>
<td>5.82</td>
<td>1.38</td>
<td>5.95</td>
<td>1.27</td>
</tr>
<tr>
<td>E50. Firm</td>
<td>6.30</td>
<td>0.94</td>
<td>6.19</td>
<td>1.01</td>
</tr>
<tr>
<td>E51. Prompt</td>
<td>6.30</td>
<td>0.89</td>
<td>6.12</td>
<td>0.98</td>
</tr>
<tr>
<td>E52. Intuitive</td>
<td>6.11</td>
<td>1.10</td>
<td>5.88</td>
<td>1.27</td>
</tr>
<tr>
<td>E53. Having humanitarian values</td>
<td>6.14</td>
<td>0.97</td>
<td>5.88</td>
<td>1.09</td>
</tr>
<tr>
<td>E54. Knowing the way of the world</td>
<td>6.30</td>
<td>1.23</td>
<td>6.23</td>
<td>1.28</td>
</tr>
<tr>
<td>E57. Industrious</td>
<td>6.58</td>
<td>0.63</td>
<td>6.51</td>
<td>0.66</td>
</tr>
<tr>
<td>E58. Well informed</td>
<td>6.57</td>
<td>0.98</td>
<td>6.61</td>
<td>0.49</td>
</tr>
<tr>
<td>E60. Reserved</td>
<td>4.07</td>
<td>1.73</td>
<td>4.07</td>
<td>1.72</td>
</tr>
<tr>
<td>E61. Ambitious</td>
<td>5.75</td>
<td>1.27</td>
<td>5.82</td>
<td>1.00</td>
</tr>
<tr>
<td>E62. Not conceited about appearance</td>
<td>5.01</td>
<td>1.70</td>
<td>5.07</td>
<td>1.64</td>
</tr>
<tr>
<td>E65. Desiring responsibility</td>
<td>6.24</td>
<td>0.89</td>
<td>6.12</td>
<td>0.91</td>
</tr>
<tr>
<td>E67. Self-controlled</td>
<td>6.48</td>
<td>0.80</td>
<td>6.26</td>
<td>0.95</td>
</tr>
<tr>
<td>E68. Modest</td>
<td>5.34</td>
<td>1.52</td>
<td>5.14</td>
<td>1.61</td>
</tr>
<tr>
<td>E69. Decisive</td>
<td>6.53</td>
<td>0.86</td>
<td>6.46</td>
<td>0.91</td>
</tr>
<tr>
<td>E71. Direct</td>
<td>5.99</td>
<td>1.10</td>
<td>5.84</td>
<td>1.08</td>
</tr>
<tr>
<td>E74. Self-confident</td>
<td>6.34</td>
<td>0.95</td>
<td>6.14</td>
<td>1.06</td>
</tr>
<tr>
<td>E75. Sentimental</td>
<td>4.40</td>
<td>1.45</td>
<td>4.26</td>
<td>1.47</td>
</tr>
<tr>
<td>E76. Steady</td>
<td>6.01</td>
<td>0.95</td>
<td>6.13</td>
<td>0.89</td>
</tr>
<tr>
<td>E77. Assertive</td>
<td>5.57</td>
<td>1.37</td>
<td>5.63</td>
<td>1.41</td>
</tr>
<tr>
<td>E78. Feelings not easily hurt</td>
<td>5.07</td>
<td>1.39</td>
<td>5.14</td>
<td>1.41</td>
</tr>
<tr>
<td>E79. Dominant</td>
<td>6.04</td>
<td>1.08</td>
<td>5.96</td>
<td>1.09</td>
</tr>
</tbody>
</table>

(continued)
The results in Table V depict that:

- Males (Stage II) vs males (Stage I) and females (Stage II) vs Females (Stage I) analyses produced significantly higher than zero ($F$-values = 2.789 and 3.068, respectively, $p = 0.000$) ICC values with no significant deviation between the two ($F$-value = 0.862, $p = 0.660$).

- Males (Stage II) vs Females (Stage I) and Females (Stage II) vs Males (Stage I) analyses also produced significantly higher than zero ($F$-values = 3.403 and 2.335, respectively, $p = 0.000$ and 0.001, respectively) ICC values with no significant deviation between the two ($F$-value = 1.132, $p = 0.360$).

- Males (Stage II) vs General (Stage I) and Females (Stage II) vs General (Stage I) analyses once more produced significantly higher than zero ($F$-values = 3.223 and 2.787, respectively, $p = 0.000$) ICC values with no significant deviation between the two ($F$-value = 1.171, $p = 0.380$).

### Characteristics of successful managers across genders

Analysis went on to compare Stage II men and women mean scores on their perceptions of whether they possessed characteristics of successful managers. Although men's mean score (4.38) proved higher than that of women (4.29), $t$-test analysis of independent samples revealed no statistically significant difference between the two ($t = 0.275$, df = 99, sig = 0.784).

## Discussion of results

Gender stereotypes that are dogmatic assumptions concerning the personality and behavioral individualities of human beings on the grounds of their gender (Cleveland et al., 2000; Michelman, 2017), are often leading to workplace discrimination (Dovidio and Hebl, 2005;
Table IV. Personality characteristics of Stage II: men and women (continued)
Sahoo and Lenka, 2016). Typically, women are expected to exhibit communal characteristics such as: being concerned about the quality of life, the well-being and prosperity of others as well as being empathetic, caring, sensitive, supportive, and charitable. Men on the other hand, are expected to be more agentic and are typically described as being more forceful, authoritarian, assertive, belligerent, motivated, autonomous and self-confident (Brescoll, 2016).

As regards to the requisite personality traits of successful managers, it is agentic characteristics that have traditionally been linked to leadership and, therefore, to managerial roles (Eagly, 1987; Eagly and Karau, 2002; Brescoll, 2016). The “think manager – think male” maxim was introduced by Schein (1973) and since then it has been thoroughly researched. Reported findings (e.g. Heilman, 2001; Powell et al., 2002; Willemsen, 2002) almost unanimously, suggest that gender role stereotyping is the main antecedent and explanation of the glass ceiling phenomenon that women are encountering when trying to ascend the managerial ladder (e.g. Schein, 1973, 1979, 2001, 2007; Alvesson and Billing, 1997; Heilman, 2001; Eagly and Carli, 2003; Duehr and Bono, 2006; Powell and Butterfield, 2015). The prevalent notion is that to the extent that the managerial position is “male” in character, the requisite personality characteristics are usually held by men rather than by women (Schein, 2001, 2007; Sahoo and Lenka, 2016).

This study’s analytical results challenge several gender role stereotyping notions:

1. **H1.** Managers’ requisite personality characteristics are predominantly agentic (masculine). The 59-item refined scale of perceived managers characteristics contains both agentic/masculine (adventurous, having leadership ability, creative, independent, persistent, vigorous, sophisticated, forceful, having analytical ability, having high need for autonomy, able to separate feelings from ideas, competent, objective, speedily recovering from emotional trauma, prompt, intuitive, knowing the way of the world, industrious, ambitious, not conceited about appearance.
desiring responsibility, self-controlled, decisive, direct, self-confident, steady, assertive, feelings not easily hurt, dominant, logical, skilled in business matters, self-reliant) and communal/feminine (sympathetic, valuing pleasant surroundings, courteous, emotionally stable, interested in own appearance, having desire for friendship, cheerful, understanding, sociable, grateful, being aware of feelings of others, firm, having humanitarian values, reserved, modest, sentimental, tactful, helpful, generous, kind) characteristics (Eagly, 1987; Eagly and Karau, 2002; McCrae et al., 2005; Rahmani and Lavasani, 2012). Although the number of perceived agentic/masculine characteristics is higher than that of perceived communal/feminine characteristics this is not evidence enough to support H1.

(2) **H2.** Managers’ requisite personality characteristics perceived as more agentic by men as compared to women. Stage I male and female respondents’ perceptions of successful managers’ characteristics are in almost absolute agreement (ICC = 0.912). As independent samples t-test analysis reveals, there exist certain differences between men and women’s perceptions of certain characteristics. Between these nine characteristics, however, there are both agentic (creative, forceful, self-controlled, self-confident) and communal (having humanitarian values). Related to these characteristics men’s rates were lower than the corresponding rates of women, which in fact leads to a paradoxical female rather than male stereotyping perception about the managers’ personality. Therefore, there is no evidence enough to support H2.

(3) **H3.** Own personality characteristics of men are predominantly agentic as compared to characteristics of women that are predominantly communal. Stage II male and female respondents’ own personality assessment is in almost absolute agreement (ICC = 0.808). As independent samples t-test analysis reveals, there exist certain differences between men and women as regards their own personality characteristics. Between these nine characteristics, there are both agentic (creative, forceful, self-controlled, self-confident) and communal (having humanitarian values) ones. Related to these characteristics men’s rates were lower than the corresponding rates of women, which confirms the paradoxical female rather than male stereotyping, reported in the preceding paragraph. Therefore, there is no evidence enough to support H3.

(4) **H4.** In terms of personality characteristics men are seeing themselves more close to successful managers than women. This stereotypical notion is challenged by the study’s data analysis results. Pairwise ICC analyses results in Table V reveal no significant differences between men and women concerning their personality closeness to the perceived personality of successful managers. In addition, independent samples t-test analysis revealed no statistically significant difference between Stage II men and women concerning their perceptions of whether they possessed characteristics of successful managers.

**Implications and conclusions**

This study’s findings have implications for both academia and practice. As regards academia, the dominant in the literature “think manager – think male” stereotyping notion is directly challenged in the Greek context. As the results of this study indicating successful managers’ personality comprises both agentic/masculine and communal/feminine characteristics and is not perceived differently by men and women of the sample. This is applying to the relatively recent perception asserting that there is no difference between men and women in relation to management characteristics (Vecchio, 2002, 2007).
Similarly, previous research indicates that the dynamic of “think manager – think male” has been impoverished over time for many reasons. One reason could be that the stereotypes of capable managers or the perceived management styles have changed in recent years (Basow, 2013). On the other side there could be a different explanation such as the possibility that, while male may not choose the “think manager – think male” option during a research, in the actual workplace settings men unconsciously favoring men employees in different manners and usually in not noticeable ways (Basow, 2013; Sahoo and Lenka, 2016).

However, a fact is that glass ceiling is a phenomenon that still exists (Powell and Butterfield, 2015). While women have managed to cliff to lower and middle levels of management, they are not yet presented equally at the upper levels of the organizations (Coder and Spiller, 2013). Therefore, this debates on whether the “glass ceiling” that women executives face when attempting to go up the ladder exists due to other determinants instead of gender stereotypes. Specifically there are different reasons related to this phenomenon at the individual or macro level. The individual level could be related to the individual gender stereotyping or to the absence of family and social support to women for pursuing management positions. At the organizational level, reasons could be the “negative” organizational culture or gender stereotyping of top management (Eddy and Sears, 2017). Therefore, while the perceptions on gender stereotyping may have changed in favor of women during the years, there are also several other external elements related to the external environment that impact the cliff of women to top management positions. All these macro and micro elements that are related to the glass ceiling are not stable. They are changing over time and modified. For this reason, it is important to examine those elements periodically and in different cultures in order to identify their effect and find ways to minimize their impact.

Further as Powell and Butterfield (2015) explain over the last years despite the various explanations given on this phenomenon, the glass ceiling is still stable. In practical terms, organizations and government policy makers should adopt practices fostering the development of leadership abilities of both men and women and eliminating gender diversity in the workplace (Schein, 2007). Educational efforts should be introduced in order to inform about sexism and how it affects workplaces settings in different ways (Basow, 2013). Further practices should be adopted by societies, organizations and important decision-makers for making the promotion process more fair and democratic (Powell and Butterfield, 2015). Finally, to the extent that societal gender role stereotyping norms and attitudes affect workplace conduct, further research, qualitative in nature, should attempt to reveal the underlying cause of gender workplace discrimination. The perceptions and the feelings of informants in relation to gender issues and stereotyping could be better examined through qualitative research methods.

This study’s findings also imply a cultural influence on gender role stereotyping. So far reported research findings, with very few notable exceptions (e.g. Booysen and Nkomo, 2010), rely on evidence from North America and Protestant Europe and this is the first attempt to examine the issue on evidence from a diverse cultural setting such as Greece paradigm. To the extent that leadership traits are reliant on culture (House et al., 2004), future research should attempt to establish differences in gender role stereotyping across cultures.

Sampling, questionnaire length and administration through the internet were certainly the limitations of the present study. Future research should address these limitations, especially the research instrument administration one. Lengthy questionnaires should better by administered through conducting personal interviews. The sample size should also be increased and a probability sampling strategy could be devised and implemented.
References


Alipradi-Maradou, L. (2008), Old and New Professions: An Approach from the Perspective of Gender, Research Centre for Gender Equality, Athens.


The glass ceiling phenomenon


Further reading


Corresponding author

Georgia Sakka can be contacted at: geosakka@cytanet.com.cy

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Performance of SMEs in Tangier: the interface of networking and *wasta*

Yassine Sefiani  
*Prince Mohammad Bin Fahd University, Al-Khobar, Saudi Arabia*  
Barry J. Davies  
*Business School, University of Gloucestershire, Cheltenham, UK,*  
Robin Bown and Neilson Kite  
*University of Gloucestershire, Cheltenham, UK*

**Abstract**  

**Purpose** – The purpose of this paper is to investigate the impact of networking on business performance by uncovering particular and significant methods of pursuing business connections, for small and medium enterprises (SMEs) in Tangier.  

**Design/methodology/approach** – A two-stage design, which incorporated both quantitative and qualitative approaches, was employed in this study. Approaches were employed in succession with the findings from the quantitative phase informing the qualitative phase. Initially, a paper and online survey questionnaire was administered to a population of 365 industrial SMEs to gain some insights on the perceptions of owner-managers of the impact of networking on business performance. Following the quantitative phase, 15 in-depth face-to-face semi-structured interviews were conducted with selected owner-managers of SMEs, forming a judgmental selection, to explore their experiences, beliefs, and attitudes with respect to networking factor.  

**Findings** – Both quantitative and qualitative phases of the study found that networking was a significant factor in influencing the success of SMEs. The concept of *wasta*, the Arabic word for connections, emerged from the qualitative phase. Findings show that using *wasta*, through politico-business networks is important since it enables access to current information that is crucial for the success of SMEs. The concept of *wasta* was also mentioned in relation to financial resources and suppliers. Findings revealed that strong relationships with suppliers enable firms to get financial resources in the form of trade credits. Furthermore, the relationship between *wasta* and human resources was also revealed. Findings showed that owner-managers use their network relations through *wasta* in order to recruit their staff.  

**Research limitations/implications** – The findings of this study add to the understanding of networking in Arabic countries with the importance of *wasta* in an economy that functions on relationships. The findings of this study could therefore be useful to international managers to assist their intercultural effectiveness by adjusting to culture-specific networking in Tangier.  

**Originality/value** – This study is among those few studies located in the Middle East North Africa region that explore the performance of SMEs from the perceptions of owner-managers themselves, and not based on aggregate or economic data. It supports previous findings of several studies and contributes additional evidence that suggests the significance of *wasta* and its impact on SME success.  

**Keywords** Performance, *Wasta*, SMEs, Networking, Arabic, Tangier  

**Paper type** Research paper

**Introduction**  
The important contribution of a vibrant small and medium enterprises (SMEs) sector in the national economic and social development of a country has been widely recognized (e.g. Birch, 1989; Storey, 1994; The European Commission, 2011; Stenholm *et al.*, 2012). In view of its increasing importance, performance of SMEs has been of interest to many researchers, international organizations, and policy makers, at least since the Bolton Committee Report (1971), and therefore has become the subject of a great deal of analysis. Attention to the SME sector has heightened because of the globalizing economy and the increasingly severe competition that is inherent in this development.
Specifically, researchers have shown interest on the variables associated with firm performance. Among these variables, networking has been identified as a key factor that influences business performance (Shane and Cable, 2002; Okten and Osil, 2004). In a rapidly changing and hostile environment, owner-managers of SMEs are required to engage in the process of building strong relationships and to interact vigorously and efficiently with internal as well as external members to maximize business performance. Whilst a considerable number of studies have been published on the role of networking on business performance, few of them focused on the Arab world (Ahmad and Xavier, 2011; Ahmad, 2011, 2012). This could be explained by the political instability surrounding the region or the lack of economic progress in many of the Arab countries (Hutchings and Weir, 2006a; Abosag and Lee, 2013). As a consequence, insufficient attention has been devoted to researching and better understanding the way business is carried out in the Arab context (Hutchings and Weir, 2006b; Khakh and Ram, 2013). On this account, several researchers have found that the appreciation of networking in the Arab world is important and recommended further study to explore this factor (Berger et al., 2015). Addressing the relative dearth of research into small business performance in the Arab world, the following study seeks to develop a clearer understanding of the influence of networking on business performance, as perceived by local owner-managers of small manufacturing businesses in Tangier in Morocco.

Background
SMEs in Morocco play a pivotal role in the development of the country. The importance of SMEs is evidenced by their high presence in the economic structure of the country. According to The United Nations Economic Commission for Africa (UNECA, 2006), 93 percent of all Moroccan industrial firms are SMEs and account for 38 percent of production, 36 percent of investment, 34 percent of exports, and 45 percent of all jobs. Within Morocco, the city of Tangier has a highly strategic geographical position, enjoys a special tax status, and contains zones that have the status of free economic zones. Located in the Tangier-Tétouan region in the extreme north-west of Morocco, the city of Tangier is Morocco’s second industrial centre after Casablanca and the first industrial city in the Tangier-Tétouan region. After decades of neglect, Tangier did not regain attention from the government until 1999. The Moroccan Government has engaged since then in developing the economy of the city by seeking to create an enabling business environment for large as well as small and medium companies. Manufacturing SMEs in Tangier account for over half of the total firms in the Tangier-Tétouan region and contribute to 83 percent of employment (Ministry of Industry, Commerce, and New Technologies: Ministère de l’Industrie, du Commerce et des Nouvelles Technologies, 2007). However, despite their value in the regional economy, their contribution to the industrial value added remains limited with respect to the national economy. Recent available data from the MICNT showed that the contribution of the Tangier-Tétouan region to the industrial value added was only 7 percent in 2010 compared to 49 percent in the Greater Casablanca region (Ministère de l’Industrie, du Commerce et des Nouvelles Technologies, 2011). This does not reflect the potential of the SME sector especially after the recent significant economic developments in the Tangier-Tétouan region.

Recent economic developments in the Tangier-Tétouan region, and particularly in the city of Tangier, have been considerable. Among the recent biggest developments are: the Tanger-Med port which is one of the largest ports in Africa and on the Mediterranean, and a series of “free zones.” By virtue of these developments, the strategic position of the city manifested in its proximity to Europe, its special tax status, and the economic free zones, several local and international investments have been attracted to the city in the last ten years, which have transformed the region into a competitive hub for international trade. SMEs in Tangier have been vulnerable to these business environment challenges which
could have an impact on their performance. As argued by Man and Lau (2005), SMEs are more likely than larger firms to be affected by changes in their internal and external environment which are often unplanned for. Thus, an important issue arises concerning the ability of small and medium firms to cope in a very challenging environment through the use of networking. In an attempt to address this issue, as mentioned above, the present study has been undertaken with the aim of developing a clearer understanding of the impact of networking on the performance of SMEs in Tangier. To achieve this aim, the following objectives were set:

- to investigate opinions of local owner-managers about networking in relation to business success;
- to examine differences between owner-managers of “successful” and “less successful” SMEs in relation to networking; and
- to explore the experiences of SME owner-managers of the perceived networking factor for business “success” in Tangier.

Literature review

In the small business literature, the concept of success remains a topic of debate (Gorgievski et al., 2011). This is despite the evidence that the “success” of small firms has been subject to a great deal of research. However, there is no general agreement in the literature on what is meant by the success of a firm. Indeed, a myriad of perspectives, ranging from mere survival to the achievement of certain levels of performance, exist about such a concept in the entrepreneurship literature. Very often, the terms “success,” “survival,” “growth” are very closely linked and sometimes used interchangeably. Besides the multi-dimensional aspect of success, variables that contribute to the success of SMEs are not unanimously agreed upon by researchers. While some analysts suggested that the dynamics of the success of businesses remain a black box (Dockel and Ligthelm, 2005; Ligthelm, 2010), others argued that the success of enterprises is a function of both external and internal factors (McCline et al., 2000; Guzman and Santos, 2001; Markman and Baron, 2003).

Among the success factors that have been of great interest to researchers, entrepreneurs, and policy makers alike is the networking factor (Chung et al., 2015; Chen et al., 2015; De Hoyos-Ruperto et al., 2013). Various definitions about networking and the concept of network exist in the literature. For example, Iacobucci (1996, p. xiii) stated: “Colloquially, networking is a verb used to describe the initiation and sustenance of interpersonal connections for the rather Machiavellian purpose of tapping those relationships later for commercial gain.” Very often, networks are also often defined as relationships between different actors (Aldrich and Zimmer, 1986; Gulati, 1998; Ireland et al., 2001). Carson et al. (1995, p. 201) describe networking in small firms as: “[...] an activity in which the entrepreneurially oriented SME owners build and manage personal relationships with particular individuals in their surroundings.” Owner-managers of SMEs are highly dependent on their networks because from these they can obtain resources and get critical support for the development and growth of a business (Dodd and Patra, 2002; Jenssen and Greve, 2002; Harris and Wheeler, 2005). Resources that can be obtained through networking include information about business opportunities, innovation, referrals, business linkages, shared costs, networks of business partners, professionals, technicians, specialists, generalized consultants, the supply chain, potential contractors, bankers, distributors, clients, customer linkages, suppliers, sector-based trade associations, professional memberships, chambers of commerce, institutional ties as well as networks of collaboration and coordination (Zhao and Aram, 1995; Ritter and Gemunden, 2004; Ramsden and Bennett, 2005; Li and Ferreira, 2006; Batjargal, 2006). This is consistent with the resource dependency theory (Barringer and
Harrison, 2000), which suggested that entrepreneurs use their social relations to get the resources they need to support their business (Hansen, 2001; Jenssen, 2001). However, it should be highlighted that the use of these networks can be difficult for SMEs due to the specific characteristics of these firms, which often inhibit the leverage of the resources needed for the organization to create new opportunities.

The literature about small firm networking tends to categorize networks into two types: formal networks in which owner-managers of firms participate beyond their individual scope with other organizations – for example, industry bodies, employers organizations; and informal networks where cooperation is manifested in the use of personal connections such as: family, friends, and acquaintances (Low and MacMillan, 1988; Jack and Robson, 2002; Dodd and Patra, 2002; Markman and Baron, 2003; Hite, 2005; Sequeira and Rasheed, 2006). In the view of Ibarra (1993), these two types of networks are also classified as strong and weak ties. Whilst weak ties tend to be more superficial and lacking in emotional investment (Dubini and Aldrich, 1991), strong ties, on the other hand, are concerned with close, stable, and binding relationships.

The particular category of “social networks” utilizing web-based platforms has recently also come to the fore. As Franco et al. (2016) observed, “new opportunities and benefits have been opened up to firms and the population in general, given the ease of communication and the speed with which information is spread” (p. 3). In their study of 86 firms in Portugal, they were able to identify five factors their respondents associated with social network use: identification of opportunities, sharing of information, communication and innovation, cost reduction and marketing. They concluded that “SMEs should therefore see social networks as facilitating work, as a means to reduce costs and possibly expand their business” (p 10). In this regard, the potential benefits closely reflect those associated with network engagement more generally. The core difference between the structure and make-up of web-based social networks seems to rest on their mediated, impersonal basis, which is later overlain by the personal.

Networks of SMEs are especially based on personal relationships, where the small companies’ networks overlap with entrepreneurs’ networks (Biggiero, 2001). Small firms networking research tends to embrace Granovetter’s (1985) account of the role of concrete personal relations that include “strong ties” to family and close friends as well as “weak ties” to individuals’ acquaintances. Whilst strong ties are a natural part of an entrepreneur’s network and often consist of relations as family, close friends and relatives, and have greater motivation to be of assistance, and are often more available (Granovetter, 1983; Rost, 2011), the strength of weak ties is that they enable the individual to reach actively and purposively outside of his or her immediate close social circle and to draw upon information, advice and assistance from a large and diverse pool (Granovetter, 1973, 1985). However, Rost (2011) argued that weak ties are only beneficial if actors occupy a more central network position.

The significant impact of networking on the performance of SMEs has been highlighted in several studies (Ramadani et al., 2016; Wincent et al., 2009; Watson, 2007; Zaheer and Bell, 2005; Florin et al., 2003). The network theory suggests that there is a positive association between networking and various aspects of firm performance. Evidence suggests that the ability of owners to gain access to resources not under their control in a cost effective way through networking can influence the success of business ventures (Watson, 2007), as networks provide value to its members by allowing them to gain access to the social resources that are embedded within the network (Seibert et al., 2001). Furthermore, using networks can potentially increase a firm’s chances of “survival,” as argued by Julien (1993), that this form of cooperation can facilitate the achievement of economies of scale in small firms without producing the diseconomies caused by large size. A positive association with networking and firm growth has also been documented in the literature. Donckels and Lambrecht (1995)
found that network development, particularly at the national and international level, was positively associated with firm growth. In a longitudinal study conducted by Watson (2007) on Australian firms, findings indicated a significant positive relationship between networking (particularly with formal networks such as external accountants) and business growth.

The use of social networking, on web-based platforms has also been considered in relation to growth. Vásquez and Escamilla (2014) examined social network usage by SMEs as a marketing tool. Their research amongst Mexican firms demonstrated the existence of an expertise gap, which impeded effective usage – nevertheless, they concluded that potential benefits for SMEs were considerable. Their view reinforces the prior work of Trusov et al. (2009) who drew attention to the power of social networks as tools in the support of word of mouth activity. Though still sporadic, it seems clear that current evidence points to the potential usefulness of social networks alongside traditional formal and informal networking.

Linked to networking, the concept of social capital has been highlighted in several studies (Burt, 1992; Nahapiet and Ghoshal, 1998; Adler and Kwon, 2002; Yu and Junshu, 2013; Clarke et al., 2016). Located within the structure of relations between and amongst actors, social capital represents resources embedded in social relations that allow individuals and/or communities to achieve desired goals (Coleman, 1988). Applying the concept of social capital to a broader range of social phenomena, including relations inside and outside the family (Coleman, 1988), relations within and beyond the firm (Burt, 1992), the organization-market interface (Baker, 1990), and public life in contemporary societies (Putnam, 1993, 1995), social capital is considered as a productive resource that facilitates actions, ranging from an individual’s occupational attainment (e.g. Marsden and Hurlbert, 1988; Lin and Dumin, 1986; Lin et al., 1981) to a firm’s business operations (Baker, 1990; Coleman, 1990; Burt, 1992). A dominant perspective in social capital research emphasizes three dimensions: “structural” dimension of social capital, consisting of network connections (Besser and Miller, 2010; Cassonand Della Giusta, 2007; Stam and Elfring, 2014; Gargiulo and Benassi, 2000), “relational” dimension, referring to assets that are rooted in these relationships such as trust, reciprocity, obligations and expectations (Granovetter, 1985, 2005; Adler, 2001; Adler and Kwon, 2002); and a “cognitive” dimension, relating to attitudes toward trust (Nahapiet and Ghoshal, 1998). However, this perspective must be examined more closely and interpreted with caution when a country context is taken into consideration. The development timeline of the country context and the role of societal norms and values that may rather support the status quo for social actors of a particular society clearly need to be considered (Galaskiewicz, 2007).

Small firms networking is increasingly becoming an important ingredient for success. However, even though a plethora of research has investigated the impact of networking on the performance of SMEs in Western literature, only few studies have considered the role of networking and its impact on the performance of SMEs in the Arab world (Berger et al., 2015). It should be noted that some form of networking exists in any culture. A growing body of the literature has investigated the mechanism of networking in various cultures such as guanxi in China (Lo, 2012; Bedford, 2011; Luo, 2007; Hutchings and Weir, 2006a, b; Yeung and Tung, 1996), blat in Russia (Michailova and Worm, 2003; McCarthy et al., 2012), compadrazgo in Chile (Chandra and Silva, 2012), Boon Koon in Thailand (Pimpa, 2008); Juggad in India (Ardichvili et al., 2012; Gupta and Singh, 2013), kankei in Japan (Usunier and Lee, 2000), and wassta in Arab countries (Al-Khatib et al., 2002; Hutchings and Weir, 2006a, b; Tlaiss and Kauser, 2011). The focus of this study is on the Moroccan context, which is a Muslim and Arab country. Networking in Morocco works in a different way than it does in Western countries due to the different cultural influences. Similar to other Islamic and Arab countries, the family is the foundation and the backbone of the social structure in Morocco (Barakat, 1993; Hutchings and Weir, 2006a, b). This creates a social network that provides assistance in times
of need or hardship. Hutchings and Weir (2006a, b) argued that Muslim societies are wholly networked and all business activities revolve around these networks. Business owner-managers place a greater importance on establishing friendships and developing close relationships with those with whom they conduct business (Hutchings and Weir, 2006a, b). Hutchings and Weir (2006a, b) expounded that the key to achieve business success in Arab countries is a knowledge and understanding of the interpersonal networks that pervade the business and social life of Arabs, especially \textit{wasta}, which is developed prior to transacting business. \textit{Wasta} entails a network of interpersonal connections rooted in the family and kinship. \textit{Wasta} is the Arabic word for “connections or pull” and is a significant factor in decision making in Arabic society (Hutchings and Weir, 2006a, b, p. 278). Historically, \textit{wasta} was used to manage relations between families and tribes in the Arab world through the use of an intermediary, often called the shaykh, who would be summoned to be the intercession or the \textit{wasta} between the conflicting parties (Cunningham and Sarayrah, 1993). In business context, \textit{wasta} has evolved as one of the key networking tools that can be used by Arab owner-managers of SMEs to secure markets contracts, grab opportunities, and increase their chance of success. Luo (2007) argued that this is in total contrast with the Western practice that emphasizes the immediate transaction itself, and thus relies on enforcement of contracts and rules and not the relationship (Luo, 2007; Berger and Herstein, 2012). The latter may only develop later as a separate function to the business transaction (Hutchings and Weir, 2006a, b).

Although the argument of Luo (2007) and other authors (Berger and Herstein, 2012) seems to be plausible, it can be argued that \textit{wasta} principle may fit in other contexts and link to the “leverage” concept that exists in the Western literature. Leverage can occur in many different ways for an SME. The conventional definition is a financial one which stipulates that leverage is any technique to multiply gains and losses. However, leverage can be manifested in other forms. In reality, there are myriad ways in which a business can capitalize on others’ resources to accelerate and extend its growth. For instance, UK supermarket chain Tesco, leveraged the analytical expertise of Tesco’s 100 percent owned subsidiary DunnHumby, a customer insight firm, that supports international operations from market entry through in country expansion, to capitalize on ICT facilities to offer the right product at the right time at an attractive price through the introduction of loyalty cards – a simple idea that leveraged huge growth and market share benefit. Another example relates to both M&S and Oxfam that have leveraged market advantage through co-operating in clothes recycling – enhancing Oxfam’s retail offer and M&S’ ethical market positioning. On a smaller scale, SMEs leverage the financial capital and business experience of business angels to accelerate growth. They might also capitalize on someone else’s brand to resell what they know their customers want, or they can capitalize on their suppliers’ assets to reach markets that might otherwise not have been accessible. Therefore, if one accepts that “leverage” is the capitalization on others’ assets to bring tangible benefit to both or several parties, then \textit{wasta} fits well into this definition. In the Arabic sense, the assets include the network of people who will use their connections, influence and facilities to help you develop your own business. Because reciprocation is a fundamental part of the \textit{wasta} principle, all parties to the network will, in one way or another, stand to gain. \textit{Wasta} does not necessarily expect immediate payback but is a form of investment that may yield dividends at some future date.

\textit{Wasta} may also link with the concept of \textit{guanxi} in China. \textit{Guanxi}, literally means “relationship” but also refers to a wider set of interpersonal connections that facilitate favor between people on a dyadic basis (Yang, 2002). Just like its Arabic counterpart \textit{wasta}, \textit{guanxi} stresses the importance of a social network of personal relationships that involve family and kinship ties. \textit{Guanxi}’s impact on business success has been recently debated. While some researchers still defend the increasing importance of \textit{guanxi} in influencing business success (Yeung and Tung, 1996; Luo, 2007), others have argued that the \textit{guanxi}’s
impact is decreasing due to other factors such as: globalization, information accessibility, and regulations (Guthrie, 2002; Clegg et al., 2007).

It is important to note that the use of *wasta* could have positive as well as negative connotations. In a more traditional sense, good *wasta* refers to a form of intercession or mediation though it may also refer to seeking benefits from the government (Hutchings and Weir, 2006a, b). A negative *wasta*, on the other hand, refers to the use of *wasta* for personal gains, i.e. through corruption. However, it should be clarified that this should not be confused with the exchange of gifts as is a common practice in the Arab region and is often a mark of respect, rather than an attempt to corrupt and influence the behavior. Hutchings and Weir (2006a, b) argued that too much criticism may be considered a sign of naivety, whereas too much acceptance and understanding may be taken as an adverse sign (Hutchings and Weir, 2006a, b).

**Research methodology**

The study used a sequential two-stage design strategy whose logic became emergent during the course of the research – in other words, the two-stage design which encompassed both quantitative and qualitative approaches developed as the research went along. Having critically reviewed the literature systematically and built the theoretical framework, the study then followed the tradition used in entrepreneurship research by adopting a quantitative approach (Curran and Blackburn, 2001; Grant and Perren, 2002; Ahl, 2003; Lewis et al., 2007) to gain general understanding of the impact of networking on the success of SMEs in Tangier. Although there has been some movement away from purely quantitative approaches, attention to qualitative methods has generally been limited (José et al., 2012; Berger and Kuckertz, 2016). Berger and Kuckertz (2016) argued that the field of entrepreneurship is riddled with complexity and that mixed-methods design open new doors to explore different aspects of complexity in this field. In this study, although results found from the adoption of the quantitative approach were important, they were however inconclusive since constructs used in the survey, derived from the literature, were imposed on respondents. This did not allow enough understanding of participants’ personal view of the influence of the network factor on business success. Due to the inconclusive nature of the quantitative survey, it was decided to conduct further research using a qualitative strategy. The qualitative approach was carried out at this second stage to illuminate the quantitative findings and potentially enhance our understanding of the networking factor. Furthermore, the mixed methods approach was used to avoid common method bias that could affect the results of this research study. It is argued here that the two-method approach not only compensates for the limitations of one method with the strengths of another, but also provides integrated evidence that can lend confidence to the results of the study.

**Quantitative phase**

Part of a larger paper and online survey questionnaire that was administered to a population of 365 manufacturing SMEs to seek opinions of owner-managers about several factors influencing business performance, initial perceptions of owner-managers, in relation to the impact of the specific factor of networking on business performance were identified. The population of interest was clearly defined based on the official definition of SMEs in Morocco which uses the factor of number of employees. The latter was chosen in accordance with the argument of Child (1973) who argued that employment is an adequate criterion for the measurement of the size of an organization, because it is above all human beings who are “organized.” Therefore, the study considered enterprises with a headcount between 10 and 200 employees as SMEs. Moreover, the population was drawn from the official website of the MICNT www.mcinet.gov.ma, the AZIT directory 2010 as well as its
The distribution of the questionnaire was done in two phases: The “drop and collect” phase and the online phase. In total, 88 fully completed questionnaires were returned, providing a net response rate of 24.11 percent. It should be made clear that this study is not unusual in terms of difficulty experienced in obtaining responses from SME owner-managers, as other researchers have reported similar problems. Reid et al. (1999) suggest that a major difficulty in any research that involves surveying small businesses is achieving an adequate response rate, with many studies reporting rates as low as 10 percent.

Qualitative phase
The 88 owner-managers who completed the questionnaire in the quantitative phase of the study were the “population” for the qualitative phase. From those who indicated that they would be willing to participate in future research, judgment was used for the selection of particular SME owners from this population. The selection criteria were: sector, location, and gender. These three factors were used to avoid structural bias in the construction of what was a small selection. As for the sample size, Kvale (1996) suggested that new interviews might be conducted until a point of saturation, where further interviews yield little new knowledge. In this phase, the saturation was achieved when 15 interviews were completed. The cut-off point was not predetermined, but emerged from the research process and concurrent data analysis (Babbie, 2010). In conducting the interviews, an open-ended flexible approach to interviewing, which is strongly recommended by Patton (1990), Bogdan and Biklen (2007), and Hammersley and Atkinson (2007), was used. This approach was useful and did result in new emerging issues to be explored and helped in achieving the third objective of the study.

Quantitative results
Reliability and validity
The reliability and validity of the questionnaire was evaluated by calculating the Cronbach’s $\alpha$ score. Findings show the networking variable was reliable with internal consistency value of 0.89. The non-response bias was tested by comparing responses from the first mailings of the survey questionnaire and those from the subsequent reminders to determine any significant differences. This approach is based on the argument of Rogelberg and Luong (1998) that late respondents would have been non-respondents if the survey deadline was observed. Therefore, as suggested by Miller and Smith (1983), late respondents can be used as substitutes for non-respondents. In this phase of the study, a number of 53 replies were received after the first mailings of the survey questionnaire, whereas, a balance of 35 was received after the subsequent reminders were sent out. Consequently, the non-parametric Mann-Whitney $U$ test was conducted to determine whether there were significant differences in the response ratings between the two groups. Findings indicated that there were no significant differences between early respondents and late respondents in terms of their perceptions with regards to the impact of networking on business success.

Descriptive statistics
Descriptive statistics, in the form of frequency distributions, were used to describe basic features of the data and to achieve the first objective of the study. Table I presents the frequency distributions to describe the respondents’ profile:

The following observations are derived from Table I:

- Out of the 88 respondents, male entrepreneurs outnumbered the female ones at 98 percent, whereas female entrepreneurs were under-represented at 2 percent.
Out of 88 respondents, more than half (68 percent) of the respondents were between the age of 25 and 45, while 32 percent were more than 45 years old. Moreover, no respondents aged between the age range of 18-24 were found.

More than half of respondents (68 percent) had a higher qualification (Bachelor, Master and Doctorate degree); while a substantial number (24 percent) had a diploma. Of the respondents, 8 percent had an upper secondary level.

The majority of respondents (66 percent) came from parents who did own a business.

All respondents claimed to have previous work experience, of which more than half (67 percent) had between 2 and 20 years of experience. A substantial number (19 percent) had more than 20 years’ experience and only 14 percent had less than two years’ experience. Of the respondents, three quarters (76 percent) of respondents had experience relevant to the business, whereas, a small number (14 percent) claimed that their experience was not relevant to their business.

Table II presents the frequency distributions to describe the demographic characteristics of the businesses in the sample:

The following observations are derived from Table II:

- The majority of the businesses (84 percent) were constituted as private limited companies, while only a small number were constituted as public limited companies and sole traders with percentages of 9 and 7 percent, respectively.
More than half of the businesses (60 percent) were in the textile and leather industries. A substantial number (23 percent) was in the chemical industry and only small numbers (9, 6, and 2 percent) were in the electrical and electronic, food processing and metal and engineering industries, respectively.

Almost half of businesses (46 percent) were located in the industrial zone, over a third (35 percent) in the new medina, 10 percent in the suburb and 9 percent in the old medina.

Approximately all businesses (91 percent) have been in operation for more than five years, while only eight businesses (9 percent) have been in operation between 3 and 5 years.

Over half of the businesses (56 percent) employ between 11 and 50 employees. The remaining percentage was shared on nearly an equal basis with 24 percent of businesses employing between 51 and 100 employees, and 20 percent of those employing between 101 and 200 employees.

Three quarters of the businesses (77 percent) reported that their annual turnover was between 500,001 DH and 75,000,000 DH. Of the respondents, only 10 percent reported that their annual turnover is more than 75,000,000 DH and 13 percent had an annual turnover under 500,000 DH.
As for the networking factor, which is the theme of this study, it should be noted here that the questionnaire used in the quantitative phase is part of a larger survey questionnaire that sought opinions of owner-managers about several factors influencing business performance. For the purposes of this study, only results of responses to questions about networking are presented. Using a five-point Likert scale, 13 questions were used to obtain data for the networking variable. Table III presents the mean scores with standard deviations results obtained from owner-managers of SMEs.

From the descriptive statistics shown in Table III, findings showed that networking was widely considered by participants to have a pivotal impact on the success of SMEs in Tangier. Owner-managers of SMEs viewed networking a very important factor that influences the success of their enterprises with a mean score of 4.03.

**Factor analysis**

In this study, the exploratory factor analysis was carried out in order to find relationships or factors where variables are maximally correlated with one another and minimally correlated with other variables; and then group the variables accordingly. A principal component analysis (PCA) was conducted on 48 items of the survey instrument with orthogonal rotation (varimax). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis, KMO = 0.65, which is above the acceptable limit recommended by Kaiser (1974). Bartlett’s test of sphericity was highly significant at < 0.05, suggesting large correlations between items for PCA. An initial analysis was run to obtain eigenvalues for each component in the data. In total, 14 components had eigenvalues over Kaiser’s criterion of 1 and in combination explained 72.59 percent of the variance. The matrix confirmed all the research constructs with the emergence of some different themes under the specific construct “Networking” which are: resource acquisition capability of the network, quality of the network, and strength of the network (see Table IV).

**Regression analysis**

Multiple regression analysis was used to determine whether the independent variables which are: resource capability of the network, quality of the network, and strength of the network, have any significant effect on business performance. The following equation was used:

\[
Y(\text{business performance}) = \beta_0 + \beta_1(RAC) + \beta_2(QR) + \beta_3(SN) + \epsilon
\]

<table>
<thead>
<tr>
<th>Questions</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have access to information on technologies to support my business</td>
<td>88</td>
<td>4.84</td>
<td>0.37</td>
</tr>
<tr>
<td>2. I have access to customers</td>
<td>88</td>
<td>4.02</td>
<td>0.36</td>
</tr>
<tr>
<td>3. Network relations are important for the success of my business</td>
<td>88</td>
<td>4.07</td>
<td>0.26</td>
</tr>
<tr>
<td>4. I have access to information on government regulations</td>
<td>88</td>
<td>4.00</td>
<td>0.33</td>
</tr>
<tr>
<td>5. I have access to information on market</td>
<td>88</td>
<td>3.84</td>
<td>0.69</td>
</tr>
<tr>
<td>6. I have access to information on finance sources</td>
<td>88</td>
<td>3.78</td>
<td>0.63</td>
</tr>
<tr>
<td>7. I have many helpful colleagues/friends who support the business</td>
<td>88</td>
<td>4.04</td>
<td>0.69</td>
</tr>
<tr>
<td>8. I have professional affiliation/business association that support the business</td>
<td>88</td>
<td>4.07</td>
<td>0.72</td>
</tr>
<tr>
<td>9. I have reliable business network to run the business</td>
<td>88</td>
<td>3.98</td>
<td>0.65</td>
</tr>
<tr>
<td>10. Governmental supporting agencies</td>
<td>88</td>
<td>3.91</td>
<td>0.63</td>
</tr>
<tr>
<td>11. Financial institutions</td>
<td>88</td>
<td>4.06</td>
<td>0.5</td>
</tr>
<tr>
<td>12. Business associates</td>
<td>88</td>
<td>4.03</td>
<td>0.47</td>
</tr>
<tr>
<td>13. Trade associations</td>
<td>88</td>
<td>3.79</td>
<td>0.55</td>
</tr>
<tr>
<td>Networking factor</td>
<td>88</td>
<td>4.03</td>
<td>0.53</td>
</tr>
</tbody>
</table>

**Table III.** Descriptive statistics for the networking factor

**Source:** Data analysis
where RAC is the resource acquisition capability of the network; QR the quality of the relationship in the network; SN the strength of the network.

Results of the analysis are shown in Table V. Findings of the study revealed that all the factors of networking are positively and significantly related with business performance of medium sized enterprises. This is consistent with other studies (Tooksoon and Mudor, 2012; Tooksoon and Mohamed, 2010; Sahakijpicharn, 2007).

**Hypotheses testing**
The second objective of this research study was to examine differences between owner-managers of successful and less successful SMEs in relation to the networking factor. Given the complexity associated with evaluating the performance of smaller firms, and the difficulty in obtaining data on their financial performance, Haber and Reichel (2005) recommended the use of multiple measures of performance. Thus, both financial and
non-financial measures were used to categorize whether SMEs fell into the successful or less successful group. The financial measure included the turnover while the personal satisfaction variable was used as a non-financial success indicator. To achieve the second objective of the study, mean scores were calculated for both successful and less successful SMEs. Moreover, Mann Whitney U test was used to test the null hypothesis, developed from the literature review, which was concerned with testing whether there are differences between successful and less successful entrepreneurs in relation to the self-reported access to networking.

Table VI shows the results for both successful and less successful firms.

From the table, it can be observed that both successful and less successful respondents consider networking important for the success of their businesses. The mean scores were nearly the same for both groups with a mean score of 4.07 for successful businesses and 4.09 for less successful ones. While successful respondents agreed that they have access to friends/family that can support their businesses (mean score: 4.04) and also agreed that they have a professional affiliation (mean score: 4.07), the less successful businesses indicated their disagreement about the professional affiliation (mean score: 2.73) and showed a neutral opinion about the help of friend and family (mean score: 3.58).

Table VII shows the results of Mann Whitney U test in relation to the networking factor.

It is clear from the table that contrary to what was hypothesized, the finding linked to the null hypothesis unraveled significant differences between the successful and less successful firms. Successful firms reported more access to networking than their less successful counterparts. Results of the Mann-Whitney test indicated large differences in

<table>
<thead>
<tr>
<th>Questions</th>
<th>Less successful</th>
<th>Successful</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a. I have access to information on technologies to support my business</td>
<td>33 4.18 1.36 55 4.84 0.37</td>
<td></td>
</tr>
<tr>
<td>3d. I have access to customers</td>
<td>33 2.7 1.18 55 4.02 0.36</td>
<td></td>
</tr>
<tr>
<td>Network relations are important for the success of my business</td>
<td>33 4.09 0.29 55 4.07 0.26</td>
<td></td>
</tr>
<tr>
<td>3e. I have access to information on government regulations</td>
<td>33 3.48 1.12 55 4.00 0.33</td>
<td></td>
</tr>
<tr>
<td>3g. I have access to information on market</td>
<td>33 3.18 1.21 55 3.84 0.69</td>
<td></td>
</tr>
<tr>
<td>3k. I have access to information on finance sources</td>
<td>33 3.21 1.11 55 3.78 0.63</td>
<td></td>
</tr>
<tr>
<td>I have many helpful family connections/friends who support the business</td>
<td>33 3.58 0.94 55 4.04 0.69</td>
<td></td>
</tr>
<tr>
<td>I have professional affiliation/business association that support the business</td>
<td>33 2.73 0.98 55 4.07 0.72</td>
<td></td>
</tr>
<tr>
<td>I have reliable business network to run the business</td>
<td>33 3.48 0.94 55 3.98 0.65</td>
<td></td>
</tr>
<tr>
<td>Governmental supporting agencies</td>
<td>33 3.91 0.63 55 3.75 0.80</td>
<td></td>
</tr>
<tr>
<td>Financial institutions</td>
<td>33 4.06 0.5 55 3.89 0.66</td>
<td></td>
</tr>
<tr>
<td>Business associates</td>
<td>33 4.03 0.47 55 3.82 0.88</td>
<td></td>
</tr>
<tr>
<td>Trade associations</td>
<td>33 3.79 0.55 55 3.76 0.69</td>
<td></td>
</tr>
<tr>
<td>Networking factor</td>
<td>33 3.57 0.86 55 3.98 0.59</td>
<td></td>
</tr>
</tbody>
</table>

Source: Data analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mann Whitney U statistic</th>
<th>Mean rank (Less successful)</th>
<th>Mean rank (Successful)</th>
<th>Z value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to network</td>
<td>390</td>
<td>28.82</td>
<td>53.91</td>
<td>−4.986</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Data analysis
mean ranks of the two groups (Successful = 54, Less successful = 29) and a p value of 0.000 which is less than the statistical significant level of 5 percent. On the grounds of these findings, the null hypothesis was rejected.

Qualitative results
Table VIII shows the profile of the respondents who participated in the interviews.

The importance to networking was further reinforced by participants in the qualitative phase of the study. More interestingly, the concept of *wasta*, the Arabic word for connections, emerged from this phase. Findings showed that using *wasta*, through politico-business networks is important since it enables access to current information that is crucial for the success of SMEs. According to an owner-manager in the textile sector, his business membership in the Moroccan Association of Textile and Clothing (AMITH) enables him to get the latest information in the textile sector:

We have the Moroccan Association of Textile and Clothing (AMITH). It is an association that defends and represents the general interests of the enterprises in the textile sector. It is a very important network to us. When we meet, using our “wasta” and personal relationships, we get the latest information in our sector and share between us many things that are important. Furthermore, we address crucial issues that we face in our business and try to find solutions (Enint05).

Access to current information, through the use of connections, could be very helpful in scanning new opportunities in the market, and therefore, assist in improving business performance. This accords with Hutchings and Weir (2006a, b) who argued that *wasta* is intrinsic to the operation of many valuable social processes, central to the transmission of knowledge, and the creation of opportunity.

The concept of *wasta* was also mentioned in relation to financial resources and suppliers. Findings revealed that strong relationships with suppliers enable firms to get financial

<table>
<thead>
<tr>
<th>Participants</th>
<th>Respondents’ characteristics</th>
<th>Business characteristics</th>
<th>L</th>
<th>NE</th>
<th>LO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1 (Enint 03)</td>
<td>M 37 University PLC Textile</td>
<td>&gt; 5 years 106 IZ Al-Majd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 2 (Enint 05)</td>
<td>M 33 University PLC Textile</td>
<td>&gt; 5 years 97 IZ Mghogha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 3 (Enint 04)</td>
<td>M 41 University PLC Textile</td>
<td>&gt; 5 years 16 IZ Mghogha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 4 (Enint 01)</td>
<td>M 39 SE PLC Agri-food</td>
<td>&gt; 5 years 13 Medina</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 5 (Enint 09)</td>
<td>M 40 University PLC Agri-food</td>
<td>&gt; 5 years 130 IZ Mghogha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 6 (Enint 07)</td>
<td>M 38 University PLC Agri-food</td>
<td>&gt; 5 years 64 IZ Mghogha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 7 (Enint 10)</td>
<td>M 48 University PLC Chemical</td>
<td>&gt; 5 years 93 IZ Mghogha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 8 (Enint 06)</td>
<td>M 32 University PLC Chemical</td>
<td>&gt; 5 years 78 IZ Mghogha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 9 (Enint 08)</td>
<td>F 35 University PLC Chemical</td>
<td>&gt; 5 years 18 TFZ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 10 (Enint 15)</td>
<td>M 39 University PLC Electrical</td>
<td>&gt; 5 years 35 IZ Mghogha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 11 (Enint 11)</td>
<td>M 34 University PLC Electrical</td>
<td>&gt; 5 years 21 IZ Al-Majd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 12 (Enint 12)</td>
<td>M 40 University PLC Electrical</td>
<td>&gt; 5 years 197 TFZ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 13 (Enint 13)</td>
<td>M 43 SE PLC Metal and Engineering</td>
<td>&gt; 5 years 80 Peripheral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 14 (Enint 14)</td>
<td>M 37 University PLC Metal and Engineering</td>
<td>&gt; 5 years 52 IZ Mghogha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 15 (Enint 02)</td>
<td>M 37 University PLC Metal and Engineering</td>
<td>&gt; 5 years 131 IZ Mghogha</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: G, Gender; A = age; E, education level; LS, legal status; TA, type of activity; L, longevity of the firm; NE, number of employees; LO, location; SE, secondary education; PLC, private limited company; IZ, industrial zone; TFZ, Tangier free zone

Source: Data analysis

Table VIII. Profile of respondents
resources in the form of trade credits. An owner-manager explained this point by indicating that most of his purchases of raw materials from suppliers are done on credit:

Because of our strong relationship with our suppliers, we are able to get a trade credit. Thus, we buy raw materials without immediate payment. This enables us to sell our finished products and then pay at a later time. This is very useful for us because it helps to ease our cash flow management by having more cash inflows at a particular time than cash outflows (Enint07).

Furthermore, the relationship between *wasta* and human resources was also revealed. Findings showed that owner-managers use their network relations through *wasta* in order to recruit their staff. This was expressed in the view of a business owner-manager who indicated that one of the great sources of access to labor was word of mouth:

With respect to networking, generally, it is the word of mouth that works in Tangier or in Morocco in general. For instance, to recruit personnel in Tangier, Most SMEs use the word of mouth. The human resources manager uses his network relations to recruit staff (Enint02).

These findings suggest that networking relations using the concept of *wasta* could provide a strong impetus for successful firms in Tangier to be really adept at partnership working. However, whilst it can be argued that the use of *wasta* is legitimate as it can serve a good purpose or that it is part of Moroccan culture, this study substantiates the fact that the use of *wasta*, on the other hand, could have negative connotations and thus gives rise to concerns about business ethicality. Hutchings and Weir (2006a, b) argued that it is possible to refer to good *wasta* and negative *wasta*. An example of the negative influence of *wasta* was illustrated in the quotation of a business owner-manager, in which money and connections were used to get away with the consequences of non-compliance with health and safety legislation:

In the past, health and safety regulations were not 100% respected. So, when inspectors visited our company, we gave them some money in order to write good reports about the working conditions within the company. Also, because of our connections, we got away with it (Enint15).

**Discussion**

Networking was widely considered by participants to have a pivotal impact on the success of SMEs in Tangier. Both quantitative and qualitative phases of the study found that networking was a significant influencing factor in the success of SMEs. Perspectives of SMEs owner-managers of networking were mainly associated with the concept of *wasta*, which emerged from the qualitative phase of the study. This finding confirms that some form of networking exists in any culture. Consistent with the different concepts that emerged in a wealth of studies about networking in various cultures (Lo, 2012; Bedford, 2011; Luo, 2007; Hutchings and Weir, 2006a; Ardichvili *et al.*, 2012; Gupta and Singh, 2013; McCarthy *et al.*, 2012), this study argues that whilst these concepts may reveal some common as well as unique characteristics derived from the context where they are applied, *wasta*, in its turn, has its unique characteristics that are rooted in the nature of the Arabic society.

The influence of *wasta* on the success of SMEs was perceived to be very strong as the experiences of owner-managers drew a different picture from the one that exists in traditional Western models. In this respect, this study confirms previous findings of several studies (Berger *et al.*, 2015; Hutchings and Weir, 2006a, b) and contributes additional evidence that suggests the significance of *wasta* and its impact on SME success in an economy that functions on relationships.
Specifically, findings showed that using *wasta*, through social networks is important since it enables access to current information that is crucial for the success of SMEs. This accords with Hutchings and Weir (2006a, b) who argued that *wasta* is intrinsic to the operation of many valuable social processes, central to the transmission of knowledge, and the creation of opportunity. It also supports the argument of Ramadani *et al.* (2016) that social networks in the form of social strong and weak ties can be instrumental as sources of novel information and ideas as well as providing access to new resources.

Moreover, the concept of *wasta* was also mentioned in relation to financial resources and suppliers. Findings revealed that strong relationships with suppliers enable firms to get financial resources in the form of trade credits. This corroborates the findings of several studies in which good relationships and working closely with suppliers were reported (Morrissey and Pittaway, 2006; Jones, 1996). This suggests that business networking using *wasta* has a great impact on financial performance.

Furthermore, the relationship between *wasta* and human resources was also revealed. Findings showed that owner-managers use their network relations through *wasta* in order to recruit their staff. This corroborates the ideas of Metcalfe (2006) who indicates that throughout the Arab region, social networks built on family networks are a significant force in all aspects of decision-making and thus play a very important role in the career advancement of individuals. It further supports the argument of Tlaiss and Kauser (2011) who state that *wasta* in the workplace plays a critical role in the recruitment and career success of individuals. Although it may have some positive aspects, it can be argued here that negative connotations of corruption can also exist and thus, the prevalence of negative *wasta* can make the success of small firms dependent on their connections rather than their efforts, skills, or compliance with regulations. A clear and obvious example of the negative influence of *wasta* was illustrated in the quotation of EnInt15, in which money and connections were used to get away with the consequences of non-compliance with health and safety legislation. However, it could be concluded that while some aspects of *wasta* could be seen from outside the context as corrupt, then it might seem different to those inside. This is because *wasta* is an embedded social concept with broad range in Arabic societies – which might alter the degree of proportionality or reasonableness perceived by those within, or belonging to, those societies. Determining the range over which *wasta* is seen as legitimate (by those within the societies concerned) is perhaps the most appropriate basis for considering the relationship of *wasta* to corrupt practices.

In sum, these findings suggest that networking relations using the concept of *wasta* could provide a strong impetus for successful firms in Tangier to be really adept at partnership working. Every business needs partnerships with others in order to succeed. However, what was interesting and does add to our understanding are the particular ways in which entrepreneurs prefer to conduct their businesses using these partnerships in the Moroccan context, which seem to be different from the Western context. It is true that networking connections are particularly important in a number of Arabic cultures. Thus, here firms seem to have networking using *wasta* as being the thing that will work to encourage or support a partnership approach to business success. In societies that exhibit these characteristics, we would think that partnerships would feature more strongly as a cluster individual thing.

This study could have an implication for several international companies established in Tangier. It is clear that expatriate managers need to be conscious of the culture-specific networks. The lack of knowledge relating to such cultures and business practices has affected the ability of many international companies to tap into the economic potential of the region (Khakhar and Rammal, 2013). Supporting the implications highlighted by
Hutchings and Weir (2006a, b) from their study of understanding networking in China and the Arab world, findings of this study suggest the need for increased cross-cultural training of international managers to adjust to culture-specific networking in Tangier. Thus, policy makers and teaching organizations could provide training programs that are tailored to the needs of the international managers in order to assist their intercultural effectiveness in Tangier.

Networking practices in Arab countries are hitherto under-researched. Thus, the concept of *wasta*, in networking practices, constitutes an intriguing topic, in networking practices, which could be usefully explored in further entrepreneurship research (Whiteoak *et al.*, 2006). Furthermore, looked at positively, *wasta* could contribute to the success of business by providing finance and strengthening networks and social relationships in the market, although there could also be negative impacts such as confused stakeholding and obligations. Further investigation in depth of these issues in future studies would provide a rich field of study for future work.

**Conclusion**

The significance of networking and its impact on the performance of SMEs has been highlighted in a number of studies (Franco *et al.*, 2016; Chung *et al.*, 2015; Chen *et al.*, 2015; De Hoyos-Ruperto *et al.*, 2013; Wincent *et al.*, 2009; Watson, 2007; Zaheer and Bell, 2005; Florin *et al.*, 2003; Zhao and Aram, 1995). Collectively, these studies outline the critical impact of networking on the performance of SMEs. However, even though the findings of these studies are interesting, they have not been fully applicable to the current research context, where it was clear that there are potentially significant differences in the concept of networking within Arabic culture compared to the Western contexts. Thus, this study adds to our understanding about the impact of networking on the performance of SMEs by highlighting the concept of *wasta* as detrimental to the success of SMEs.

**References**


---

Performance of SMEs in Tangier

41


Further reading


**Corresponding author**

Yassine Sefiani can be contacted at: yassine_sefiani@hotmail.co.uk

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com
Modularity approach to improve the competitiveness of tourism businesses

Empirical evidence from case studies

Pasquale del Vecchio, Giustina Secundo and Giuseppina Passiante

Department of Engineering for Innovation, University of Salento, Lecce, Italy

Abstract

Purpose – The purpose of this paper is to contribute to the scientific debate on innovation in tourism by focusing on modularity as emerging approach for creating personalized tourism experiences. The focus on modularity has two objectives. The first is to demonstrate that tourism offering can be conceived as bundles of products and services with growing relevance of knowledge; the second is to highlight how its adoption by tourism firms can enhance their competitiveness and contribute to assuring greater involvement of tourists in co-creating travel experiences.

Design/methodology/approach – The study adopts an exploratory approach based on multiple case studies to analyze two innovative tourism companies located in the Apulia region (Southern Italy).

Findings – Categorized as integrators of a wide set of tourist products and services, the cases provide a consistent scenario for deepening understanding of the meaning of modularity in tourism.

Research limitations/implications – The study offers an original contribution in determining the meaning of modularity in the field of knowledge-intensive services by demonstrating that the adoption of a modularity approach in the designing and offering by tourism companies can provide interesting benefits for their competitiveness and the greater satisfaction of customers.

Practical implications – The study offers implications for companies and decision makers involved in delivering more personalized tourism experiences.

Originality/value – Elements of originality can be identified in this contribution to the extension of studies on modularity in the service sector as well as for its strategic contribution at the co-creation of personalized tourism experience.

Keywords Service, Tourism, Modularity, Tourism experience, Information and communication technologies (ICTs)

Paper type Research paper

1. Introduction

The radical changes occurring in the tourism industry during the last decade (Neuhofer et al., 2014) have had tremendous impact on the industry’s configuration. The development of information and communication technology (ICT) has had a considerable effect on tourism organizations, and e-tourism has digitalized almost all of the business processes in the tourism supply chain (Buhalis and Law, 2008). What has changed significantly is that technology has not only become an integral part of tourism but has also altered the way travel is planned (Neuhofer et al., 2014), business is conducted (Ndou, 2011) and tourism services and experiences are created and consumed (Stamboulis and Skayannis, 2003). This has opened up new opportunities and generated fresh challenges and potential in the field.

Aimed at assuring a unique and knowledge-based experience within the territory, in its wider definition, the tourism offering is based on the integration of products and services, arising from a community of local actors directly or indirectly interested in the tourism value chain (Denicola et al., 2010). As a result, tourism is becoming an industry of great relevance for regions’ socio-economic development.

Although the spread of ICTs has increasingly removed intermediaries in the sector, tourism’s experiential dimension highlights the need to break the journey experience down into single products and services that can be configured according to consumers’ specific
needs to assure a positive experience for tourists. This means that tourism offers can be managed as a bundle of different products and services, delivered by multiple businesses, not limited to the tourism industry, but that tourist companies can assemble with the aim of customizing the whole service. Pellegrin-Romeggio and Leszczyńska (2013) consider modularity as an option for responding to these new needs, as it offers flexibility and responsiveness while keeping costs under control.

The literature has largely described the benefits of modularity for achieving mass customization (Duray, 2002; Pine, 1993), mainly in manufacturing, but in tourism, the application of service modularity is a prime strategy for greater personalization of tourist offerings. However, the optimal approach to constructing a modular structure for services requires more research (Dörbecker and Böhmann, 2013) and its application in the tourism field is, to our knowledge, completely unexplored (Del Vecchio, Secundo and Passiante, 2015). Based on the above premise, this study aims to deepen understanding of the meaning of modularity in the tourism industry and to analyze how tourism companies can adopt it for innovating and making their value proposition more competitive by involving tourists in the co-creation of their journeys. With these purposes in mind, we adopt a qualitative research methodology based on two exploratory case studies of innovative companies located in the Apulia region (Southern Italy) and operating in the tourism industry as integrators of different categories of regional products and services. Findings highlight the implications of modularity in tourism in terms of the roles and responsibilities of different value chain members (e.g. suppliers and customers), their interfaces (connection points) and the way of developing services and managing the heterogeneity (variability) characterizing these members.

The rest of the paper is structured as follows: Section 2 presents the literature about tourism as a knowledge-intensive business service (KIBS) and modularity approach for Tourism; Section 3 discusses the methodology adopted in the study; Section 4 presents a description of the two cases discussed in Section 5. Finally, conclusions and implications for theory and practice are presented in Section 6.

2. Literature review

2.1 Tourism as a KIBS

The knowledge-intensive configuration of the current social and economic scenario (Romano et al., 2014; Antonelli, 2000) requires competition between individuals, organizations and also territories, making them increasingly dependent on their capacity to acquire, manage and maintain their internal and external knowledge assets (Schiuma and Lerro, 2010; Toivonen et al., 2008).

Tourism, as a personal experience resulting from a visit to a certain place, can be interpreted as composed of a growing number of services and products characterized by the increasing relevance of knowledge (Del Vecchio, Ndou and Passiante, 2015). Recently, researchers and scholars have started to investigate the factors enabling tourism as a service-based (Page and Connell, 2009), and knowledge-intensive industry (Buhalis and Law, 2008). Furthermore, the integration of tangible and intangible elements within a whole regional tourism offering makes the area of great interest to researchers in the field of service-dominant logic, offering opportunities for rethinking traditional conceptualizations and theories (Spring and Araujo, 2008) and implications for the configuration of tourism as KIBS.

KIBS are characterized by knowledge-intensive flows and customers’ involvement in the process of the design and production of services (Miozzo and Grimshaw, 2005; O’Farrell and Moffat, 1991). For this process to be effective, continuous dialogue is required between the demand and supply sides of services; this marks tourism as a clear representation of a KIBS.

Further evidence of the relevance of tourism within the scientific debate on service science can be identified in the work of Page and Connell (2009), who refer to tourism as a
complex socio-economic phenomenon increasingly configurable as a “service sector.”
All this recalls the need for identifying methodologies and tools for the effective
management of tourist businesses. This is why in this study we focus on modularity as
consolidated approach for managing complex, knowledge-intensive outputs, recently
proposed in services sectors.

2.2 Modularity in service: trends and perspectives
There is no one universal definition of modularity (Gershenson et al., 2003). Pine (1993)
argues that modularity is the key to attaining mass customization by breaking down
modules, enabling the configuration of different products and services. The focus on
services as a field of relevance in applying modularity is more recent; only one of the articles
dealing with service modularity was published before 2008 (Bask et al., 2011). The first
example of service modularity can be identified in the literature and practice related to the
software industry (Bask et al., 2011). Modularity in services is described as a strategic
answer to the need to guarantee flexibility and high responsiveness to customers by a
company looking for excellence (Bask et al., 2011). The authors thus defined a holistic
framework that combines modularity and customization consisting of three main
dimensions: service offering, service production and production network. Specifically,
service offering relates to the extent of customizing the experience; the depth of involvement
represents the measurement of service production. Ultimately, the service production
network dimension measures the level of responsibility of suppliers and the degree of
customization dedicated to the relationships with them (Bask et al., 2011).

Duray (2002) have developed a framework to combine modularity types, varying
across the production cycle (high or low) and customization level (high or low) depending
on customer involvement in production. Based on the combination of different degrees of
modularity (high-low) and customization (high-low), Bask et al. (2011) extend the
perspective of Duray (2002) to services by deriving four categories of offerings as
summarized in Table I.

A challengeable aspect of applying modularity in services concerns the opportunity that
it can offer in terms of a more personalized customer experience (Brax and Toivonen, 2000;
Rahikka et al., 2011). From such a perspective, users can participate as innovators of their
own products and services, as highlighted by a wide set of literature (Prahalad and
Ramaswamy, 2013; Sawhney et al., 2005).

Tourism offering is configurable as the result of production networks, populated by
suppliers responsible for the modules they provide, characterized by a flexible structure,
adopting behavior suitable to satisfy a changeable demand (Voss and Hsuan, 2009).
The concept of modularity has been identified in the literature as an attribute of complex
systems with dual yet opposite goals: reducing the interdependences between modules on

<table>
<thead>
<tr>
<th>Types of service offering</th>
<th>Degree of modularity</th>
<th>Degree of customization</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modular regular</td>
<td>High</td>
<td>Low</td>
<td>Services configured by combining predetermined bundles</td>
</tr>
<tr>
<td>Non-modular regular</td>
<td>Low</td>
<td>Low</td>
<td>Standard services bought from store with few options for customization</td>
</tr>
<tr>
<td>Non-modular customized</td>
<td>Low</td>
<td>High</td>
<td>Services bought from tailor with opportunities for customization in the early stages</td>
</tr>
<tr>
<td>Modular customized</td>
<td>High</td>
<td>High</td>
<td>Services bought to order with considerable opportunities for personalization</td>
</tr>
</tbody>
</table>

Table I. Modularity and customization in service offerings (adapted from Bask et al., 2011)
one hand and maximizing the interdependences within them on the other (Campagnolo and Camuffo, 2010) to obtain new configurations (Baldwin and Clark, 1997; Langlois, 1992).

While there is a consolidated body of literature on the benefits of modularity in manufacturing (Spring and Araujo, 2008), the implications of modularity in services remain underexplored (Brax and Toivonen, 2000). Due to the systemic nature of services (Brax and Toivonen, 2000), modularity can be adopted as a suitable approach to innovate tourism by leveraging the contributions of different actors to innovate (Del Vecchio, Ndou and Passiante, 2015; Del Vecchio, Secundo and Passiante, 2015).

2.3 Modularity in the tourism industry: creating personalized experiences

The notion of a service production network associated with modularity in services, as previously described (Bask et al., 2011), is significant for deepening the opportunities for innovation emerging from tourist companies called to compete by integrating the products and services provided by a larger community of stakeholders. This is because the journey experience in a certain destination is based on an integrated system of services and products, also identifiable as modules. In contrast to the mass customization process allowed in manufacturing, applying modularity in composing an integrated tourist package of products and services is a guarantee of greater personalization. This recalls the modular customized dimension described by Bask et al. (2011). In their work, this perspective is characterized by a large number of alternative solutions available for customers resulting from the mixing, matching and bundling of standard and customized modules.

The overall configuration of a journey and tourist package is subject to time and financial constraints, which will have an impact on the number of services and products in which tourists are interested. Tourists will look for different kinds of vacation depending on the duration of the visit, from one day to a weekend, or from one to many weeks, but in all cases, they will expect to be satisfied with the return on the money they spend. This means that the tourism offering, in satisfying the request for personalized experience according to specific limits on timing and expenses, can be broken down into several modules (Figure 1).

The process of empowering tourists enables them to find out about the destination before they visit it, to compare easily the different offerings available, etc. The service architecture has the most important role in defining the degree of service modularity, as it determines the limits and design of services and processes. The service architecture makes it possible to

---

Figure 1. The tourist experience as a composition of different services and products
support decisions related to service lines and to engage top management’s participation (Voss and Hsuan, 2009).

Finally, modularity’s relevance for the competitiveness of tourist enterprises is supported by the widely recognized view of modularity as a pillar of innovation management theory and practice, adopted in different research fields such as engineering, psychology, biology and mathematics (Campagnolo and Camuffo, 2010; Schilling, 2003). Several contributions can also be identified in management studies, albeit somewhat vague and unfocused, mainly referring to implications for the management of complex systems of products and services, as tourism appears to be. Different approaches and framework have been developed by scholars and researchers in order to afford the complexity of tourism management, i.e. systems approach (Leiper, 1990), ICT enhanced experience co-creation (Prahalad and Ramaswamy, 2013), service-dominant logic (Vargo and Lusch, 2004), experience economy (Pine and Gilmore, 1999). Accordingly the adoption of modularity as a lens by which to read the strategy for competitiveness and survival of tourist business arises as an original contribution of integration and systematization of the above-mentioned perspective of study.

3. Research methodology
With a view to contributing to the extension of the scientific debate on the competitiveness of tourism companies by focusing on modularity as a suitable approach for designing and managing their offering, this study adopts an exploratory approach to derive patterns and implications for theory and practice. More in detail, the study attempts to provide an answer to the following research questions:

RQ1. How does modularity fit the challenges associated with the value proposition of tourism companies? What are the implications of modularity for their competitiveness?

Based on the logic of grounded theory (Glaser and Strauss, 1967), a recognized method in research on managerial and organizational issues, the study adopts the qualitative methodology of a multiple case study, drawing on a limited number of examples to develop meaningful insights (Pettigrew, 1990). Two cases of tourism companies with different levels of modularity have been chosen to create a comparative study. This aims to provide a more in-depth understanding of how modularity fits the challenges associated with the tourism companies’ value proposition and what are the implications of modularity for their competitiveness.

3.1 The research context
The companies analyzed, Cala Ponte Marina and Albatravel Lecce, are both operating in tourism and are located in Apulia (Southern Italy), a destination with a growing reputation and differentiated and valuable offering: seas (Adriatic and Ionic), beaches, but also natural reserves and historical sites, recognized by UNESCO.

The two companies were selected based on their innovative value proposition, resulting from a deep knowledge of the destination, an original interpretation of their offering and the integration of a wide, combined set of touristic products and services. These are extreme cases (Eisenhardt, 1989; Yin, 1994) of successful examples of integrators within the destination and are key to understanding the meaning of modularity in tourism services.

3.2 Data collection
Multiple data collection methods were used to exploit the synergistic effects of combining them via triangulation (Eisenhardt, 1989; Jick, 1979). This consisted of combining investigative techniques to reduce the bias of a single observation in the comparison of multiple data (Tarrow, 1995). During the first research phase, we drew on secondary
sources, such as archival records, documentary information, official corporate communication tools (such as websites, mainly the press section), Facebook fanpages and other social network accounts; from these sources, we determined the relevance of the cases to the study’s goals.

Later, the case studies were developed through in-depth interviews with the managers responsible for the companies’ business strategies, identified as key informants (Kumar et al., 1993). Specifically, for Cala Ponte, we interviewed the Entrepreneurship and Marketing Manager, while for Albatravel Lecce, the interviewee was the CEO and Manager Responsible for Incoming Activities. The in-depth interviews were undertaken from October 2014 to February 2015, structured as follows: plan, develop instrument, collect data, analyze data and disseminate findings (Boyce and Neale, 2006). During the planning phase, we conducted web research to identify the stakeholders to be interviewed. Later, we developed the instrument, namely an interview protocol (i.e. the instructions/guidelines for both the researcher and the interviewee). In the design phase, we developed a tool structured as follows: data reduction, data display and conclusion drawing and verification (Miles and Huberman, 1984). As argued by Gilmore and Pine (2000), in case study methodology, this approach guarantees the highest degree of reliability.

The interviews were based on semi-structured schema and a flexible approach. Specifically, the interview protocol comprised three sections:

1. Company overview: legal name, core business, information on web presence (official website and social profiles), main markets of interest, collaboration networks, role of the interviewee.

2. Company and regional context: awareness of the importance of the regional identity, culture and heritage, readiness of actors directly and indirectly involved in the regional tourism offering, contribution of the companies to the regional tourism offering, creation and nature of joint initiatives for promotion and communication, opportunities and strategies for deseasonalization.

3. Value proposition and modularity: identification and classification of suppliers (from the most important to the least), degree of integration and modalities by which the suppliers collaborate to compose the company offering, sharing of standards and quality manuals within the company network, existence of a list of suppliers and selection criteria, degree of personalization of the offering and creation of packages, availability of information service and initiatives of social and smart tourism, degree and modalities of involvement of tourists in the creation of their own experience, and customer satisfaction.

Myers (2008) states that interviews offer an excellent “window” for achieving the research objectives, either to establish the informant’s perspective on an issue or to determine whether the informant can confirm insights and information the researchers already hold.

### 3.3 Data analysis

The data analysis followed an inductive and iterative process (Miles and Huberman, 1984; Strauss and Corbin, 1990). The first step of this phase was descriptive coding (included in the structure of the interview itself), drawing on Bask et al.’s (2011) framework which focuses on the perspectives of customization addressed through the adoption of a modular approach to services. The adoption of this framework is extremely useful in including the large number of factors underpinning a tourist offering and demonstrating how they have to be structured and composed to maximize customers’ satisfaction. The analysis of the findings was anticipated by data reduction and organization. Reading of data was conducted independently by researchers to form a comprehensive understanding of each case. Later, data were assembled...
into tables to ease comparison. This has allowed identifying the importance of some keywords representing the framework elements in terms of the decomposition of services and products underpinning the tourist destination and the degree of personalization of the tourism experience. The discussion on the interpretation of the data has allowed seeking relationships between consumers and companies and interaction in terms of the co-creation process. Finally, as described by Eisenhardt (1989), a further series of iterations between both secondary and primary data and the literature on modularity in services was performed to identify theoretical foundations.

4. Empirical findings

4.1 Background of the companies

Cala Ponte is an innovative marina located in Polignano a Mare, a well-known Apulian destination in Southern Italy. With respect to quality and safety standards, Cala Ponte was conceived as part of an integrated intervention enhancing quality in the whole area, surrounding and incorporating a hotel and a mall with shops and services. Located 1 km from the old town of Polignano, Cala Ponte is defined as a “tailor-made and exclusive Marina Resort from which to explore the landscapes around it.” The company has an official website (www.calaponte.com), as well as an official profile on Facebook. A local family of entrepreneurs owns and manages Cala Ponte. The core business of Cala Ponte is the rental of berths, over different periods (daily, monthly, seasonally, annually), but the large set of associated services made available to the marina’s guests represents a growing area of interest for the company’s profitability. As the interviews revealed, Cala Ponte’s value proposition is based largely on an integrated set of services and products describing the tourist destination in terms of its whole identity. Further elements of strength were identified in the geographical location of the marina, both in terms of its closeeness to an efficient network of transport infrastructure and its privileged location within the international sailing routes from the north of the Adriatic toward Greece, Croatia and other Mediterranean destinations.

Albatravel Lecce is the local branch of Albatravel Group, an Italian tour operator working in the commercialization of tourist-integrated services. Located in Lecce, the company has been operating since 2000 as an integrator of tourist services for business-to-business markets. One of the activities of major interest in relation to Albatravel is incoming tourism, its office being devoted to the commercialization of tourist services in the Apulia region. The company has an official website (www.albatravelapulia.com), as well as a profile on Facebook and a corporate blog. The most consolidated source of revenue for the company is accommodation services, but interesting aspects of profitability have also been identified in relation to a wide set of regional products and services arranged for singles (individuals and families) or groups (cruises being a growing segment). In all the cases, the company tries to satisfy the customers’ expectations by working on the composition of tourist packages that can be customized according to specific needs. This requires a deep knowledge of the tourist destination in its whole configuration, working on the modularization of services and products useful for trips and offering a large margin of personalization in the creation of the tourist experience. The company identifies its deep knowledge of the destination and belonging to an experienced network of suppliers as the major elements of strength in its own value proposition.

4.2 Companies and the regional Apulian tourist system

Cala Ponte. The regional identity and its characterization as a destination of growing popularity were identified as the most distinguishing features behind Cala Ponte’s competitiveness. This does not mean that all firms directly and indirectly involved in the
composition of the Apulian touristic offering have the outstanding level of services required by the typical customers of an international marina. The development of Cala Ponte, with its integrated project for enhancing the quality of the area, has contributed to the quality of the local tourist offering. According to those interviewed, this has had a positive impact in activating a virtuous mechanism of enhancement of the quality of services and products associated with the marina. Perceived as a positive element in assuring the higher visibility of the destination, Cala Ponte tries to take part in the various promotional initiatives launched by the regional administration. As for the strategy of deseasonalizing, the relatively warm temperature during the winter, as well as the richness of the natural and cultural beauties is available almost all year round, contribute to attaining the marina’s long-term operation, although during the winter the customers are largely local.

*Albatravel.* The company identifies Apulia’s regional image as a distinguishing element in its value proposition. This must be read in the wider meaning, including also the cultural, agro-food and natural regional heritage. Focusing on the collaborations with regional actors, it is possible to note a general but not particularly qualified professionalism, although there are aspects characterized by high competencies and deep market knowledge. The consolidated experience of Albatravel in the incoming sector can absolutely be identified as a quality enhancement factor in the area (in terms of opening up new markets, such as Japan, since 2000). The company is aware of the importance of taking part in joint communication and promotional initiatives at the regional, national and international levels. These initiatives are often promoted by the Apulian regional tourism development agency and are evaluated as a positive element in boosting the quality of the destination. In terms of deseasonalizing, the company has successfully extended its season. Supported by the region’s mild climate, Albatravel is able to operate from April to November by targeting its offering toward different tourist segments. The cruises and groups are mainly concentrated in the Spring, late Summer and early Autumn, while during the summer, the demand mainly comes from individuals and families. The richness of attractions in terms of gastronomic, natural and cultural heritage has a positive impact on this deseasonalizing process.

4.3 Modularity in tourism local personalized experience in Cala Ponte

The company’s value proposition derives from design and management of an integrated system of services and products. In addition to renting berths, which represents the marina’s core business, Cala Ponte provides a widely differentiated offering for customers. This is made available through in-house activities, as well as through a selected network of suppliers. It includes technical assistance, cleaning, catering and restaurants, accommodation, guides, fuel stations, entertainment, local handcrafts and agro-food specialties (Figure 2).

All the services and products available to guests are selected according to a preliminary evaluation performed by Cala Ponte’s managers and owners to assure high quality provision and customer satisfaction, as well as the personalization of their experience in the marina. All these elements constitute single modules that compose the final offering at Cala Ponte. Yachtsmen have described the availability of all these services on the website and with the Marina concierge. On each journey, customers may book services and products. To make this possible, Cala Ponte’s management is continuously involved in selecting local suppliers, monitoring customers’ satisfaction, proving feedback to the suppliers, contracting packages and providing different types of solutions. Integrating this large set of services and products within the Cala Ponte value proposition requires adopting quality standards, respecting time constraints and flexibility by suppliers in reconfiguring
their offering according to the requests made by customers. Cala Ponte has a list of suppliers and the feedback received on existing partners; the creations of new partnerships with local firms are the main drivers in updating this list. The mechanism for monitoring customer satisfaction of is a questionnaire, available at the Marina reception, but also interaction with the receptionists, who are careful to note customer satisfaction during and at the end of their stay.

**Albatravel.** Albatravel’s mission is to provide an integrated set of services and products for tourists. From this perspective, the main components of such an offer are the structures implemented for accommodation, guides, restaurants, service providers, transport (public and private), handcrafts, museums and cultural entities (Figure 3).

All the actors involved have a direct or indirect impact on the effective achievement of the company’s objectives, contributing, albeit with different intensity, to making the tourism experience distinct. Albatravel works on the composition of services and products in packages for the agencies and further intermediaries, using a continuously monitored and updated list of suppliers. Criteria for evaluating partners are based on their nature; thus, for the hotels, price, location and cleaning are the main parameters adopted. For guides, the selection criteria are readiness, language skills and also capacity for emphasis. For restaurants, in general, the food quality is the essential element of choice. Collaborations with this large network of actors aim for a real exchange of knowledge and opportunities. Informal feedback mechanisms and customer satisfaction analysis are used to measure the quality of the services provided as well as to select future collaborations. Criteria for the selection of suppliers are widely differentiated; location and experience matter, but also the customers’ spending power and profiles. The modalities by which the different services and products are composed within daily or weekly packages are based on the customers’ expectations, from the creation of a typical day using different modules to the provision of different solutions regarding accommodations, activities enabling the discovery of regional attractions (sea, nature, culture, handcrafts, etc.), foods and local gastronomic specialties, transport services, etc.
5. Discussion
The two cases presented provide a deeper understanding of modularity’s relevance for the effective management of tourist companies’ offering based on complex and knowledge-intensive services. Table II provides a synthesis of the main evidence collected with reference to the dimensions of modularity and customization.

The two companies are characterized by their innovative profiles, and their activities can be assumed to have positive implications for the general growth of the tourist industry in the region. Both the companies operate as orchestrators of a wide set of products and services, designed to offer a largely personalized experience within the destination. This marks the two companies as knowledge integrators. In confirming tourism’s nature as a KIBS, our results are consistent with the view that adopting a modularity approach provides opportunities in the service sector. By allowing the combination of different and scalable solutions related to services and products, the two companies are able to serve different market segments, reserving special attention for the quality of services offered to maximize the tourism experience. This requires a deep knowledge of the region’s potentialities as well as the management of an articulated business network providing the products and services necessary for a trip. Furthermore, this is guaranteed by imposing of standards in terms of quality and timing.

In all cases, the configuration of the final tourist packages is based on customers’ requirements and expectations. Both the companies assume the identity of the regional destination as an important element of their own qualifications, as well as being aware of the importance of promoting and taking part in the regional integrated tourism system. The knowledge-intensive nature of tourism is identifiable in these cases in the prerequisites of deep knowledge of the destination (and all its components), awareness of the implications for their competitiveness deriving from tourists’ widespread adoption of ICTs and digital applications, the usefulness of these technologies in developing a more effective promotion and personalization strategy, and also for the prompt alignment and feedback
with suppliers and partners. Modularity arises in the cases as a strategic approach to managing business complexity, assuring the effective composition of services and products and promoting the integration of different players.

In terms of modularity and its implications for services, the cases demonstrate that this is a useful approach for ensuring greater personalization of the customers’ experiences. The study of tourism as a knowledge-intensive and integrated system in which the companies operate allows us to confirm the opportunities offered by adopting modularity as a strategic approach in the service sector.

<table>
<thead>
<tr>
<th>Criteria of analysis</th>
<th>Cala Ponte Marina</th>
<th>Albatravel Lecce</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Company identikit</strong></td>
<td>Location</td>
<td>Location</td>
</tr>
<tr>
<td></td>
<td>Polignano a Mare, Apulia (Southern Italy)</td>
<td>Lecce, Apulia (Southern Italy)</td>
</tr>
<tr>
<td></td>
<td>Core business</td>
<td>BtoC – local, national and international</td>
</tr>
<tr>
<td></td>
<td>Berth renting, accommodations and services</td>
<td>Creation and sales tourist packages – incoming services</td>
</tr>
<tr>
<td></td>
<td>Main market (BtoB or BtoC)</td>
<td>BtoB – local, national and international</td>
</tr>
<tr>
<td></td>
<td>BtoC – national and international</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Company value proposition</td>
<td>Regional image; deep knowledge of the area; network of suppliers; degree of personalization of customers’ experience</td>
</tr>
<tr>
<td></td>
<td>Quality standards; co-branding with C&amp;N and involvement in an international network of marinas; location; regional image</td>
<td></td>
</tr>
<tr>
<td><strong>Service offering (customer perspective)</strong></td>
<td>Personalization of the customer experience</td>
<td>High degree of personalization of tourist experience, according to specific needs of customers.</td>
</tr>
<tr>
<td></td>
<td>Company is able to serve different market segments</td>
<td>Company is able to serve different market segments</td>
</tr>
<tr>
<td></td>
<td>Modularity as lever for the management of an integrated and knowledge-intensive tourist experience</td>
<td>Cala Ponte offers an integrated and scalable tourist solution by leveraging different products and services. They can be chosen by tourists according to their time and financial constraints</td>
</tr>
<tr>
<td></td>
<td>Albatravel offers an integrated tourist solution composed of a large number of services. According to time and financial constraints, tourists can compose their own experience</td>
<td></td>
</tr>
<tr>
<td><strong>Service production</strong></td>
<td>Company as orchestrator of a set of different products and services</td>
<td>Yes, offering a comprehensive personalized tourist experience emerging from the integration of a large set of services and products available on site. All those are outsourced</td>
</tr>
<tr>
<td></td>
<td>Yes, offering a comprehensive personalized tourist experience based on the integration of several services and products, realized in-house, outsourced or in collaboration with external providers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Company as knowledge integrator</td>
<td>Yes, by developing a deep knowledge of the regional offering as well as of the customers’ needs and expectations</td>
</tr>
<tr>
<td></td>
<td>Yes, by operating as knowledge broker, matching the consolidated knowledge of the region with the customers’ expectations</td>
<td></td>
</tr>
<tr>
<td><strong>Production network</strong></td>
<td>Company’s contribution to the quality of the regional tourist supply chain</td>
<td>Yes, by imposing quality standards on regional actors, selecting them based on their profiles</td>
</tr>
<tr>
<td></td>
<td>Yes, by supporting the process of quality enhancement of suppliers and partners with the sharing of quality standards and feedback</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mechanisms for assuring quality and satisfaction in the tourist experience</td>
<td>Yes, through structured questionnaire for customer satisfaction. Suppliers are responsible for the quality of their offerings</td>
</tr>
<tr>
<td></td>
<td>Table II. Modularity for creating a successful offering: case studies at a glance</td>
<td></td>
</tr>
</tbody>
</table>

Table II. Modularity for creating a successful offering: case studies at a glance
6. Conclusions

This study aimed to deepen our understanding of the challenges and opportunities associated with adopting modularity in designing and managing the overall offerings by tourist companies. The opportunity for adopting a modularity approach in tourism arises in our study as a response to the complexity of the industry, resulting from the composition of several products and services, as well as the knowledge-intensive nature characterizing the tourism experience. Nowadays, tourism is increasingly an experience and is enhanced by the widespread spread of ICTs, which exert an impact on the knowledge-intensive dimension of the services and products offered to tourists. The digitalization of consumption behaviors is of interest to tourism, enabling competitive engagement between destinations at the global level, both in terms of opportunities and challenges, and the creation of more empowered consumers; they start to discover the destination before they are on site and continue to be connected to their own networks virtually, thus combining their physical experience with the feedback, suggestions and recommendations available online.

From this perspective, the paper has focused on modularity with the aim of investigating how it can be adopted as a suitable approach for creating a more personalized tourism experience in the destination. It is important to note that the two cases analyzed, Cala Ponte Marina and Albatravel Lecce, demonstrate that the nature of KIBS underpinning value propositions in the tourism field and the tourism offering is increasingly an experiential path resulting from the integration of a wide set of products and services. This conception of tourism, emerging from the cases, demonstrates the benefits associated with adopting modularity in the design and management of offerings that increasingly respond to customers' needs. The adoption of a framework combining modularity and customization consists of three main dimensions: service offering, service production and service production network. These perspectives illustrate how the service is offered to the customer and how the offering is implemented. Specifically, service offering regards the extent to which the experience is customized, while the depth of involvement is represented in the measurement of service production.

Elements of originality can be identified in this contribution to the extension of studies on modularity in the service sector as well as in the systematization of consolidated frameworks and theories related to tourism. Adopting modularity in tourism provides interesting evidence in terms of the implications for personalization. Whereas the literature on modularity has largely described its benefits in attaining mass customization (Duray, 2002; Pine, 1993), mainly in manufacturing, this study has demonstrated empirically how applying modularity in tourism can be employed as the strategic dimension of a personalized tourism experience.

6.1 Implications for theory and practice

The study offers an original contribution in determining the meaning of modularity in the field of knowledge-intensive services by demonstrating that the adoption of a modularity approach in the designing and offering by tourism companies can provide interesting benefits for their competitiveness and greater customer satisfaction. Moreover, adopting modularity in tourism as a lens by which to read the strategy for competitiveness and survival of tourist business is coherent with the different approaches and frameworks developed by scholars and researchers to afford the complexity of tourism management; i.e. systems approach (Leiper, 1990), ICT enhanced experience co-creation (Pralahad and Ramaswamy, 2013), Service-Dominant Logic (Vargo and Lusch, 2004), experience economy (Pine and Gilmore, 1999).

As for practice, it is possible to distinguish two levels of implications. The first is related to single companies operating in tourism and calls on them to recognize that the
The nature of tourism as a regional integrated system emerging in this work suggests opportunities for innovative practices within the entrepreneurial backbone of the region, but also calls for a strong commitment by regional agencies to drive the region’s development path according to its tourist vocation by balancing the interests of a distributed community of actors. The involvement of public actors as enabling nodes within the regional ecosystem, supporting the emergence of innovative and entrepreneurial practices to consolidate a destination’s tourist image, is a further important practical implication of the study.

6.2 Limitations and future research directions
The study has limitations under two main perspectives. The first one derives from the limited number of cases analyzed as well as for their geographical dimension, considering that both cases are located in the same region. At this purpose, future research could be addressed to enlarge the number of companies, also by including other regional destinations. This could allow to consolidate the evidences collected by identifying trends and dynamics of regional relevance. A second limitation is related to tourism as industrial context of analysis of the study. Despite its relevance as service-oriented and knowledge-intensive industry, the enlargement to other industries could disclose additional patterns and potential contributions to the advancement of the research agenda in the field of service innovation and modularity.

References


Further reading


About the authors

Pasquale del Vecchio, PhD, is a Researcher and Lecturer at the Department of Engineering for Innovation of the University of Salento, Italy. In 2007, he was a Visiting PhD Student at the Center for Business Intelligence – MIT Sloan School of Management (USA). His research field concerns the issues of user-driven innovation and open innovation with a specific focus on the phenomenon of virtual communities of customers. Currently, he is involved in a project related to the development of a tourist-integrated system for the regional smart specialization as well as in a research venue focused on technology-driven entrepreneurship. Pasquale del Vecchio is the corresponding author and can be contacted at: pasquale.delvecchio@unisalento.it

Giustina Secundo is a Senior Researcher and an Assistant Professor in Management Engineering at the University of Salento (Lecce, Italy). Her research interest regards intellectual capital, academic entrepreneurship, innovation management and knowledge-intensive entrepreneurship. Her research appeared in Journal of Intellectual Capital, Knowledge Management Research & Practices, Measuring
Giuseppina Passiante is a Full Professor of Innovation Management and Technology Entrepreneurship at the University of Salento. Currently her research fields concern technology entrepreneurship, and more specifically the experiential learning environment encouraging enterprise and entrepreneurship capabilities, skills, and competencies. She is also an expert in knowledge-based organizations and local systems, ITs and clusters approach, complexity in economic systems. In these research fields, she has published several books and about 100 papers. She is an Associate Editor of the *International Journal of Innovation and Technology Management* and coordinator of the International PhD programs on Technology Innovation and Entrepreneurship at the University of Salento (Italy).

For instructions on how to order reprints of this article, please visit our website: [www.emeraldgrouppublishing.com/licensing/reprints.htm](http://www.emeraldgrouppublishing.com/licensing/reprints.htm)
Or contact us for further details: permissions@emeraldinsight.com
Audit report timeliness
Does internal audit function coordination with external auditors matter? Empirical evidence from Tunisia

Ahmed Atef Oussii
Department of Accounting, Institut Supérieur d’Administration des Affaires de Sfax, Sfax University, Sfax, Tunisia and DEFI Research Unit, Ecole Superieure des Sciences Economiques et Commerciales de Tunis, University of Tunis, Tunis, Tunisia and Neila Bouilila Taktak DEFI Research Unit, IHEC Carthage, Université de Carthage, Ecole Superieure des Sciences Economiques et Commerciales de Tunis, University of Tunis, Tunis, Tunisia

Abstract
Purpose – The purpose of this paper is to examine whether coordination between external auditors and the internal audit function affect the timeliness of audit reports as proxied by audit delay.
Design/methodology/approach – This study uses a survey of chief internal auditors from Tunisian listed companies to analyze the extent of coordination between IAFs and external auditors. Data spanning a four year period (2011-2014) was collected for 53 listed companies. Further, regression analysis was used to test the hypothesis.
Findings – Results indicate that greater coordination between internal and external auditors results in timelier financial reporting.
Practical implications – Overall, the study makes several important contributions. Findings provide important insights that an IAF acts as a valuable resource to external auditors. The results should be of interest to managers, external auditors and the Tunisian Financial Market Council.
Originality/value – This paper is one of few studies which have examined the association between internal-external audit coordination and timeliness of audit reports in an emerging market. The study makes a meaningful contribution to the corporate governance literature by investigating the influence of internal audit assistance on the delivery of timely audited financial information to the capital market. Results also have policy implications for Tunisian regulators with respect to the promotion of internal auditing best practices.
Keywords Listed companies, Emerging markets, External audit, Internal audit, Audit delay, Reliance on internal audit function
Paper type Research paper

1. Introduction
Timeliness of reporting has been recognized as one of the qualitative characteristics of financial reporting (International Accounting Standards Board, 2010). According to the International Accounting Standard Board, timely audit reports increase accounting information users’ decision usefulness. Several studies show timeliness of reporting reduces information asymmetry between insiders and outsiders (Owusu-Ansah, 2000) and improves financial market efficiency (Afify, 2009) and audit quality (Leventis et al., 2005). Furthermore, Al-Ajmi (2008, p. 217) suggests that “timeliness can also be viewed as a way of reducing the opportunity to spread rumors about companies’ financial health and performance.”

The importance of financial reporting timeliness has emphasized the crucial role that internal auditors can play in enhancing financial statements timeliness by reducing audit report lag (Abbott et al., 2012a). Therefore, the purpose of this study is to investigate the
influence of IAF assistance on the timeliness of audited financial reporting. External audit delay is generally measured as the number of days from the year end to the date of the audit report (Ashton et al., 1987). We predict that internal audit function coordination with external auditors, “especially during the external audit busy season” (Abbott et al., 2012a, p. 4) may reduce the timing and extent of tests performed by external auditors. As a result, the internal auditors’ assistance will reduce audit delay.

In order to conduct our analysis, we use a sample of 53 Tunisian listed firms over the period spanning from 2011 to 2014. Data were obtained through a survey of chief audit executives. Based on international auditing standards and prior empirical studies, we use multiple items proxying for the IAFs’ coordination with external auditors (Gras-Gil et al., 2012; Abbott et al., 2012a; Felix et al., 2001; ISA 610 revised).

Consistent with our prediction, we provide evidence that the coordination between IAF and external auditors is negatively associated with audit delay indicating that coordination would potentially decrease the time taken for the auditor to issue the audit report.

Our study contributes to the existing empirical literature dealing with both internal auditing, and timeliness of reporting by providing evidence in a south Mediterranean emergent market.

Accordingly, our findings have practical implications for external auditors who are using the work of internal auditors. We also believe our findings may help Tunisian regulators improve the timeliness of audited financial statements by encouraging external auditors to use the work of IAF when its attributes and activities are relevant to the audit process.

The remainder of this paper is organized as follows. Section 2 provides a literature review on the impact of IAF assistance on external audit delays and, from this, develops the hypothesis to be tested. Section 3 describes the research methodology, while Section 4 discusses our results. The final section offers the conclusion.

2. Background and hypothesis development
The role of the external auditor is “to enhance the degree of confidence of intended users in the financial statements” (ISA 200, International Federation of Accountants, 2009). To do so, the auditor expresses, through his annual report, an opinion on whether the financial statements give a true and fair view in accordance with the financial reporting standards. In order to increase the efficiency and the effectiveness of the audit, the international standard on auditing ISA 315 states that the IAF may provide information that is useful to the external auditor in obtaining an understanding of the entity and its environment, and in identifying and assessing risks of material misstatement (p. 14). ISA 610 acknowledges that external auditors may rely on internal auditors work if they assess the IAF’s competency, organizational status and relevant policies and procedures to be adequate. Therefore, the use of the work of internal auditors may modify the nature, the timing or reduce the extent of audit procedures performed by the external auditor.

However, the aforementioned standard (ISA 610, p. 20) states that as IAF is not independent of the entity, excessive use of internal auditors to provide direct assistance may affect perceptions regarding the independence of the external audit engagement.

Internal auditing standards also highlight the importance of coordinating the efforts of both internal and external auditors. In fact, the Standard for Professional Practice of Internal Auditing ISPPIA 2050 suggests that: “the chief audit executive should share information and coordinate activities with other internal and external providers of assurance and consulting services to ensure proper coverage and minimize duplication of efforts” (Institute of Internal Auditors, 2012, p. 10).

Past studies analyzing the interaction between internal and external auditors have provided evidence that a high level of coordination between IAF and external auditors improves the efficiency and the effectiveness of the external audit, and therefore, quality of
Specifically, Paape (2007, p. 72) states: “It is in the best interests of both external and internal auditors to closely cooperate and coordinate their activities. It will not only strengthen service payoff and reduce cost savings, but also demonstrate true grown up professionalism. It will also make the external audit job, of supervising both, easier.”

Felix et al. (1998) showed that coordination can maximize the effectiveness of the internal auditors’ contribution and therefore increases external audit efficiency by minimizing duplicate audit efforts. Likewise, Zain et al. (2006, p. 3) indicated that “IAF assistance is likely to save external auditors’ time and effort in their audit engagement.”

Numerous prior studies have highlighted the link between IAF assistance and external audit fees. Engle (1999), for example, stated that the external auditor’s reliance on IAF work reduces audit fees, and decreases the disagreements between senior management and external auditors on a company’s accounting principles and policies. Similarly, Felix et al. (2001) discovered a negative relationship between external audit fees and the IAF contribution to financial statement audits. Schneider (2009) also argued that a greater level of coordination between internal and external auditors is associated with lower external audit fees.

Using GAIN data on 235 firms, Prawitt et al. (2011) provide evidence that audit fee reduction is positively associated with the amount of time internal auditors spend providing direct assistance to the external auditors. A further study by Abbott et al. (2012a) found that the number of in-house IAF hours spent assisting the external auditor is negatively associated with external audit fees.

Lin et al. (2011) also showed that internal-external auditor coordination improves the overall effectiveness of the external auditor’s Section 404 process and leads to a greater disclosure of material weaknesses. In a sample of 134 US firms, Abbott et al. (2012a) investigated whether internal audit assistance is associated with external audit delay and found that the use of internal auditors for direct assistance in an external audit leads to timelier financial reporting.

Gras-Gil et al. (2012) examined the relationship between the IAFs’ characteristics and the quality of its financial reporting in the Spanish banking industry. Findings show that the internal auditors’ involvement in the financial accounting process is positively associated with financial reporting quality.

Finally, Pizzini et al. (2014) concluded that the relation between IAF contribution to financial statement audits and audit delay depends on the method of contribution. In fact, results indicate that “audit delays are approximately 4 days shorter, if the IAF contributes to the external audit by independently performing audit work. Conversely, the provision of direct assistance is not significantly associated with audit delay” (p. 47).

Based on these arguments, our hypothesis will be as follows:

H1. Greater coordination between the internal audit function and external auditors is associated with shorter audit delay.

3. Research method

3.1 Sample selection and data collection

We used a survey method in order to establish the level of coordination between internal audit functions and external auditors and whether this practice influences audit report timelines. Our study focuses on the Tunisian context. There are neither specific regulatory guidance nor cultural elements that push for a boost in collaboration between internal and external auditors.

Consistent with prior empirical studies (e.g. Khelil et al., 2016; Oussii and Bouïla Taktak, 2015; Pizzini et al., 2014; Prawitt et al., 2009), the survey was sent to CAEs. The design of the
questionnaire was based on presetting survey items that would serve to analyze the level of coordination between IAF and external auditors in Tunisian listed companies.

The pre-selection involved choosing items used in previous empirical work (Pizzini et al., 2014; Gras-Gil et al., 2012; Abbott et al., 2012a; Lin et al., 2011; Felix et al., 2001), as well as those used in the Institute of Internal Auditors (2013) GAIN survey. The definitive questionnaire was pre-tested with the collaboration of two internal auditors and two external auditors.

We study the period 2011-2014 (inclusive). Thus the survey was conducted in two different periods. We sent the first survey in February 2013 by e-mail to CAEs of all listed companies on the Tunis Stock Exchange, which resulted in a total of 53 usable responses. Information was requested for the years 2011 and 2012. A reminder was sent later at the end of April 2013. We further reran the survey with the initial sample in January 2015 and produced 53 additional usable responses. Information was also requested for the years 2013 and 2014. In sum, our sample comprises 212 firm-year observations continuously listed on the TSE over the period 2011-2014. The final sample seems to be representative of the Tunis Stock Exchange population of companies. Our sample choice was limited to listed companies because listing requirements (Article No. 38 of the general regulation of the Tunis Stock Exchange) demanded the implementation of an IAF for these firms.

Table I provides more details about the industry distribution of our sample. For each firm-year in the final sample, we hand-collected financial characteristics and corporate governance data, as well as the audit report date available on the Tunis stock market website (www.bvmt.com.tn).

In order to test for non-response bias, late responders were employed as a proxy for non-respondents. No significant differences were found after a comparison of the variables in our model with respect to companies responding to the initial mailing and those responding to the follow-up.

3.2 Measurement of variables
The dependent variable is audit delay. Consistent with prior literature (Ashton et al., 1987; Schwartz and Soo, 1996; Ettredge et al., 2006), we define audit delay as the number of calendar days elapsing between the balance sheet date and the audit report date.

<table>
<thead>
<tr>
<th>Panel A: Sample selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of firms listed on TSE as at January 2013</td>
</tr>
<tr>
<td>Exclusions</td>
</tr>
<tr>
<td>Firms that are not continuously listed during (2011-14)</td>
</tr>
<tr>
<td>Missing data</td>
</tr>
<tr>
<td>Total number excluded</td>
</tr>
<tr>
<td>Sample pool</td>
</tr>
<tr>
<td>Firm-year observations (2011-2014)</td>
</tr>
<tr>
<td>Final useable sample</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B: Sample firm breakdown by industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
</tr>
<tr>
<td>Consumer staples</td>
</tr>
<tr>
<td>Industrials</td>
</tr>
<tr>
<td>Materials</td>
</tr>
<tr>
<td>Oil and gas</td>
</tr>
<tr>
<td>Health care</td>
</tr>
<tr>
<td>Consumers discretionary</td>
</tr>
<tr>
<td>Telecommunication services</td>
</tr>
<tr>
<td>Financial services</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Table I. Sample selection and industry breakdown
The variable IAF coordination with external auditors is our test variable (see the Appendix), which is a composite measure of five methods of coordination, being: external audit requests information, studies, etc. from the IAF; periodic meetings take place between external and internal auditors; external auditors provide important information for the internal auditor; internal auditors coordinate with external auditors to prepare the annual audit; and external auditors use internal auditors to provide direct assistance.

In order to develop these variables, we referred to measures used in prior studies (Prawitt et al., 2009; Lin et al., 2011; Arcenegui and Molina, 2007; Morrill and Morrill, 2003; Griffiths, 1999; Nagy and Cenker, 2002; Basel Committee, 2002) and professional guidance (ISA 610 revised; ISPPA No. 2050). Therefore, IAF coordination with external auditors is a composite index ranging between 0 (lowest level of coordination) and 5 (the maximum possible). It is assumed that a higher score indicates a more effective coordination between IAFs and external auditors. This score is obtained by aggregating the values of the five items measuring the coordination between internal and external auditors. A value of 1 is given for each of the five items if its value is above the median and 0 otherwise. Thus, COORD is a composite score of five dummy variables. Similar to prior empirical research, we control for a number of firm characteristics which have been argued and shown to affect audit report lag such as qualified audit opinion, auditor change, ownership concentration, firm size, type of auditor, firm’s strength in profitability, industry and political connection.

3.3 The model

Our hypothesis states that the coordination between IAFs and external auditors is negatively associated with audit delay. To test the validity of this hypothesis, we use a panel data model which regresses audit delay on IAF coordination with external auditors and control variables. The regression model is estimated as below:

$$AD_{it} = \beta_0 + \beta_1 COORD_{it} + \beta_2 \text{FSIZE}_{it} + \beta_3 \text{BIG}_{it} + \beta_4 \text{QUALR}_{it} + \beta_5 \text{ROA}_{it} + \beta_6 \text{ACHG}_{it} + \beta_7 \text{ACHG}_{it} + \beta_8 \text{ACHG}_{it}$$

$$+ \beta_9 \text{OCONC}_{it} + \beta_8 \text{POL}_{it} + \beta_9 \text{FININD}_{it} + E_{it}$$

where $AD_{it}$ is the number of days from the end of the financial year of firm $i$ in period $t$ to the day the external auditor signs the audit report; $COORD_{it}$ the $COORD$ is a composite score measuring the level of coordination between IAF and external auditors ranging between 0 and 5. This score is obtained by aggregating the values of the five items: external auditors request information and reports from the IAF; periodic meetings between external and internal auditors; external auditors provide important information for the internal auditor; internal auditors collaborate with external auditors to prepare the annual audit; the external auditors use internal auditors to provide direct assistance. A value of 1 is given for each of the five items if its value is above the median and 0 otherwise; $\text{FSIZE}_{it}$ the natural logarithm of the entity’s sales; $\text{BIG}_{it}$ the dummy variable equal to 1 (0) if the firm is audited by a Big 4 audit firm; $\text{QUALR}_{it}$ the dummy variable equal to 1 (0) if the audit report for the financial statements of firm $i$ for period $t$ is qualified; and zero otherwise; $\text{ROA}_{it}$ the return on assets measured by the net income divided by the total assets of firm $i$ in time period $t$; $\text{ACHG}_{it}$ the dummy variable equal to 1 (0) if the firm $i$ changed auditors during the year $t$; and zero otherwise; $\text{OCONC}_{it}$ the percentage of capital held by the major shareholders; $\text{POL}_{it}$ the dummy variable equal to 1 (0) if “at least one of its large shareholders or one of its top officers is a member of parliament, a minister, or is closely related to a top politician or party”; and zero otherwise (Faccio, 2006, p. 369); $\text{FININD}_{it}$ the dummy variable equal to 1 (0) if firm $i$ is defined as being within a financial industry sector; and zero otherwise.
4. Empirical results

4.1 Descriptive statistics

Table II presents descriptive statistics for the pooled sample of 212 firm-year observations. The table reports the descriptive statistics for mean, standard deviation, minimum and maximum. The mean (median) of external audit delays (AD$_{it}$) is 132.622 days (123.00 days) and is higher as compared to those in Indonesia as shown in Ika and Ghazali (2012) (98 days on average) and in Malaysia as reported by Nelson and Shukari (2011) (101 days on average). It is also beyond the 120 day regulatory deadline as stipulated in Tunis Stock Exchange rules.

Furthermore, we carried out an analysis of variance in order to test for significant differences between years and industries. Table II (Panel C) contains the means of the audit delay, grouped by years and by three main sectors: financial, commercial/services and industrial. For instance, one-way ANOVA revealed that there were no significant differences between years and audit delay. However, the one-way ANOVA comparing audit delay and industries showed that industrial firms have longer audit report lags compared with financial and commercial sectors (Table II: Panel C). As mentioned by Khlif and Samaha (2014, p. 151) and Dechow and Dichev (2001), the industrial sector is often characterized by a long and complex production process compared with other sectors, implying that auditors will exert more effort.

<table>
<thead>
<tr>
<th>Panel A: Descriptive statistics for continuous variable</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Obs</td>
<td>Mean</td>
<td>SD</td>
<td>Min.</td>
</tr>
<tr>
<td>$AD_{it}$</td>
<td>212</td>
<td>132.5777</td>
<td>32.3589</td>
<td>75</td>
</tr>
<tr>
<td>COORD$_{it}$</td>
<td>212</td>
<td>2.915094</td>
<td>0.792356</td>
<td>1</td>
</tr>
<tr>
<td>FSIZE$_{it}$</td>
<td>212</td>
<td>18.03913</td>
<td>1.249271</td>
<td>14.40607</td>
</tr>
<tr>
<td>BIG$_{it}$</td>
<td>212</td>
<td>0.4528302</td>
<td>0.4889482</td>
<td>0</td>
</tr>
<tr>
<td>QUALR$_{it}$</td>
<td>212</td>
<td>0.1603774</td>
<td>0.3678242</td>
<td>0</td>
</tr>
<tr>
<td>ROA$_{it}$</td>
<td>212</td>
<td>0.0510978</td>
<td>0.0618831</td>
<td>−0.085</td>
</tr>
<tr>
<td>ROA$_{it}$</td>
<td>212</td>
<td>0.3301435</td>
<td>0.4713937</td>
<td>0</td>
</tr>
<tr>
<td>OCONC$_{it}$</td>
<td>212</td>
<td>0.4156825</td>
<td>0.1916654</td>
<td>0.074</td>
</tr>
<tr>
<td>FININD$_{it}$</td>
<td>212</td>
<td>0.226151</td>
<td>0.495014</td>
<td>0</td>
</tr>
<tr>
<td>Panel B: Descriptive statistics for dummy variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Definition</td>
<td>Min.</td>
<td>Max.</td>
<td>Percentage</td>
</tr>
<tr>
<td>BIG$_{it}$</td>
<td>1 if the firm $i$ is audited by a Big 4 auditor and 0 otherwise</td>
<td>0</td>
<td>1</td>
<td>45.283</td>
</tr>
<tr>
<td>QUALR$_{it}$</td>
<td>1 if the firm $i$ received a qualified audit report and 0 otherwise</td>
<td>0</td>
<td>1</td>
<td>16.037</td>
</tr>
<tr>
<td>ACHG$_{it}$</td>
<td>1 if the firm $i$ changed auditors during the year $t$ and 0 otherwise</td>
<td>0</td>
<td>1</td>
<td>33.014</td>
</tr>
<tr>
<td>POL$_{it}$</td>
<td>1 if the firm $i$ is politically connected and 0 otherwise</td>
<td>0</td>
<td>1</td>
<td>22.641</td>
</tr>
<tr>
<td>FININD$_{it}$</td>
<td>1 if firm $i$ is defined as being within a financial industry sector; and zero otherwise</td>
<td>0</td>
<td>1</td>
<td>43.396</td>
</tr>
</tbody>
</table>

Panel C: Audit delay means by years and industry

<table>
<thead>
<tr>
<th>Period</th>
<th>Mean</th>
<th>$F(p)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>132.88113</td>
<td>0.74 (0.5369)</td>
</tr>
<tr>
<td>2012</td>
<td>131.65661</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>137.77358</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>128.67925</td>
<td></td>
</tr>
</tbody>
</table>

Industry

| Financial | 132.48958 | 2.94* (0.0551) |
| Industrial | 136.43478 |  |
| Commercial | 118.54167 |  |

Note: *Significant at 0.1 level

Table II. Descriptive statistics

Audit report timeliness
The mean of \((COORD_{it})\) is 2.89, which is comparable to that reported for US firms in Abbott et al. (2012a), and Felix et al. (2001).

As for firm characteristic, descriptive statistics show that the sample consists of large companies. That is, the mean natural log of our sample firms’ total revenues is 18.039 \((FSIZE_{it})\), which is equivalent to about TND69 million. Our sample firms had an average \((ROA_{it})\) of 4.7 percent.

Descriptive statistics also reveal that 22 percent of our sample firms were politically connected \((POL_{it})\) while about 42 percent are in the financial service industry \((FININD_{it})\). Additionally, Big 4 audit firms audited about 44 percent of our sample firm-years (Big 4), and about 39 percent of the sample had an auditor change during the last year \((ACHG_{it})\). Finally, almost 18 percent of the sampled companies received qualified audit reports \((QUALR_{it})\).

Table III presents the correlation coefficients for all the variables used in our model.

None of the correlations exceed 0.8 (Hair et al., 1995). The highest correlation between exogenous variables is 0.36 which suggests that correlations are not high enough to pose multicollinearity threats (Kennedy, 1992). In addition, the analysis of variance inflation factor indicates that all the independent and control variables had VIF values of less than 4 which suggests that multicollinearity is not a concern (Evrard et al., 2003).

Results show that audit delay is negatively associated with the level of coordination between IAFs and external auditors, suggesting that as the coordination increases, it reduces the external audit delay. On a univariate basis, this result is as predicted in \(H1\). The dependent variable is also significantly correlated with some of the control variables. For instance, audit delay is positively and significantly associated with qualified audit opinion (i.e. \(QUALR_{it}\)) firm size (i.e. \(FSIZE_{it}\)) and auditor change (i.e. \(ACHG_{it}\)), while it is negatively associated with the firm’s strength in terms of profitability (i.e. \(ROA_{it}\)).

4.2 Multivariate regression results

The results of our multivariate analysis are presented in Table IV. In order to test our empirical model, we used a random effects model because our sample included time invariant variables (i.e. industry and political connections). An advantage of random effects is that you can include time invariant variables. In the fixed effects model these variables are absorbed by the intercept. Then, we ran the Hausman test and we confirmed that the random effects model is appropriate. We performed the Breusch-Pagan test for heteroscedasticity and we found evidence for heteroskedasticity. We also tested for serial correlation and we concluded that the data does not have first-order autocorrelation. Thus, we added the option “robust” to control for heteroskedasticity. In Model 1, our findings show that IAFs’ coordination with external auditors is significantly and negatively associated with audit delay. The findings support \(H1\) and provide evidence that internal-external auditors’ coordination improves the timeliness of audited financial reporting by firms.

Our result is consistent with the findings of Abbott et al. (2012a), Gras-Gil et al. (2012) and Felix et al. (2001) which reported that greater coordination between internal and external auditors’ results in timelier financial reporting. This finding also confirms prior assertions that increasing degrees of coordination between IAF functions and external audit firms can maximize the effectiveness of the internal auditors’ contribution to financial statement audits and enable the completion of the required audit works faster by reducing year-end external auditor effort (Engle, 1999; Felix et al., 1998).

We conducted an industry analysis in order to examine whether the relationship between coordination and audit delay is the same across these industries. Findings reported in Table IV: Models 2, 3 and 4 show that coordination is negatively and
<table>
<thead>
<tr>
<th></th>
<th>AD</th>
<th>COORD</th>
<th>FSize</th>
<th>BIG</th>
<th>QUALR</th>
<th>ROA</th>
<th>ACHG</th>
<th>OCONC</th>
<th>POL</th>
<th>FININD</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COOR</td>
<td>-0.6586**</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FSize</td>
<td>0.3038**</td>
<td>-0.1393*</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIG</td>
<td>-0.1098</td>
<td>0.1406*</td>
<td>0.1918**</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUALR</td>
<td>0.5791**</td>
<td>-0.3663**</td>
<td>0.1978**</td>
<td>-0.1135</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>-0.3990**</td>
<td>0.3614**</td>
<td>-0.1369*</td>
<td>-0.0578</td>
<td>-0.2282**</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACHG</td>
<td>0.1439</td>
<td>-0.1314</td>
<td>0.0670</td>
<td>0.0371</td>
<td>0.0712</td>
<td>-0.0989**</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCONC</td>
<td>-0.1726*</td>
<td>0.1062</td>
<td>-0.0464</td>
<td>-0.0084</td>
<td>0.0461</td>
<td>0.0916</td>
<td>-0.0322**</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POL</td>
<td>-0.0142</td>
<td>-0.0162</td>
<td>0.0680</td>
<td>0.1418*</td>
<td>-0.1750**</td>
<td>-0.0535</td>
<td>-0.0018</td>
<td>-0.0556</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FININD</td>
<td>0.1029</td>
<td>0.0602</td>
<td>0.2366**</td>
<td>0.0830</td>
<td>0.0064</td>
<td>-0.3592**</td>
<td>0.0845</td>
<td>-0.1941</td>
<td>-0.1098</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** $AD_{it}$ = The natural log of the number of days from the end of financial year of firm $i$ in period $t$ to the day the external auditor signs the audit report; COORD is a composite score measuring the level of coordination between internal and external auditors ranging between 0 and 5; $FSize_{it}$ = Natural logarithm of the turnover of firm $i$ at end of time period $t$; $BIG_{it}$ = dummy variable equal to 1 (0) if the firm is audited by Big 4 audit firm; $QUAL_{it}$ = Indicator variable is scored one if the audit report for the financial statements of firm $i$ for period $t$ is qualified; and zero otherwise; $ROA_{it}$ = Return on assets of firm $i$ in time period $t$; $ACHG_{it}$ = Indicator variable is scored one if the firm $i$ changed auditors during the year $t$; and zero otherwise; $POL_{it}$ = Indicator variable is scored one if the firm is politically connected; and zero otherwise; $FININD_{it}$ = Indicator variable is scored one if firm $i$ is defined as being within a financial industry sector; and zero otherwise. *, **Significant at 0.05 and 0.01 levels, respectively.
### Table IV. Regression analyses

<table>
<thead>
<tr>
<th>Model 1 (Overall sample)</th>
<th>Model 2 (Financial companies)</th>
<th>Model 3 (Service and commercial companies)</th>
<th>Model 4 (Industrial companies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COORD</td>
<td>−</td>
<td>−27.22</td>
<td>−12.95***</td>
</tr>
<tr>
<td>FSize</td>
<td>−</td>
<td>2.300</td>
<td>1.52</td>
</tr>
<tr>
<td>BIG</td>
<td>−</td>
<td>−0.655</td>
<td>−0.21</td>
</tr>
<tr>
<td>QUALR</td>
<td>+</td>
<td>27.15</td>
<td>3.84***</td>
</tr>
<tr>
<td>ROA</td>
<td>−</td>
<td>−5.829</td>
<td>−0.28</td>
</tr>
<tr>
<td>ACHG</td>
<td>+</td>
<td>0.9700</td>
<td>0.45</td>
</tr>
<tr>
<td>OCONC</td>
<td>−</td>
<td>−16.97</td>
<td>−2.35**</td>
</tr>
<tr>
<td>POL</td>
<td>+</td>
<td>2.276</td>
<td>0.58</td>
</tr>
<tr>
<td>FININD</td>
<td>+</td>
<td>6.319</td>
<td>1.60</td>
</tr>
<tr>
<td>Constant</td>
<td>−</td>
<td>170.12</td>
<td>6.47***</td>
</tr>
</tbody>
</table>

$R^2$
- Within: 0.5164, 0.5834, 0.6992, 0.5604
- Between: 0.8138, 0.9083, 0.9947, 0.8417
- Overall: 0.7238, 0.8178, 0.9288, 0.7134
- Wald $\chi^2(9)$: 276.90, 469.34, 219.23, 149.17
- Prob $> \chi^2$: 0.0000, 0.0000, 0.0000

**Notes:** See Table III for variable definitions. ***,**, Significant at 0.01, 0.05 and 0.1 levels, respectively.
significantly associated with external audit delay for the financial, industrial and commercial sectors.

Results also show that qualified audit opinion and ownership concentration are significantly associated with audit delay (also at the 1 percent level). Qualified audit opinion is also thought to influence external audit delay. Consistent with expectations, our results provide evidence that external auditors may need additional time before completing the audit work for the companies that received qualified audit opinions, and thus may increase the audit report lag. Table IV also reveals that audit delay tends to decline as the ownership of the client’s shares \( \text{CONC}_i \) becomes more concentrated. This result is consistent with Bamber et al. (1993) and Afify (2009). The regression results also indicate that: auditor change, firm’s strength in terms of profitability, type of auditor, firm size, industry and political connection are not significant in influencing timeliness of reporting as proxied for by the external audit delay.

The \( \text{BIG}_i \) and \( \text{ROA}_i \) coefficients are negative but not statistically significant. The negative coefficient of the variable related to the type of auditor on audit delay in Tunisian listed companies is consistent with the prediction in the past literature indicating that Big 4 auditors have greater resources and expertise to draw upon, and are consequently associated with shorter audit reporting delays. A similar relationship is found for \( \text{ROA}_i \). The negative sign of this variable is consistent with previous studies indicating that audit delay is longer for companies that perform poorly in terms of ROA (Pizzini et al., 2014; Lin et al., 2011).

The positive coefficient of auditor change \( \text{ACH}_i \), although not statistically significant on financial reporting timeliness, is inconsistent with the expectation suggesting that audit report lag is longer for companies that change their auditor.

Finally, the coefficients of \( \text{FSIZE}_i \) and \( \text{POL}_i \) are not statistically significant on audit delay and are inconsistent with our expectations, implying that larger companies may complete the audit of their financial reports earlier than smaller companies (Afify, 2009; Ettredge et al., 2006; Carslaw and Kaplan, 1991; Ashton et al., 1987); and a firm’s political connections are likely to prompt an auditor to undertake greater checks that contribute to longer audit delays.

4.3 Robustness and sensitivity tests

Further sensitivity analysis was undertaken to validate the main results. Thus, we re-ran the regression using alternative proxy measures for the dependent and independent variables. Following Bamber et al. (1993), we used the abnormal audit delay instead of the number of days (Model 2). This alternative measure is calculated as the difference between the firm’s audit delay and the firm’s median audit delay. Findings reported in Table V (Model 6) show that the effect of coordination between internal and external auditors on abnormal audit delay remains significant (at the 1 percent level). This finding is consistent with the results reported in Table IV. Further analysis (Table V: Models 7, 8 and 9) suggests that the relationship between coordination and abnormal audit delay also remains significant regardless of the sector considered.

Finally, as 2011 was a year of social and economic instability in Tunisia, we examine whether the relationship between audit delay and coordination remains significant if we remove this year from the time period selected. Consistent with the main results presented in Table IV (Model 1), findings reported in Model 10 of Table V also continue to highlight a significant negative association between coordination and audit delay.

In the case of the independent variable, the coordination ordinal score developed by Felix et al. (2001) is used. Based on this alternative measure, the internal-external audit coordination variable varies from 1 (coexistence) to 4 (partnering). Results (Table V: Model 5) using the coordination score measure by Felix et al. (2001) therefore reinforce the main results reported in Table IV (Model 1).
Table V.
Sensitivity analyses

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 5 (coordination ordinal score)</th>
<th>Model 6 (Overall sample abnormal)</th>
<th>Model 7 (Financial companies)</th>
<th>Model 8 (Industrial companies)</th>
<th>Model 9 (Service and commercial companies)</th>
<th>Model 10 (period 2012-2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSize</td>
<td>3.483</td>
<td>2.33**</td>
<td>-1.36</td>
<td>1.27</td>
<td>-4.387</td>
<td>-2.11**</td>
</tr>
<tr>
<td>BIG</td>
<td>-1.93</td>
<td>-0.49</td>
<td>4.11</td>
<td>1.57</td>
<td>7.079</td>
<td>1.42</td>
</tr>
<tr>
<td>QUALR</td>
<td>3.44</td>
<td>3.53**</td>
<td>2.29</td>
<td>0.60</td>
<td>9.211</td>
<td>1.27</td>
</tr>
<tr>
<td>ROA</td>
<td>-61.81</td>
<td>-1.97**</td>
<td>65.39</td>
<td>0.74</td>
<td>38.801</td>
<td>0.74</td>
</tr>
<tr>
<td>ACHG</td>
<td>2.122</td>
<td>0.68</td>
<td>4.40</td>
<td>1.53</td>
<td>5.561</td>
<td>1.25</td>
</tr>
<tr>
<td>OCONC</td>
<td>-22.59</td>
<td>-2.15**</td>
<td>9.17</td>
<td>2.09**</td>
<td>-16.097</td>
<td>-0.95</td>
</tr>
<tr>
<td>POL</td>
<td>1.881</td>
<td>0.37</td>
<td>3.09</td>
<td>1.35</td>
<td>4.482</td>
<td>0.74</td>
</tr>
<tr>
<td>FININD</td>
<td>6.814</td>
<td>1.32</td>
<td>7.09</td>
<td>2.82***</td>
<td>2.2923</td>
<td>0.74</td>
</tr>
<tr>
<td>Constant</td>
<td>35.40</td>
<td>1.70*</td>
<td>42.53</td>
<td>2.23***</td>
<td>99.718</td>
<td>2.58**</td>
</tr>
</tbody>
</table>

$R^2$

<table>
<thead>
<tr>
<th></th>
<th>Within</th>
<th>Between</th>
<th>Overall</th>
<th>Wald $\chi^2$</th>
<th>Prob $&gt; \chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.2441</td>
<td>0.7467</td>
<td>0.5859</td>
<td>207.53</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>0.4173</td>
<td>0.0206</td>
<td>0.1952</td>
<td>34.35</td>
<td>0.0001</td>
</tr>
<tr>
<td></td>
<td>0.5011</td>
<td>0.0390</td>
<td>0.2179</td>
<td>23.13</td>
<td>0.0032</td>
</tr>
<tr>
<td></td>
<td>0.7286</td>
<td>0.7067</td>
<td>0.7266</td>
<td>50.50</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>0.4221</td>
<td>0.0078</td>
<td>0.1716</td>
<td>17.19</td>
<td>0.0282</td>
</tr>
<tr>
<td></td>
<td>0.4990</td>
<td>0.8189</td>
<td>0.7285</td>
<td>290.69</td>
<td>0.0000</td>
</tr>
<tr>
<td></td>
<td>0.9990</td>
<td>0.7285</td>
<td>0.2969</td>
<td>290.69</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Notes: ***, *** Significant at 0.01, 0.05 and 0.1 levels, respectively
5. Conclusion
This study examines the association between internal-external auditor coordination and audit report timeliness using a sample of 212 firm-year observations from the Tunis Stock Exchange. Results suggest that greater coordination results in timelier financial reporting in the Tunisian context. However, auditor change, firm’s strength in terms of profitability, type of auditor, firm size, industry and political connections do not appear to have a significant influence on audit delay. Results are robust to alternative measures of audit delay and the level of coordination between IAFs and external auditors. Findings of this study contribute to the growing literature on the association between financial reporting timeliness and internal audit contribution to financial statement audits.

Our study is one of the few studies to examine whether the coordination between IAFs and external auditors is associated with financial reporting timeliness. Despite the fact that the coordination may enhance the external auditor’s assessment of control weaknesses and facilitate the financial audit process (Lin et al., 2011), very little research has investigated the impact of internal-external auditor coordination on disclosure timeliness.

Overall, our study makes several important contributions. Findings provide important insights that an IAF acts as a valuable resource to external auditors. Our findings should be of interest to managers, external auditors and regulators.

With respect to managers, our analysis emphasizes the importance of an effective IAF in strengthening corporate reporting through the delivery of timely financial information to the capital market. Therefore, our results encourage managers to enhance internal audit quality by increasing resources assigned to the IAF. With regard to external auditors, our findings highlight that the external auditors’ reliance on IAF work can enhance the efficiency and effectiveness of the audit process by reducing time pressure on external auditors. With regard to regulators, our results pointed out that the coordination between internal and external auditors may contribute significantly to improve the financial reporting quality of firms through timely provision of the audit report. Hence, findings highlight to the Tunisian Financial Market Council the importance of promoting a high degree of independence and competency among internal auditors.

This study is subject to several limitations that provide future research opportunities. First, our analysis did not focus on the impact of different coordination methods on the efficiency of the external audit process. Therefore, we encourage future research that examines the effect of internal-external audit coordination on audit delay separately for each method of coordination. Second, during the period of our investigation (2011-2014), the Tunisian business environment was destabilized by periods of political and social unrest, which may have had economic repercussions that affect companies’ reporting timeliness. Third, the measure used as a proxy for audit report timeliness may be inadequate to capture the variable. In fact, management may exercise discretion over the timeliness of reporting (Afify, 2009; Khlif and Samaha, 2014). Future studies may continue this line of research by considering the management component of audit delay in order to obtain a more accurate measure of the audit component of the time lag.

References


Further reading


Appendix. Research survey

Q1. Relation between internal audit and external audit:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>External auditors requests information and reports from the IAF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periodic meetings between external and internal auditors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External auditors provide important information for the internal auditor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal auditors collaborate with external auditors to prepare annual audit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The external auditors use internal auditors to provide direct assistance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q2. Internal auditors’ assessment of relationship with external auditors:

- Coexistence: Risk analysis and audit plan are developed independently by the IAF and the external auditors.
- Coordination: IAF and external auditors independently develop but share information on risk analysis and audit plans.
- Integration: IAF and external auditors share risk models and audit plans.
- Partnering: IAF and external auditors define audit needs and expectations and meet those requirements through joint effort and integrated approach.

Note: The four levels of interaction between internal and external auditors were previously used and published in Felix et al. (2001) and Zain (2005)

About the authors
Dr. Ahmed Atef Oussii is an Assistant Professor at ISAAS School of Business, University of Sfax. His research interests include corporate governance, financial reporting quality and accounting education. Dr. Ahmed Atef Oussii is the corresponding author and can be contacted at: ahmed_atef.oussii@yahoo.fr

Professor Neila Bouilla Taktak is a Full Professor in accounting and finance. Her research and teaching interests include corporate governance, accounting manipulations and Islamic finance fields. She is the author of several scientific publications dealing with the Tunisian and international context. She is a member of the editorial team for Journal of Islamic Accounting and Business Research, Emerald Insight.
Production technologies and low-technology knowledge-intensive venturing

Glykeria Karagouni
Department of Wood Technology and Furniture Design,
Technological Educational Institute of Thessaly, Karditsa, Greece

Abstract

Purpose – The purpose of this paper is to explore how low-technology corporate ventures use knowledge from multiple and often trans-sectoral fields to intensively create and deploy innovative production technologies in order to sustain significant competitive advantages.

Design/methodology/approach – The paper primarily draws evidence from an exploratory case study of a low-tech private enterprise operating in the wood processing industry in Greece.

Findings – Low-technology firms appear to invest mainly in process innovation and therefore production technologies, in order to secure a position within mature markets. Within the notion of knowledge-intensive entrepreneurship (KIE), a creative bricolage of knowledge based on research work and industrial practice results in innovative products and processes covering technologies from a wide range, including high-tech industries. The case indicates that low-tech companies may be something more than just “borrowers” of technology.

Research limitations/implications – The limitations regard the single case study research design and the focus on the wood industry in Greece. Future research may pursue more case studies in different traditional sectors and national contexts.

Practical implications – Entrepreneurs and managers of low-technology firms should focus on technological innovation and more specifically on co-creation of novel production technologies in order to sustain strong competitive advantages and enhance performances.

Originality/value – The analysis challenges the established opinion of common entrepreneurial processes in low-tech sectors. It adds to the ongoing discussion of low-tech, KIE and it contributes to the literature of industrial dynamics since there are only a handful of studies that probe the role of production technologies within a low-tech but knowledge-intensive context.

Keywords Corporate venturing, Knowledge-intensive entrepreneurship, Process innovation, Case study, Traditional sectors, Industrial dynamics, Low-technology, Production technologies, Wood processing industry, Industrial development

Paper type Research paper

Introduction

Knowledge-intensive entrepreneurship (KIE) appears to be capable to satisfy the necessity of firms to change, mainly in order to face changing business environments. This necessity to take advantage of KIE opportunities exists in low-technology mature industries too; traditional firms have to confront the intense pressures of low-cost products, changing composition of consumers, globalization or even the pressure to produce safer, environmentally friendly or more sophisticated products. Thus, consumer needs, technological opportunities and competitor activities are constantly in a state of flux (Teece, 2010, p. 702) and innovation appears to be the only way to respond.

So far, low-tech innovation studies used to focus on process innovations to optimize manufacturing processes or novel raw materials with machine manufacturers and raw material producers to lead the development of mature industries. However, within the young strand of research on low-tech KIE (LT-KIE), the entrepreneurs take the lead and co-operate

This paper is a revised and expanded version of a paper entitled “Can production technologies help companies survive a recession? A wood processing company says yes!” presented at the 9th Annual Euromed Academy of Business Conference, Warsaw, Poland, September 14-16, 2016.
to develop machinery and equipment or excel technology to satisfy their novel ideas. The range of expertise and knowledge bases spans from science to engineering, production technology and practical knowledge, quality and environmental accessibility. Thus, traditional reliance of suppliers of machinery seems to start being overtaken by needs for technologies from advanced instrumentation such as electronics and smart materials. Seemingly, simple advances such as packaging in the food industry or vintage jeans and light furniture in fact require quite sophisticated analyses of smart materials to combine with conditions such as heat responsiveness, novel ways of treatment and so on.

The present study argues that production technologies’ choice or development plays an important role in low-tech but knowledge-intensive venturing. Production technologies and, more generally, the management of new technologies are lately receiving increasing attention in strategic management research (Greve, 2009) either as important factor of innovative efforts and firm performance (Danneels, 2002) or as core elements of technological capabilities (Du et al., 2013).

The research topic links entrepreneurship, low-tech innovation and industrial dynamics research contributing to the young strand of research on LT-KIE. Focusing on the empirical case of the Greek wood processing, low-tech sector, the study purports to capture the technical aspect of the low-tech knowledge-intensive venture creation problem. It actually explores how new low-tech corporate ventures use knowledge from multiple and often trans-sectoral fields to intensively create and deploy innovative production technologies, build their initial competitive advantage and enter mature and saturated markets in alternative ways.

The paper begins with a theoretical discussion on production technologies followed by the research design and the experimental setting. The case study of a Greek wood processing firm is then presented and discussed in order to produce useful insight and concluding remarks.

**Theoretical context and hypotheses**

“KIE” has a relatively young history and an even younger one when it refers to low-technology industries. Following the latest of definitions, KIE refers to new or corporate ventures that have significant knowledge intensity in their activity and develop and exploit innovative opportunities in diverse sectors (Malerba and McKelvey, 2016).

According to literature, KIE opportunities do exist in LT industries since entrepreneurial change is quite significant in mature business; there is a growing number of so-called LT-“gazelles” (Yudanov, 2009 in Schwinge, 2015) while such companies overcome existing paths of knowledge and technology pursuing strategies of new market segment creation (Hirsch-Kreinsen, 2011). Actually, LT-KIE is a mechanism of implementing innovations which go beyond the existing knowledge and are new and significant to the sector or the product field.

Within LT-KIE, innovation constitutes a crucial building block, with a broader however meaning (Schwinge, 2015); researchers of this small but increasing stream of literature suggest the Schumpeterian innovation paradigm: “new combinations of productive means” (covering product and process innovation), new sources of supply and organizational innovation clearly indicating that the entrepreneur does not have to be the inventor of any new means (Schumpeter, 1912/1967). Consequently, we assume that:

**H1.** Innovative opportunities are closely related to production technologies in LT-KIE cases.

In the context of industrial dynamics, the process of LT-KIE has been described as the establishment of innovation paths new to the sectoral knowledge base by deviating from routines which follow established technological paths (Malerba, 2005). Much of the knowledge intensity enters as embodied knowledge incorporated into machinery, equipment, techniques and production processes or as intermediate inputs such as
components and materials (Hirsch-Kreinsen, 2008). Keith Smith (2000) claims that “knowledge cannot be incorporated into production except via investment, and the function of investment is often to implement new knowledge in production technology.” Activities such as design/customization, the installation and preparation of equipment and trial production are knowledge generating activities.

According to relevant literature, most traditional sectors are supplier-dominated (e.g. Hirsch-Kreinsen, 2008). New technologies are embodied in new components and equipment or enabled by innovative raw material (e.g. Narula, 2014). Industrial actors such as suppliers of machinery and equipment and material suppliers can be then significant sources of knowledge and expertise (Dosi and Grazzi, 2010). Embodied flows are also based on the fact that most research intensive industries, such as the advanced materials sector or the ICT, develop products that are used within other and most usually traditional industries (Schwinge, 2015). Until recently, low-tech industries were confronted as “technology borrowers” with production technologies to be the media through which high-tech industries would sustain their markets.

However, lately, it appears that low-tech firms actually develop co-operations with mutual benefits such as the exchange of knowledge, common R&D and even the mutual progress of firms and sectors within a dynamic-interactive supplier-customer framework (Protogerou and Karagouni, 2012). Actually, knowledge and technological solutions tend to permeate through sectoral boundaries. Many times, users decide even to produce their own complex machinery in-house in order to protect proprietary process technologies that constitute a significant part of the firm’s competitive advantage (Karagouni, 2016). We thus assume that:

**H2.** Within LT-KIE, production technologies are a creative bricolage of knowledge based on research work and industrial practice including high-tech industries.

According to Teece et al. (1997), the future of a firm is decided by previous investments. Creation of path dependency is another reason why production technologies and more generally initial technology selection or creation constitutes a significant part of LT-KIE. The significance of production technologies in the state of physical creation of a business concept in venture creation has received consistent attention in relevant literature (e.g. Naude and Szirmai, 2012). Technology and technology relationships have been connected to innovation and strategy; according to Grant (1991), “optimal” technology for a business is contingent upon the firm’s strategic goals, its available resources and the nature of its product-market environment. Sohn et al. (2007) linked strategic investment decisions with financial performances, while Sala-i-Martin (1997) found strong links between equipment investment and economic growth.

KIE seems to support mature, traditional industries’ efforts to face environmental hostility; globalization and trade liberalization delineate a vulnerable, volatile and rapidly changing environment (Protogerou and Karagouni, 2012). However, according to Klocke (2009), the application of correct strategies is not enough to create value if not combined to processes of technological know-how. With their quite obvious impact on innovation, it appears that production technologies are quite significant in the co-formation of the strategic directions for LT-KI ventures, enabling and supporting options to expand to new markets and businesses (Penrose, 1959; Wall et al., 2010) and thus creating environmental dynamism in order to survive:

**H3.** Knowledge-based production technologies have an impact on LT-KI firms’ strategic decisions, goals and performances.

**Methodology and research design**

The analysis focuses on the Greek wood industry for three main reasons: first, the wood industry is important on its own. It is one of the most representative traditional low-tech
industries worldwide with a significant share of employment and value-added for the global manufacturing industry and economy. Wood product manufacturing industries include the production of sawn wood, wood-based panels, carpentry materials, containers packaging and other wooden articles. The industry is responsible for more than one million jobs in the EU28 in 172,000 companies, with a turnover of around €118 billion and an added value of around €30 billion (Eurostat, 2013).

Second, the industry faces a volatile and fragile environment due to growing competition from low-cost, emerging economies and a growing number of technical trade barriers. Especially, Greek woodworking firms were severely hit by the long-lasting socioeconomic crisis in Greece; the decrease of the building activities and the crisis in the furniture sector caused significant problems and shrinkage (Trigkas et al., 2012). Production was reduced about 73 percent between 2008 and 2014 with many well-known enterprises to shut down.

Third, woodworking companies are considered highly innovative and knowledge-intensive (Smith, 2008); they build high-quality innovation systems regarding mainly production technologies which result in productivity increase and quality improvement, novel engineered wood products and wooden composites. However, the sector has been neglected by entrepreneurship as well as low-tech innovation research until very recently that KIE researchers turned to it indicating a wealth of knowledge sources within and out of the sectoral knowledge base (Karagouni et al., 2010).

The effort to investigate the diverse and complex topic of the role of production technologies in LT-KI corporate venturing touches on a variety of factors, such as technology, processes, strategy, innovation, management and organizational issues. Given the nature of the problem being investigated, the qualitative approach and more precisely the single case study method was employed as most suitable since the research related to a complex series of events that took a long time to unfold (Yin, 2009).

The data were gathered by in face-to-face, in-depth interviews in 2010 with: the two entrepreneurs who are the owners and third generation of the firm (cousins). One of them has studied economics while the other has been working in the plant since he left school; the technical director and the quality assurance manager who were actively involved in the production technologies development, implementation and operation at the venturing phase (2005-2008).

The interview covered issues on the corporate venturing, the opportunities, the ways they were seized through innovation, the knowledge bases used, the investment in production technologies and issues regarding the entrepreneurs, the organization and internal and external factors. Multiple other sources of evidence were used; company reports to shed more light on technicalities such as detailed descriptions of emerging technical problems and solutions regarding the implementation of the novel technologies and other detailed information which was difficult to remember during the interviews since it regarded activities that took place some years before; financial data and balance sheets; press reports to get a clear and objective picture of the innovativeness and the impact of the narrated success; copies of awards; innovations presented after the interview to follow the firm’s course up to 2016, etc. Two plant visits assisted the author to have a better understanding of the described novelties (e.g. the incorporation of innovative production technology, new handling machinery and SCADA in the existing production lines), in order to evaluate and transfer its significance and role within the LT-KIE effort.

Corporate venturing is a classic route to pursue opportunities and it has been given a variety of meanings. Within this research, it regards a strategic renewal and the transformation of a company by innovating and changing their business domain or processes (Sharma and Chrisman, 1999).
Case description
The case company, called M.M.P. SA in this study, was selected because of its exceptional strategy regarding the choices of production technology, the competitive advantages and its extroverted strategies at a time of corporate venturing.

By way of background, the company is a highly successful woodworking firm established almost 100 years ago. Actually, it is the oldest Greek wood processing company and the largest export one today in its sector. It is a medium-sized family owned company of 150 employees close to Athens with its own port in front of the plant. It specializes in marine plywood which is an expensive, water-resistant grade, more tightly constructed and glued than ordinary plywood. M.M.P. SA sells to shipyards and high-end constructors and traders in Greece and all over the world. M.M.P. SA started as a carpentry making chairs and woodwork in 1924. In 1960, the two sons of the entrepreneur took over; the company became an S.A. and changed its production focusing on flooring. In 1973, the entrepreneurs established a second plant to produce plywood and veneers due to the rising demand in the Greek market. In the early 1990s, the new generation took over. Targeting the demanding markets of Western Europe, the company focused on the production of high-quality certified marine plywood. At that time, it developed its own trading channel of *Okoumé* logs from West Africa. In 2005, it turned to a knowledge-intensive company. Today (in 2016), it is one of the most important and well-known manufacturers of *high spec Okoumé* at least in Europe.

The need for knowledge-intensive corporate venturing
In 2005, external messages of the increasing weaknesses of the Greek market and the shutdown of many Greek shipyards troubled the M.M.P. SA’s entrepreneurs who decided to invest in quality and sustenance as their core competitive advantages in order to reach foreign markets and establish a strong brand name. LT-KI corporate venturing in this case regarded a strategic renewal and a firm transformation by revitalizing its operations and reordering its core capabilities.

According to Malerba and McKelvey’s (2016) definition, LT-KIE here regards a corporate venture that made the strategic decision to build on knowledge and establish knowledge intensity processes in order to develop and exploit innovative opportunities. Their main KIE strategy focused on the creation of novel top-quality marine plywood products which would bare unique characteristics at global level. This decision, however, was not limited at plant level; it meant the well-planned abandonment of a number of other activities of the company (conventional wood-based products), the organization’s eco-profile creation, the focus in the luxury global market and the launch of significant innovation which would attract the global interest.

Findings
Sensing the international market of marine plywood, M.M.P. SA concentrates on the development of a novel stitching (process) technology which is translated into a family of innovative products; the whole transformation is well-communicated in the relevant markets.

The innovative production line was developed in co-operation with a Swiss machine manufacturer. This pilot use of the innovative machinery created many problems of technological, practical and quality nature. The plant’s engineers spent many hours discussing solutions with manufacturer’s engineering team, building on technical knowledge, wood processing science and energy consumption technology. The entrepreneur discusses on the excellent co-operation between the two teams. “We had to specify technological parameters and conditions, to achieve the best quality after severe quality controls and to have the best behavior in the extremely expensive yachts it is intended to. On the other hand, environmental solutions to boost our eco-profile required advanced knowledge by engineers. I think we have learned
from each other. It was a win-win situation […]” The whole procedure of déroulage veneer stitching took about two years with decorative veneer stitching to follow in 2008.

In parallel, the eco-profile of the company is secured by investments in the creation of a totally green supply chain: raw material originating from sustainable forests; selected suppliers according the Program for Endorsement of Forest Certification, participation in WWF and similar. For the sake of comparison, conventional wood processing companies hardly ever invest in the creation of knowledge or the communication of a novel image to their markets. Usually, they adapt technologies offered by technology suppliers and typically without requirements for additional in-house R&D activities (Hirsch-Kreinsen, 2013).

Production technologies became the media to implement and support the KIE strategy. The firm adopts further cutting edge technology regarding prevention and safety measures. “In our business quality is 50% the raw material and 50% the technology we use” (quality assurance manager).

In order to support the eco-profile, one year later, they develop a modern comprehensive environmental policy system; they invest in new technologies to eliminate water and waste and they develop photovoltaic systems to cover the plant’s needs in terms of sustainability. Machinery and production methods are adjusted in order to suit to the new ecological demands of the production, for example, production lines have to be adapted to the formaldehyde-free, eco-glues.

Interactive learning and extensive networking provide more and wider knowledge bases. “We had to develop new mechanisms. For example, we built collaborations; personal contacts mainly. We are good at organizing technology transfer processes and train in-house teams […] Our partners transfer their knowledge; we actually work too close, especially for the innovative stitching machinery […]” (2nd Entrepreneur).

The company achieved a mean annual sales increase rate of 8 percent for the first four years of the new corporate venture while exports increased from around 20 to 60 percent. The severe crisis hit the company too with losses of 10 to 14 percent the following four years which was, however, low in regard to the majority of the firms of the sector (sectoral mean turnover decreases 24 and 22 percent in 2011, 2012). In 2013, sales started increasing again while exports reached 80 percent.

Up to 2016, the firm goes on building in knowledge and knowledge networks, presenting a significant number of innovative processes and products. The firm is certified with the FSC® certificate (Forest Stewardship Council) fulfilling also the production side of the deep commitment to ecology. It is certified with ISO 9011: 2008 and various quality Certificates due to the different specifications of the countries it exports. The company was awarded the International Star or Quality Award, Gold Category in 2010 given every year by Business Initiative Directions Organization awarding cutting edge companies from around the world for their firm commitment to excellence, innovation and leadership.

M.M.P. SA due to the innovative production technologies and its knowledge-intensive strategy produces one of the best and most expensive marine plywood globally and possesses the 4th position in the Greek wood processing sector (2013 and 2014).

Discussion
The external messages for a forthcoming crisis, the increasing competition from imports, since China became the largest supplier of wood flooring after 2002 and the end of prosperity in the construction sector after the Olympics of 2004 in Athens challenged M.M.P. to invest in knowledge-intensive innovation. This study examined how the firm invested in production technologies to implement and support knowledge-intensive strategies. The firm succeeded to offer competitively viable new products at global level and survive the global and the severe Greek crisis.
The purpose of the study was to advance LT-KIE theory by confronting it with an empirical case. It actually touched upon the important role of production technologies in LT-KIE in order to produce a more nuanced understanding of the meaning of production in knowledge-intensive innovation activity.

According to the case study, the ability to engage in knowledge-seeking activities is significantly related to process innovation and technological upgrading, in order for the company to secure a position within mature and saturated markets. LT-KI corporate venturing links corporate strategy with technology strategies at operational level and thus innovation and production technologies (our first hypothesis). The transformation of the innovative business concepts into marketable products presupposes the choice and set up of the suitable production technologies.

Novel ideas impose the need to change, thus depart from the established mature nature of a low-tech company. Technologies and processes have to be adjusted to novel business concepts without stagnating into “what seems not to fit.” Then, technologies appear to constitute accumulation products of various pieces of knowledge sources, selected to fulfill conditions and limitations of the initial business idea and combined in novel ways ending up even with machinery innovation. Thus, the nature of knowledge upon which technological activities draw is multifarious regarding types of knowledge bases and skills (e.g. wood processing technology, chemistry, material science, etc.) and the ways they are used and applied. The entrepreneurs interact with a wide range of stakeholders along the value chain transcending national borders such as okoume cultivators, machine makers, material scientists, wood technologists and clients (e.g. yacht producers). M.M.P. SA sustains competencies in multiple technology fields (in accordance with Granstrand, 2000). Because of increasing technology convergence, these fields are often relatively different from the core technologies (García-Vega, 2006), and this puts further emphasis on the importance of successful technology exploitation (Patel and Pavitt, 1997). This is in line with literature; more and more traditional firms now acquire a substantial part of their technologies from external sources (Lichtenthaler and Ernst, 2007). Hirsch-Kreinsen (2008) also underlines the importance of network relations as knowledge resources, particularly for increasing non-R&D-intensive firms’ innovation capabilities.

The analysis indicates that traditional, so-called low-tech firms can be intensive in their use of even scientific knowledge; industries such as wood processing ones seem to have significant indirect science inputs. However, the depth and complexity of the required knowledge bases are linked to a combination of complex, formal or informal, direct or indirect links mainly with supplier companies and then with universities, research institutes and consultants. The case reveals a constant bidirectional knowledge flow of both embodied and disembodied knowledge through skilled personnel, plant and equipment designs and descriptions. Knowledge exchange is particularly significant when technical equipment is custom designed or at least certain components and functions are adapted to the particular user needs. Bidirectional knowledge flows were observed in activities such as the co-design co-development or customization of machinery, mutual experimenting, erection works and trial production. Naturally, this presupposes relatively close coordination, communication and learning processes between the partners concerned. Many times users decide even to produce their own complex machinery in-house. Knowledge is then incorporated into machinery, equipment, methods, techniques and production processes components and materials.

LT-KIE rests not only on discovery but on learning too. This can be equally based on activities which recombine or adapt existing forms of knowledge or the purchase of licences to use protected knowledge. Wood processing technology, wood behavior science, chemistry, mechanical engineering, material engineering, ICT and environmental technologies and novelties are engaged while certain other fields are involved.
Thus, traditional reliance of suppliers of machinery is being overtaken by active co-development projects and a shift to needs for technologies from advanced instrumentation such as ICT providers, lasers, electronics and computing, eco-technology, and smart materials supplied by high-tech firms. Improvements, parameterization and automatization are involved to solve problems and create new directions.

Therefore, the case findings support our second hypothesis. A creative bricolage of research work and industrial practice results in innovative products and processes covering technologies for an extremely wide range including areas of high-tech industries. The case indicates that low-tech companies may be something more than just “borrowers” of technology. The contribution is considered particularly important when the machinery developed is notably complex, embodying recently innovated technology or the “fruit” of a cooperation project with the LT-entrepreneur.

Machine manufacturers and suppliers of raw and intermediate products are still the most important links; yet, findings contradict to some extent the rather established view that the only really relevant factor for the development of innovations in low-tech industries is just the purchase of machinery and equipment; besides the use of standard equipment and technology, M.M.P. SA develops production technology novelties in order to create, respectively, novel products. Since, it is a well-established organization, the company has the potential and the capabilities to develop far more advanced innovative production technology innovations (if compared to newly established companies). It has actually engaged a significant part of human, social and financial capital in reaching various knowledge bases and translates combinations in novel production technologies. Ideas and solutions often came from internal sources such as engineers or they were promoted through internal organizational practices.

From conception to production, each step consists of a complex sequence of operations generally undertaken by different people who, however, must be coordinated although they may belong to different industries, firms and cultures. Interactions between scientific knowledge, technological innovations and industrial evolutions are enabled by the development of specific technological capabilities. They are mainly based on technological knowledge which is called to fill the gap between business vision and physical implementation and which most times transcends sectoral limits. Adopting the definition of Dosi and Grazzi (2010) for technology as “a set of pieces of knowledge ultimately based on selected physical and chemical principles, know-how, methods, experiences of successes and failures, and also, of course, physical devices and equipment,” the study highlights the significance of technological capabilities building. External technology needs to be located, transferred, combined and altered in order to form machinery, equipment, processes and production routines.

The case findings support the third hypothesis too. M.M.P. SA resisted the severe crisis, increased its exports and has built a strong brand of high-quality products at global level. The development of significantly innovative production technologies laid the foundations for a major number of the ongoing innovations of the firm in its lifespan becoming core technological capabilities. The combinations regard the manufacturing plant and equipment, manufacturing know-how, engineering know-how and quality assurance tools. They include the co-design and embodiment of technology and production systems together with materials/supplier relations, knowledge, skills and experience bases.

Conclusions
The analysis actually seems to challenge the established opinion of common entrepreneurial processes in low-tech sectors according to which low-tech firms follow well-trodden paths, complying with market and manufacturing status quo. Besides, the fact that activities such as the installation and preparation of equipment and trial production are themselves knowledge generating activities, KI-LT entrepreneurs have more active roles in innovation and in the usually long-term, iterative nature of the machine production process, i.e. all three
phases of design, installation and debugging modification in regular operation. Sometimes, they even take the risk for in-built machinery and own technology development.

The paper contributes to the ongoing discussion of low-tech KIE. Bearing in mind KIE’s definition (Malerba and McKelvey, 2016), it appears that within LT-KIE firms may be more successful than the conventional ones in innovation if they manage to make up a knowledge-intensive approach to the management of technology and production.

The study contributes also to the literature of industrial dynamics in general, and more precisely to the specific stream that focuses on the relationship of plant heterogeneity and in particular of production technologies with various economic phenomena. Inquiries at the intersection between operations management and entrepreneurship are relatively scarce (Editorial of the special issue on operations management and entrepreneurship, Journal of Operations Management, 2011). Even since Schumpeter (1934), the creation of a new firm has been connected to technology and new products’ production while it is widely accepted that the commitment to physical creation is a significant transition point in venture creation. However, there is a surprising shortage of studies that investigate how low-tech ventures build up their operational environment. Similarly, there are only a handful of studies that probe the role of production technologies within a low-tech but knowledge-intensive context mainly at a sectoral basis.

Therefore, the study can also be assumed to advance discussion on the need of a theory on the interrelationships between technology and entrepreneurship especially for the pre-firm formation stage (e.g. Tan et al., 2009).

The study can be also considered a contribution of endogenous character; the understanding of the phenomenon within the Greek borders highlights problems and indicates solutions assisting the development of policies for low-tech industries which constitute a very important but volatile part of the Greek economy.

Nevertheless, the study contains several limitations since it is a single case study and results are derived from four interviews. The research method creates biases of validity, representativeness, reliability and generalizability. However, as stated by Erickson (1986), the general lies in the particular; the single case may provide insights contributing to scientific progress and challenge further research.

In spite these limitations regarding the single case study research design and the focus on the wood industry in Greece, some managerial implications can be reasonably drawn. Entrepreneurs and managers should put emphasis on developing innovation regarding technological aspects and more precisely production technologies in order to sustain strong competitive advantages and enhance performances. They should seek, transfer or co-create knowledge from multiple and often trans-sectoral fields to intensively develop and deploy innovative production especially during their entrance in already saturated markets. This presupposes the development of certain capabilities such as of coordination, communication and learning ones; and the devotion of a significant part of human, social and financial capital in reaching and exploiting a variety of knowledge bases (which is not self-evident or too common in low-tech firms). Taking into account the fact that the sector of wood and furniture was hit rather hard by the crisis with losses of more than 30 percent for the wood sector, investments on production technologies’ innovation seem to provide a solution to crisis periods, especially for SMEs and a media to leadership in prosperity times.

From a policy perspective, it appears that capacity building should be supported for low-tech firms that seek for knowledge resources in critical and selective ways. Networking is of great significance regarding however a large spectrum of knowledge bases and encouraging the diffusion of innovation between high and low-tech industries in order to ensure the best fit on an individual basis. Policy makers should further provide favorable framework conditions and stronger incentives for co-created innovation instead of just encourage ICT and machinery acquisition or focus only on R&D.
References


**Further reading**


**Corresponding author**

Glykeria Karagouni can be contacted at: karagg@teilar.gr

---

For instructions on how to order reprints of this article, please visit our website:  
[www.emeraldgrouppublishing.com/licensing/reprints.htm](http://www.emeraldgrouppublishing.com/licensing/reprints.htm)  
Or contact us for further details: permissions@emeraldinsight.com
Do glamour, self-sexualisation and scopophilia influence celebrity endorsement?

Catarina Peixoto Carvalho
Universidade do Minho, Braga, Portugal, and
Antonio Azevedo
School of Economics and Management, Universidade do Minho, Braga, Portugal

Abstract

Purpose – The purpose of this paper is to discuss the influence of glamour, scopophilia and self-sexualisation in luxury celebrity endorsement.

Design/methodology/approach – In step 1, an experimental study was conducted with 100 respondents assessing the response towards manipulated print ad stimuli operationalizing the influence (in general terms) of lay out, endorser’s beauty pattern, body language (cool, smile appeal, sex appeal and disruptive), gazing and landscape. In step 2, respondents evaluated their response towards five perfume print ads retrieved from real advertising campaigns with different brand personalities (DKNY, Moschino, Chanel, Gucci and Boss).

Findings – The ideal copy strategy is: a couple of brunette Caucasian endorsers; “close-up” photo; sexy body language; indirect smiling gaze; and urban landscape. Multiple regression models were built for each ad/brand (personality) in order to predict the willingness to pay for a bottle of perfume.

Research limitations/implications – The paper suggests a holistic theoretical framework describing the influence of celebrity characteristics, advertising copy strategy, social-cultural trends and brand variables in the advertising processing.

Practical implications – Advertising copywriters and brand managers must control the role of glamour and the self-consciousness of women seduction power in branding advertising.

Social implications – Glamour, scopophilia or self-sexualisation are three different concepts which have a lot of sociological implications because they influence the way as the society perceive the role of women as endorsers in advertising, but also in other life dimensions.

Originality/value – This paper fills a gap in the literature, since this paper make an innovative analysis of the influence of these recent post-modernist socio-cultural trends.

Keywords Celebrity endorsement, Luxury brands, Advertising processing, Copy strategy, Glamour, Scopophilia, Self-sexualisation

Paper type Research paper

Introduction

Although celebrity endorsement is a widely explored research topic, our literature review did not find any paper analysing the influence of some recent post-modernist socio-cultural psychographic variables that rose in our society, such as glamour, scopophilia or self-sexualisation (power of seduction). This paper aims to fill this gap in the literature and analyse the combined influence of those variables, which may interact with: the consumer’s response towards the advertising copy strategy elements; the role of brand personality, the celebrity-brand congruence and the humanisation of brands in luxury branding advertising; and the celebrity endorser-related variables. The study’s findings also provide some recommendations and guidelines to brand designers, managers and advertisers.

According to social network metrics on the Forbes “Top 100 Celebrities’ ranking” data, consumers are increasingly following celebrities’ in their daily lives. Therefore, in order to build the brand personality, brand designers often adopt celebrity endorsement strategies that fuel the meaning transfer of those human attributes. Nowadays, the endorser-consumer-brand congruency still has a determinant role in the buying decision making, especially, in hedonic
and self-expression categories such as fashion, cosmetics and retail within the luxury branding context (Grandhi et al., 2012).

According to Manning (2010, p. 36), “the quasi-animistic discourses treat the brand as a ‘person’ in which the pervasive associations based on the role that brands play in consumers’ lives are transformed into actual anthropomorphic characteristics imputed to brands understood as holistic, organic, living, growing entities with which consumers can form actual social relationships directly”. Hence, brand managers have to undertake a casting in order to select the endorser that fits best with the brand personality and the coherence of the whole brand portfolio (Chailan, 2009).

For Alexander (2010, p. 324), “the celebrity-icon is structured by the interplay of surface and depth. The surface is an aesthetic structure whose sensuous qualities command attention and compel attachment; the depth projects the sacred and profane binaries that structure meaning”.

Spears, Royne and Van Steenburg (2013, p. 21) also stressed that “celebrities are viewed as complex because of the heightened media exposure of not only the hero-like characteristics that catapulted them to fame but, at the same time, their flaws as well. From this perspective, a celebrity may be viewed as a type of modern day hero in spite of their revealed flaws”.

Literature review
Socio cultural trends in celebrity endorsement
This paper brings a new relevant contribution to the field because it acknowledges the influence of some socio-cultural trends in fashion branding advertising such as glamour (Hautala, 2011), and self-sexualization (Gill, 2007) associated to the commodification of feminine and post-feminism (Lazar, 2011). The notion that the use of sexual content in advertisements can increase the advertising effectiveness and ultimately sell products has been confirmed by several studies (Aaker and Stayman, 1990; Brown and Stayman, 1992).

According to Coy and Garner (2010), sexual images of women in mainstream advertising and popular culture have shifted, depicting women as actively embracing, celebrating and enjoying sex-object status (Gill, 2008). Young women increasingly view glamour modelling and lap/pole dancing as attractive career options, embedded in the discourse of empowerment and the notion that positive self-identity can be built on reclaiming the sexualized portrayals that modern feminism has sought to challenge.

Gill (2007, p. 151) describes sexualisation as “the extraordinary proliferation of discourses about sex and sexuality across all media forms […] as well the increasingly frequent erotic presentation of girls’, women’s and (to a lesser extent) men’s bodies in public spaces”. The post-feminist media culture often conveys the following notions: women can use their bodies for profit as a means to power; the importance of individual choice; makeovers as re-inventions of the self; a focus on biological differences between men and women. Therefore, the following hypothesis is proposed:

H1a. Consumers that agree with the notion of self-sexualization and the use of women seduction power will have a more favourable response and consequently a higher willingness to pay (WTP) for the advertised product.

These trends feed the consumers’ scopophilia behaviour (Lacan, 1970/2005; Soukup, 2009). Metz (1977) theorized, the inherent voyeurism of film spectatorship is analogous to “the keyhole” (p. 95). The Freudian notion of scopophilia is “the pleasure of looking at the body of another” (Naiman, 1998, p. 334). While still recognizing the importance of gaze and desire in film spectatorship, these scholars emphasise “the gaze as object a relationship not of identification but of desire” (McGowan, 2003, p. 30) a desire that is also evoked (for men and women, homosexual and heterosexual spectators, etc.) via the ambiguities of sexual difference and submissiveness, not exclusively the desire for mastery.
When film embraces the conventions of advertising, the scopic desire is intensified. Kilbourne (1999) clearly summarised the focus of advertising: "[...] [it] fetishizes products, imbues them with an erotic charge [...]" (p. 271). Ultimately, clear and explicit fetishization, particularly in terms of gender, is essential to this scopic gaze in advertising. Considering this the following hypothesis may be formulated:

**H1b.** Consumers with higher proneness to scopophilia will have a more favourable response and consequently a higher WTP for the advertised product.

On the other hand, luxury brands are also often associated with “glamour”. Hautala (2011) argues that glamour is “a myth that becomes activated through a system of signs”. It depends on the use of celebrity personas, on an exclusive media treatment, and on the circulation of signs, which connote luxury and feminine sexuality always with a fresh, contemporary touch. Gundle (2008, p. 390) defined glamour as “an image that attracts attention and arouses envy by mobilizing desirable qualities including beauty, wealth, movement, leisure, fame, and sex”. The concept of glamour has a close relationship to consumer culture and advertising; it can be seen as an offshoot of a new era based on consuming and visual spectacle. This led to the hypothesis:

**H1c.** Consumers who perceived a higher degree of glamour (conveyed by ad scenario, beauty and sexiness of the endorser, awareness and fame of endorser, and brand heritage) will have a more favourable response and consequently a higher WTP for the advertised product.

*Branding advertising copy strategy*

Furthermore, the influence of visual elements of print advertising on consumer’s response, according to Toncar and Fetscherin (2012), has recently received more attention after the recognition of its importance by Rossiter and Percy (1978), and McQuarrie and Mick (1999), amongst others. Hautala (2011) used a semiologist’s checklist of Lacey (2009) comprising the following points: representation of bodies (age, gender, race, hair, look); representation of manner (expression, gaze, pose); representation of activity (touch, body movement, positional communication); and props and settings. Pieters and Wedel (2004) concluded that the three key ad elements (brand, pictorial, and text) each have unique superiority effects on attention to advertisements. This study also acknowledges the influence of the semiotic implications of these visual and nonverbal elements: advertisement lay out; body language, dressing code, sex appeal and eroticism (Oswald, 2010); facial expression and gaze direction (Oswald, 2010); photographic camera angle (Meyers-Levy and Peracchio, 1992); the semiotics of branding (Manning, 2010) and advertising (Mick, 1986); the advertising rhetorics and metaphors (McQuarrie and Mick, 1999); other visual elements and symbolic cues embed in the ad “landscape” (Kilyeni, 2009). This paper will study the influence of some copy strategy elements, (in particular the ad composition, gaze and body language) suggests a new hypothesis:

**H2.** The WTP the advertised product is influenced by the advertising copy strategy elements (composition, gaze and body language).

*The role of brand personality and self-congruence*

This paper will also highlight the influence of brand identity and, more precisely, the influence of brand personality and its importance on brand-celebrity fitness and brand-consumer self-congruence. This paper will study only the perfume product category and other relevant factors such as brand name or positioning will be indirectly analysed, since they are linked to the brand personality.
However, in a contradictory way, some authors like Costanzo and Goodnight (2005) concluded that a celebrity recognised in a magazine advertisement did not increase consumer recall of the brand endorsed. In order to assess the celebrity-brand-consumer congruence we need to compare the dimensions of human personality (provided by the different human personality scales) with the brand personality dimensions (provided by the brand personality scales).

The Big Five framework of personality traits from Costa and McCrae (1992) emerged as a robust model for understanding the relationship between personality and various academic behaviours. The big five factors are: openness (inventive/curious vs consistent/cautious); conscientiousness (efficient/organised vs easy-going/careless); extraversion (outgoing/energetic vs solitary/reserved); agreeableness (friendly/compassionate vs cold/unkind); neuroticism (sensitive/nervous vs secure/confident). One useful tool is provided by E-Poll Market Research who developed the E-Score Celebrity Index. Gergaud and Ginsburgh (2010) described the 46 attributes comprised in the index. Only 22 are evoked as most popular attributes for the 49 celebrities analysed. They are aggregated into six groups: talent (talented); intelligence (intelligent); beauty (attractive, beautiful, cute, handsome, sexy, stylish); physical attributes (physically fit); other attributes, positive (confident, distinctive voice, experienced, funny, good energy, influential, interesting, trend-setter, trustworthy, warm) and other attributes, negative (aggressive, kooky/wacky, over-exposed).

On the other hand, the brand personality scale of Aaker (1997) is the most popular brand personality measurement tool comprising five dimensions: sincerity; excitement; competence; sophistication and ruggedness. However, over the years it has been criticised by several authors. Therefore, Heine (2010) developed a new scale (LBPS) to measure the personality of luxury brands, comprising 52 traits which were categorised by five major personality dimensions: modernity – the temporal perspective of a brand; eccentricity – the level of discrepancy from social norms and expectations; opulence – the level of conspicuousness of the symbols of wealth; elitism – the level of status and exclusivity; strength – the level of toughness and masculinity:

H3. The WTP of the advertised product is influenced by the brand personality.

Celebrity endorser-related variables

Finally, Erdogan (1999) confirmed that celebrity endorsement is a very popular research topic and researchers have identified several celebrity-endorser-related factors: attractiveness (D'Alessandro and Chitty, 2011); celebrity-brand meaning transfer (Halonen-Knight and Hurmerinta, 2010; Yoo and Jin, 2015); celebrity credibility, which is related to celebrity expertise and category (top-model, athlete, socialite or experts). The type of expertise and category will not be discussed in this research since the selected perfume brands use often actors and models as endorsers. The benefits of using celebrity endorsement and its impact on brand equity and consumers response were also widely studied (Spry et al., 2011). Therefore, the fourth hypothesis will be discussed as well:

H4. The WTP is influenced by the celebrity endorser characteristics (attractiveness, credibility, trustworthy, and seduction power).

The advertising response model is based on the hierarchical sequence of effects – attitude toward the ad (A_{ad}), attitude toward the brand (A_{b}), purchase intention (PI) – proposed by several authors (Batra and Ray, 1985; Mackenzie et al., 1986; Metha, 1994). The brand equity concept is represented by the WTP which measures the price sensitivity to the brand. The advertising processing is then moderated by the celebrity-brand-consumer congruence.

Therefore, two more hypotheses are analysed:

H5a. The WTP is positively determined by the other brand-related measures (image, A_{b}, reputation).
H5b. Brand-consumer congruence, consumer-endorser congruence and brand-endorser fitness are all positively correlated with WTP the advertised product.

This paper suggests a new conceptual framework described in Figure 1. According to this model, the antecedents discussed in the literature review influence the cognitive/emotional response and the semiotic analysis of the advertising stimulus.

Methodology

The objective of this study is to assess the influence of a set of socio-cultural trends interacting with the advertising copy strategy elements, the celebrity-related factors and moderated by consumer’s demographic and psychographic characteristics. The authors conducted an experimental study in order to test the following hypotheses:

H1a. Consumers that agree with the notion of self-sexualization and the use of women seduction power will have a more favourable response and consequently a higher WTP for the advertised product.

H1b. Consumers with higher proneness to scopophilia will have a more favourable response and consequently a higher WTP for the advertised product.

H1c. Consumers who perceived a higher degree of glamour (conveyed by ad scenario, beauty and sexiness of the endorser, awareness and fame of endorser, and brand heritage) will have a more favourable response and consequently a higher WTP for the advertised product.
H2. The WTP the advertised product is influenced by the advertising copy strategy elements (composition, gaze and body language).

H3. The WTP of the advertised product is influenced by the brand personality.

H4. The WTP is influenced by the celebrity endorser characteristics (attractiveness, credibility, trustworthiness, and seduction power).

H5a. The WTP of the advertised product is positively determined by other brand-related measures (image, A_{b}, reputation).

H5b. Brand-consumer congruence, consumer-endorser congruence and brand-endorser fitness are all positively correlated with WTP the advertised product.

Experimental scenario: print ad stimuli processing

A sample of 100 respondents (67 per cent female; 33 per cent male) aging from 18 to 40 years old (\(M = 22.65; SD = 5.22\)), with an average disposable income of 1426,0€ (SD = 1,011) and with a monthly spending on perfumes of 12,88€ (SD = 17.76) were invited to participate in a self-administered questionnaire in order to assess the influence of copy strategy and celebrity-related variables. The questionnaire comprised four steps:

1. In step 1, the respondents replied to a set of questions about the ideal combination of copy strategy elements (see Table I), answering for each element what would be the ideal choice (in theoretical and general terms): type of ad lay out (one female endorser, one male endorser, male/female pair; group or only product bottle); type of beauty pattern (see the categories in Table I); type of advertising copy strategy (cool, smile appeal, sex appeal and disruptive); type of body language/photography code; type of gazing (direct vs indirect); and type of landscape.

2. In step 2, authors selected five print ads of luxury fashion brands according to the expected five dimensions of Heine (2010, p. 159)’s brand personality scale. Based on the same brand personality profiles evaluated by Heine’s study, authors selected the following combinations of brand/endorser: modernity – DKNY/Lara Stone; eccentricity – Moschino/Ashley Smith; elitism – Gucci/Evans+Rachel Wood; d) strength – Boss/Gwyneth Paltrrow. Because the brand Louis Vuitton (indicated by Heine (2010) as opulent) does not have perfumes in its portfolio, authors made a focus group that selected Chanel/Keira Knightley as an adequate substitute. The brand-celebrity matches and the images were not randomly assigned, rather they are print ads of real advertising campaigns retrieved from media, in case the participants might be unfamiliar with either the brand or the celebrity.

Table II describes the advertising copy strategy of the real ads according to the criteria used in step 1. However, this classification was made only to illustrate the reading of the ad copy strategy. Authors did not aim to manipulate the copy strategy composition rather the stimulus selection was focussed only in manipulating the brand personality complying with Heine’s (2010) profiles.

Afterwards in the step 2, (and using a within subject design approach), respondents evaluated separately all the print ads endorser’s characteristics using single item ten-points Likert scales: credibility, trustworthy and attractiveness/beauty, seduction power, consumer-endorser self-congruence and endorser-brand degree of fit (see Table III).

In addition, through the questions in Table IV, respondents made a self-evaluation of the importance level of scopophilia (one item based on the definition of Soukup, 2009), self-sexualization (three item generated from the definition of Coy and Garner, 2010) and glamour (four item based also in the definition of Coy and Garner, 2010).
Table I. Best copy strategy: Step 1: frequencies of the preferred print ad copy strategy components (endorser category, beauty pattern, photo code, copy strategy, gaze, and landscape).

<table>
<thead>
<tr>
<th>Endorser category</th>
<th>%</th>
<th>Beauty pattern</th>
<th>%</th>
<th>Ad composition</th>
<th>%</th>
<th>Photo</th>
<th>%</th>
<th>Copy</th>
<th>%</th>
<th>Gaze</th>
<th>%</th>
<th>Landscape</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actor/actrice</td>
<td>47.0</td>
<td>Brunette Caucasian</td>
<td>59.0</td>
<td>Woman-man</td>
<td>45.0</td>
<td>Close-up</td>
<td>32.0</td>
<td>Sexy-seduction</td>
<td>35</td>
<td>Indirect smile</td>
<td>24</td>
<td>Urban</td>
<td>37</td>
</tr>
<tr>
<td>Model</td>
<td>30.0</td>
<td>Blonde Caucasian</td>
<td>13.0</td>
<td>Woman</td>
<td>21.0</td>
<td>Half body</td>
<td>25.0</td>
<td>Smirk appeal</td>
<td>30</td>
<td>Direct sexy</td>
<td>21</td>
<td>Beach</td>
<td>24</td>
</tr>
<tr>
<td>Athlete</td>
<td>6.0</td>
<td>Without endorser</td>
<td>12.0</td>
<td>Several people</td>
<td>20.0</td>
<td>Lie down</td>
<td>23.0</td>
<td>Cool</td>
<td>20</td>
<td>Direct disruptive</td>
<td>18</td>
<td>Luxury</td>
<td>16</td>
</tr>
<tr>
<td>Intellectual</td>
<td>6.0</td>
<td>Oriental</td>
<td>7.0</td>
<td>Product only</td>
<td>8.0</td>
<td>Product only</td>
<td>18.0</td>
<td>Disruptive</td>
<td>15</td>
<td>Direct cool</td>
<td>11</td>
<td>Country</td>
<td>12</td>
</tr>
<tr>
<td>Singer</td>
<td>5.0</td>
<td>African</td>
<td>6.0</td>
<td>Men</td>
<td>6.0</td>
<td>N/r</td>
<td>2.0</td>
<td>Disruptive</td>
<td></td>
<td>Direct smile</td>
<td>10</td>
<td>Wild nature</td>
<td>8</td>
</tr>
<tr>
<td>Consumer (unknown)</td>
<td>5.0</td>
<td>Cartoon</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Indirect disruptive</td>
<td>8</td>
<td>Interior</td>
<td>3</td>
</tr>
<tr>
<td>Jet-set</td>
<td>1.0</td>
<td>Androginia-man</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Indirect cool</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Androginia-woman</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Direct sexy</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>Total</td>
<td>100.0</td>
<td>Total</td>
<td>100</td>
<td>Total</td>
<td>100</td>
<td>Total</td>
<td>100</td>
<td>Total</td>
<td>100</td>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>
In step 3, this evaluation was complemented with a qualitative content analysis of the ads/endorser using an interpretative approach (Kenyon, 2006). The endorser awareness was also confirmed (celebrity vs unknown endorser/consumer).

Finally, in step 4, the respondent’s response towards the print ad was assessed by the following measures using five-points Likert scales: (Aad), attitude towards the product, (Ab), Purchase Intention (PI), brand glamour, brand reputation, consumer-brand self-congruence, brand image and WTP (in euros). The brand personality profile was assessed using the Luxury Brand Personality Scale of Heine (2010).

**Results**

In general terms, considering the relative frequencies of preferred attributes, the ideal print ad composition (in theoretical terms) is presented in Table I and combines the use of a couple (male/female) of brunette Caucasian actor endorsers in a “close-up” photography with an urban landscape. The endorsers must adopt a sexy/seductive body language with indirect smiling gaze. The respondents also did a qualitative analysis of each print ad stimulus in order to describe the endorser, the landscape, the body language and the brands associations elicited by the ad (see Table II).

Afterwards in step 2, respondents also evaluated the five selected ads rating some brand and endorser-related measures (see Table III), namely the brand personality profile measured with the 52 traits of the Luxury Brand Personality Scale of Heine (2010).
<table>
<thead>
<tr>
<th></th>
<th>DKNY</th>
<th>Moschino</th>
<th>Chanel</th>
<th>Gucci</th>
<th>Boss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lara Stone</td>
<td>Ashley Smith</td>
<td>Keira Knightley</td>
<td>Rachel Wood</td>
<td>Gwyneth Paltrow</td>
</tr>
<tr>
<td>Endorser beauty</td>
<td>5.79</td>
<td>7.73</td>
<td>8.02</td>
<td>7.88</td>
<td>6.85</td>
</tr>
<tr>
<td>Credibility</td>
<td>5.50</td>
<td>6.88</td>
<td>7.86</td>
<td>7.10</td>
<td>7.45</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>5.55</td>
<td>6.91</td>
<td>7.64</td>
<td>6.96</td>
<td>7.59</td>
</tr>
<tr>
<td>Endorser seduction</td>
<td>5.96</td>
<td>7.53</td>
<td>8.07</td>
<td>7.96</td>
<td>6.34</td>
</tr>
<tr>
<td>Consumer-endorser self congruency</td>
<td>3.07</td>
<td>5.73</td>
<td>6.42</td>
<td>5.55</td>
<td>5.32</td>
</tr>
<tr>
<td>Endorser-Brand degree of fit</td>
<td>5.94</td>
<td>7.39</td>
<td>7.72</td>
<td>7.29</td>
<td>6.65</td>
</tr>
<tr>
<td>Attitude toward ad</td>
<td>5.53</td>
<td>6.78</td>
<td>7.17</td>
<td>6.90</td>
<td>6.48</td>
</tr>
<tr>
<td>Attitude toward product</td>
<td>7.15</td>
<td>6.17</td>
<td>6.29</td>
<td>6.58</td>
<td>6.66</td>
</tr>
<tr>
<td>Attitude toward brand</td>
<td>6.33</td>
<td>6.14</td>
<td>6.76</td>
<td>6.61</td>
<td>7.21</td>
</tr>
<tr>
<td>Purchase intention</td>
<td>4.26</td>
<td>4.59</td>
<td>5.06</td>
<td>5.14</td>
<td>5.15</td>
</tr>
<tr>
<td>Brand glamour</td>
<td>5.61</td>
<td>6.74</td>
<td>7.97</td>
<td>7.21</td>
<td>7.19</td>
</tr>
<tr>
<td>Brand reputation</td>
<td>6.58</td>
<td>6.95</td>
<td>8.21</td>
<td>7.87</td>
<td>7.96</td>
</tr>
<tr>
<td>Consumer-brand self congruency</td>
<td>5.17</td>
<td>5.11</td>
<td>5.38</td>
<td>5.37</td>
<td>6.30</td>
</tr>
<tr>
<td>Brand image</td>
<td>6.42</td>
<td>6.79</td>
<td>7.78</td>
<td>7.33</td>
<td>7.57</td>
</tr>
<tr>
<td>Willingness to pay</td>
<td>38.28</td>
<td>42.89</td>
<td>50.14</td>
<td>46.33</td>
<td>45.46</td>
</tr>
</tbody>
</table>

Brand personality profile according to Luxury Brand Personality Scale of Heine (2010)

- **Modernity**: 4.29, 0.72, 3.41, 1.36, 3.08, 1.57, 4.20, 0.98, 3.74, 1.38
- **Eccentric**: 3.33, 0.90, 2.97, 1.14, 2.99, 1.56, 4.05, 1.07, 2.48, 1.24
- **Opulence**: 3.13, 1.04, 3.19, 1.03, 3.87, 1.20, 4.15, 0.87, 2.66, 1.22
- **Elistism**: 2.86, 0.93, 3.40, 1.11, 4.18, 0.94, 4.07, 0.92, 3.19, 1.06
- **Strenght**: 3.96, 1.01, 2.90, 1.31, 4.16, 1.01, 4.27, 0.80, 3.33, 1.25

---

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endorser beauty</td>
<td>5.79</td>
<td>2.33</td>
<td>7.73</td>
<td>1.75</td>
<td>8.02</td>
<td>1.51</td>
<td>7.88</td>
<td>1.52</td>
<td>6.85</td>
<td>1.84</td>
</tr>
<tr>
<td>Credibility</td>
<td>5.50</td>
<td>2.00</td>
<td>6.88</td>
<td>1.55</td>
<td>7.86</td>
<td>1.54</td>
<td>7.10</td>
<td>1.78</td>
<td>7.45</td>
<td>2.01</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>5.55</td>
<td>2.07</td>
<td>6.91</td>
<td>1.61</td>
<td>7.64</td>
<td>1.69</td>
<td>6.96</td>
<td>1.75</td>
<td>7.59</td>
<td>1.93</td>
</tr>
<tr>
<td>Endorser seduction</td>
<td>5.96</td>
<td>2.58</td>
<td>7.53</td>
<td>1.78</td>
<td>8.07</td>
<td>1.67</td>
<td>7.96</td>
<td>1.74</td>
<td>6.34</td>
<td>2.29</td>
</tr>
<tr>
<td>Consumer-endorser self congruency</td>
<td>3.07</td>
<td>2.62</td>
<td>5.73</td>
<td>2.67</td>
<td>6.42</td>
<td>2.44</td>
<td>5.55</td>
<td>2.61</td>
<td>5.32</td>
<td>2.74</td>
</tr>
<tr>
<td>Endorser-Brand degree of fit</td>
<td>5.94</td>
<td>2.52</td>
<td>7.39</td>
<td>2.01</td>
<td>7.72</td>
<td>1.93</td>
<td>7.29</td>
<td>2.11</td>
<td>6.65</td>
<td>2.61</td>
</tr>
<tr>
<td>Attitude toward ad</td>
<td>5.53</td>
<td>2.47</td>
<td>6.78</td>
<td>2.07</td>
<td>7.17</td>
<td>2.00</td>
<td>6.90</td>
<td>2.12</td>
<td>6.48</td>
<td>2.51</td>
</tr>
<tr>
<td>Attitude toward product</td>
<td>7.15</td>
<td>2.24</td>
<td>6.17</td>
<td>2.76</td>
<td>6.29</td>
<td>2.27</td>
<td>6.58</td>
<td>2.38</td>
<td>6.66</td>
<td>2.24</td>
</tr>
<tr>
<td>Attitude toward brand</td>
<td>6.33</td>
<td>2.51</td>
<td>6.14</td>
<td>2.59</td>
<td>6.76</td>
<td>2.34</td>
<td>6.61</td>
<td>2.24</td>
<td>7.21</td>
<td>2.04</td>
</tr>
<tr>
<td>Purchase intention</td>
<td>4.26</td>
<td>2.94</td>
<td>4.59</td>
<td>2.71</td>
<td>5.06</td>
<td>2.80</td>
<td>5.14</td>
<td>2.75</td>
<td>5.15</td>
<td>2.71</td>
</tr>
<tr>
<td>Brand glamour</td>
<td>5.61</td>
<td>2.30</td>
<td>6.74</td>
<td>2.00</td>
<td>7.97</td>
<td>1.68</td>
<td>7.21</td>
<td>2.10</td>
<td>7.19</td>
<td>1.92</td>
</tr>
<tr>
<td>Brand reputation</td>
<td>6.58</td>
<td>1.92</td>
<td>6.95</td>
<td>2.01</td>
<td>8.21</td>
<td>1.70</td>
<td>7.87</td>
<td>1.69</td>
<td>7.96</td>
<td>1.46</td>
</tr>
<tr>
<td>Consumer-brand self congruency</td>
<td>5.17</td>
<td>2.74</td>
<td>5.11</td>
<td>2.81</td>
<td>5.38</td>
<td>2.79</td>
<td>5.37</td>
<td>2.88</td>
<td>6.30</td>
<td>2.69</td>
</tr>
<tr>
<td>Brand image</td>
<td>6.42</td>
<td>2.29</td>
<td>6.79</td>
<td>2.06</td>
<td>7.78</td>
<td>1.89</td>
<td>7.33</td>
<td>1.99</td>
<td>7.57</td>
<td>1.89</td>
</tr>
<tr>
<td>Willingness to pay</td>
<td>38.28</td>
<td>17.27</td>
<td>42.89</td>
<td>20.49</td>
<td>50.14</td>
<td>22.98</td>
<td>46.33</td>
<td>21.34</td>
<td>45.46</td>
<td>22.77</td>
</tr>
</tbody>
</table>

**Table III.** Means and standard deviations of endorser and brand dependent measures (Step 4)
Keira Knightley (Chanel) obtained the highest scores in terms of beauty, credibility, trustworthy, seduction power, consumer-brand congruency and endorser-brand fitness. This Chanel ad uses a female celebrity endorser with a sexy/sensual direct gaze in a neutral landscape.

Table IV presents the self-evaluation of scopophilia, self-sexualization and glamour made by respondents. The mean score of scopophilia is low ($M = 1.87$) which means that respondents stated a high level of disagreement (using five-points Likert scales) with the sentence “I feel some sexual pleasure (voyeurism) when I see a perfume ad”. Probably some respondents showed some contention in revealing their sexual pleasure, thus introducing a certain degree of response bias. However, respondents showed higher levels of agreement with the items measuring the other two constructs.

In order to assess the variables that predict the WTP, a multiple regression model was developed for each brand (see Tables V and VI). All models have ANOVA $F$ significance ($p < 0.001$). The most relevant independent variables selected by the stepwise method are: monthly spending in perfume (which is a common predictor in all brands); $A_B$, brand image and brand reputation. Brand personality dimensions and endorser-brand fitness were significant predictors only for DKNY. This brand adopted a multiple endorsement strategy in recent years, which according to Thomas and Fowler (2015) is sometimes not the best way. They recommend that the chosen endorsers need to be familiar to all of the target customers and using different celebrities to specifically target each customer segment could be detrimental.

In terms of relevance of social-cultural trends, the results show that post-feminism self-sexualisation and scopophilia (see Table V) were not significant predictors. Although the copy strategy of the ads of DKNY, Chanel and Gucci have explored the sex appeal and seduction power of the endorsers, it seems that they did not trigger the scopophilia effect. Therefore, $H_{1a}$ and $H_{1b}$ were not supported by the results. However, glamour as a lifestyle and associated to heritage are significant predictors for Gucci’s WTP but with contradictory effects.

| Table IV. Sociological trends: scopophilia, glamour and self-sexualisation |
|-----------------------------|------------------|
| Scopophilia – “I feel some sexual pleasure (voyeurism) when I see a perfume ad” | 1.87 1.041 |
| Self-sexualization1 – “In advertising there is too much exploration of the sexuality and female body” | 3.18 1.192 |
| Glamour1 – “The glamour is conveyed by lifestyle and the scenario of ad that make us dream” | 4.08 0.825 |
| Self-sexualization2 – “It is individual option of woman to use her body to get profit” | 3.91 1.240 |
| Self-sexualization 3 (Women Power) – “the use of seduction in advertising is a form of power of women over the consumer” | 3.39 1.091 |
| Glamour2 – “the brand glamour is determined by the beauty and sexual attraction of the endorser” | 3.00 1.025 |
| Glamour3 – “the brand glamour is determined by the awareness and fame of the endorser” | 3.31 1.051 |
| Glamour4 – “the brand glamour depends on brand heritage” | 2.71 1.028 |

<p>| Table V. Multiple regression coefficients for the regression models that predict the willingness to pay for the brand's perfume |
|-------------------|------------------|</p>
<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>SE of the Estimate</th>
<th>$R^2$ Change</th>
<th>Change statistics</th>
<th>Sig. $F$ change</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNKY</td>
<td>0.770</td>
<td>0.593</td>
<td>0.550</td>
<td>11.33994</td>
<td>0.040</td>
<td>4.571 1 47 0.038</td>
<td>1.642</td>
<td></td>
</tr>
<tr>
<td>Moschino</td>
<td>0.779</td>
<td>0.607</td>
<td>0.583</td>
<td>13.94848</td>
<td>0.047</td>
<td>5.808 1 49 0.020</td>
<td>1.872</td>
<td></td>
</tr>
<tr>
<td>Chanel</td>
<td>0.747</td>
<td>0.557</td>
<td>0.518</td>
<td>15.37019</td>
<td>0.060</td>
<td>6.149 1 45 0.017</td>
<td>2.178</td>
<td></td>
</tr>
<tr>
<td>Gucci</td>
<td>0.742</td>
<td>0.550</td>
<td>0.514</td>
<td>14.51248</td>
<td>0.075</td>
<td>8.322 1 50 0.006</td>
<td>1.781</td>
<td></td>
</tr>
<tr>
<td>Boss</td>
<td>0.753</td>
<td>0.568</td>
<td>0.549</td>
<td>14.78506</td>
<td>0.223</td>
<td>23.732 1 46 0.000</td>
<td>1.899</td>
<td></td>
</tr>
</tbody>
</table>
Table VI. Beta coefficients of the multiple regression models

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardised coefficients</th>
<th>Standardised coefficients</th>
<th>Correlations</th>
<th>Collinearity statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B(SE)</td>
<td>β(t)</td>
<td>Zero-order</td>
<td>Partial</td>
</tr>
<tr>
<td>DKNY (Constant)</td>
<td>29.540 (8.992)</td>
<td>3.285 (0.002)</td>
<td>0.550 (0.000)</td>
<td>0.630 (0.017)</td>
</tr>
<tr>
<td>Brand image</td>
<td>3.984 (0.717)</td>
<td>0.522 (0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly spending</td>
<td>0.409 (0.095)</td>
<td>0.437 (0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eccentric person</td>
<td>−5.460 (1.548)</td>
<td>−0.337 (0.001)</td>
<td>−0.231 (−0.458)</td>
<td>−0.328 (0.947)</td>
</tr>
<tr>
<td>Women Power</td>
<td>−4.739 (1.644)</td>
<td>−0.294 (−0.040)</td>
<td>−0.388 (−0.268)</td>
<td></td>
</tr>
<tr>
<td>Strength person</td>
<td>3.319 (1.552)</td>
<td>0.215 (0.038)</td>
<td>0.247 (0.298)</td>
<td>0.199 (0.858)</td>
</tr>
<tr>
<td>Moschino (Constant)</td>
<td>−32.426 (10.710)</td>
<td>−3.028 (0.004)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand image</td>
<td>5.709 (1.206)</td>
<td>0.484 (0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly spending</td>
<td>0.536 (0.108)</td>
<td>0.446 (0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ashley_Moschino</td>
<td>3.426 (1.422)</td>
<td>0.247 (0.020)</td>
<td>0.438 (0.335)</td>
<td>0.216 (0.764)</td>
</tr>
<tr>
<td>Chanel (Constant)</td>
<td>−2.686 (15.366)</td>
<td>−0.175 (0.862)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chanel reputation</td>
<td>5.619 (1.402)</td>
<td>0.407 (0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly spending</td>
<td>0.503 (0.135)</td>
<td>0.419 (0.001)</td>
<td>0.442 (0.487)</td>
<td>0.371 (0.782)</td>
</tr>
<tr>
<td>Chanel Ab</td>
<td>2.607 (0.985)</td>
<td>0.279 (0.010)</td>
<td>0.443 (0.374)</td>
<td>0.268 (0.919)</td>
</tr>
<tr>
<td>Women Power</td>
<td>−5.652 (2.279)</td>
<td>−0.269 (−0.128)</td>
<td>−0.347 (−0.246)</td>
<td></td>
</tr>
<tr>
<td>Gucci (Constant)</td>
<td>−15.711 (13.563)</td>
<td>−1.158 (0.232)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly spending</td>
<td>0.560 (0.116)</td>
<td>0.480 (0.000)</td>
<td>0.461 (0.563)</td>
<td>0.457 (0.908)</td>
</tr>
<tr>
<td>Gucci reputation</td>
<td>5.588 (1.181)</td>
<td>0.452 (0.000)</td>
<td>0.457 (0.556)</td>
<td>0.449 (0.987)</td>
</tr>
<tr>
<td>Heritage/glamour</td>
<td>−5.814 (1.977)</td>
<td>−0.292 (−0.090)</td>
<td>−0.384 (−0.279)</td>
<td></td>
</tr>
<tr>
<td>Lifestyle/glamour</td>
<td>6.548 (2.270)</td>
<td>0.277 (0.006)</td>
<td>0.348 (0.378)</td>
<td>0.274 (0.975)</td>
</tr>
<tr>
<td>Boss (Constant)</td>
<td>−1.023 (7.703)</td>
<td>−0.133 (0.895)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boss Ab</td>
<td>5.287 (1.041)</td>
<td>0.501 (0.000)</td>
<td>0.587 (0.599)</td>
<td>0.493 (0.968)</td>
</tr>
<tr>
<td>Monthly spending</td>
<td>0.613 (0.126)</td>
<td>0.480 (0.000)</td>
<td>0.570 (0.583)</td>
<td>0.472 (0.968)</td>
</tr>
</tbody>
</table>

Note: Dependent variable: willingness to pay for a bottle of perfume
In addition, women power relation is also a (negative) predictor of DKNY’s WTP. Thus, the H1c is partially validated depending on the interaction with other variables related with brand personality and copy strategy.

Considering now the selected brand ads, a one-way ANOVA of the effect of gaze preferences on A_ad revealed that gaze is an important variable for Boss (F7,92 = 2.08), as the respondents who prefer direct smiling gaze (which is the case for the Boss ad) rated a higher A_ad (M = 7.90; SD = 1.10; N = 10), than the respondents who prefer indirect cool/disruptive gaze. These results confirm the influence of advertising copy elements as postulated in H2.

Again for Gucci, the one-way ANOVA showed that photo code/lay out is important (F3,94 = 2.83) as the respondents who prefer ads with “lie down” celebrities (M = 7.61; SD = 1.53, N = 23) rated the A_ad more favourably than the ones who prefer “close-up” photos (M = 6.09; SD = 2.66; N = 32). The type of ad composition seems to influence the Moschino’s A_ad (F4,49 = 5.37) because the respondents who prefer the ad with a group of models rated more favourable A_ad (M = 7.55; SD = 1.70; N = 20) than the ones who prefer a only man/bottle composition.

According to Heine (2010)’s dimensions, in this paper, DKNY was classified as Modern; Moschino is modern/elitist; Gucci and Boss are modern/strong. These results only confirm the DKNY profile when comparing the classification assessed by Heine (2010)’s study. Table V shows that the set of predictors of WTP and its levels are influenced by the type of brand personality in interaction with advertising copy strategy thus giving support to H3.

Chanel considered as an elitist/opulent brand was the one that obtained the highest WTP (M = 50.14 euros; SD = 22.98) while the modern brand DKNY was rated with the lowest WTP (M = 38.28; SD = 17.27).

The influence of the endorser characteristics as postulated in H4 is not supported by the results because only once (in the case of Ashley-Moschino) the degree of fit is a significant predictor. The other characteristics such as attractiveness/beauty, credibility and trustworthiness were never included in the regression models.

The A_ad (in both cases of Chanel and Boss), the brand image (DKNY and Moschino) and brand reputation (Chanel and Gucci) are predictors of WTP thus supporting the H3a.

H5b postulating that brand-consumer congruence, consumer-endorser congruence and brand-endorser fitness are all positively and significantly (p < 0.05) correlated with WTP was only partially confirmed, because consumer-endorser congruence is not significantly correlated with WTP for the Chanel print ad processing (see Table VII).

Discussion and conclusions

This paper aims to analyse the influence of some antecedents of celebrity endorsement in luxury branding, namely the social-cultural trends, the copy strategy elements, the brand personality and the endorser characteristics. The results did not show any significant correlation between the self-sexualisation (degree of acceptance of use and exploration of the

Table VII. Spearman correlation coefficients for: endorser-consumer self-congruency (E-CSc) vs endorser-brand fitness (E-BF); E-BF vs consumer-brand self-congruency (C-BSc); C-BSc vs willingness to pay (WTP)
sexuality and female body as way to get profit in advertising) and other variables such as endorser’s beauty and seduction power or $A_p$. Considering that the respondents stated a high degree of agreement/acceptance with this post-feminist trend ($M = 3.91; SD = 1.24$), it seems that it is not a relevant determinant in the attitude formation and decision making as expected by authors. Therefore, copywriters and brand managers should expect an increasing acceptance of overexploitation of women sexuality in their ads. The same pattern occurred with influence of scopophilia which by the way got a very low score in the sample ($M = 1.87; SD = 1.04$).

On other hand, there is very clear influence of women empowerment, because those respondents who are aware of the use of seduction as a form of power, have a less favourable attitude and WTP for DKNY (modern) and Chanel (elitist/opulent) perfumes. Either one possible explanation is that those respondents do not want to be manipulated or they think that this persuasion tactic is excessive and artificial. For example, Dekker and Van Reijmersdal (2013, p. 237) claimed that “disclosure of the persuasive intent and deceptive nature of endorsement is effective in mitigating persuasion for specific viewers […] who do not perceive the celebrity as credible” enable them to guard themselves against persuasion and influence. That affected the consumer-Lara Stone congruency which is very low ($M = 3.07$) while the identification with Keira Knightley was very high ($M = 6.42$). In both cases, the ad copy used several elements related with sexy appeal. For example, Lara Stone is holding an apple (a well-known biblical symbol of seduction of Eve in Paradise) while Keira Knightley exposed her body in a seductive way. These interpretations are confirmed by the qualitative content analyses described by respondents in Table II in terms of body language and facial expression.

According to Coy and Garner (2010, p. 661), we would expect a positive effect of woman empowerment as “for young women observing glamour models as role models, the marketing of this self-sexualization as empowerment and agency reinforces the association of self-esteem = being desired by men and adherence to masculine constructions of female sexuality”. However, these authors claim that the women empowerment is associated to the concept of “chav” that represents a distinct working-class identity located in “excessive participation in forms of market-oriented consumption which are deemed aesthetically impoverished” (Hayward and Yar, 2006, p. 14). Since the “chav” term is almost exclusively directed at the “under class” that promotes consumption as a means of self-fulfilment (Hayward and Yar, 2006), if luxury/high status consumers recognise this association they might avoid to buy that brand to avoid that meaning transfer.

The perception and awareness of the two dimensions of glamour (related with brand heritage vs dreamful lifestyle) have contradictory influences on the WTP of Gucci whose personality was evaluated as strong/modern. The brand heritage dimension has a negative beta coefficient, which means that the respondents, who rated favourably Gucci as the second highest PI ($M = 5.14$) and WTP ($M = 46.33$) and brand glamour ($M = 7.21$), think that the brand heritage has a negative influence in mitigating their price sensitivity.

**Limitations and managerial implications**

Although this study has some limitations regarding the sample dimension, it provides deep insights to luxury/fashion brand managers because it reveals the ideal combination for the copy advertising strategy, and it analyses the advertising processing response towards different brands considering different brand personalities.

Advertising copywriters and brand managers must control the role of factors such as glamour and self-consciousness of women seduction power in branding advertising. The exploration of empowerment appeal seems to be effective to attract working-class
consumers. However, the findings revealed a negative effect that can affect the Ab and WTP of those consumers that want to avoid the association to the “chav” stereotype.

The brand positioning in luxury fashion segment, based on brand personality differentiation is also influenced by the advertising copy strategy elements. The results confirmed the importance of the type of gaze, photo code and type of ad composition.

On other hand, the predictors of the WTP are influenced by brand personality. The moderation effect of brand personality can be deeply discussed in further research by considering a larger number of ads conveying a more combinations between brand personality and the copy strategy variables.

Further research may also provide more information about the influence of consumer individual variables such as gender, age, disposable income, celebrity worship or materialism.

References
Costa, P.T. Jr and McCrae, R. (1992), Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) Manual, Psychological Assessment Resources, Odessa, FL.


Further reading


Corresponding author

Antonio Azevedo can be contacted at: antonioa@eeg.uminho.pt

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com

Metri Fayez Mdanat  
Management Science Department, German Jordanian University, Amman, Jordan

Manhal Shotar  
Ministry of Labor and Social Affair, Doha, Qatar

Ghazi Samawi, Jean Mulot and Talah S. Arabiyat  
Management Science Department, German Jordanian University, Amman, Jordan, and

Mohammed A. Alzyadat  
Marketing Department, Al Balqa Applied University, Al-Salt, Jordan

Abstract

Purpose – The purpose of this paper is to analyze the impact of tax structures on economic growth in Jordan over the period 1980-2015 using error correction techniques. It provides empirical evidence that the tax structure itself, comprising direct taxes, indirect taxes and total tax revenues, is an insufficient indicator for policymakers, whereas when each tax was included separately in the model, it was found that income tax, corporate taxes and personal taxes influenced per capita income growth negatively and that all of them were distortionary taxes. They greatly reduced both short and long-term per capita growth, while tariffs and consumption taxes were found to influence per capita income growth positively. The study also shows that relying heavily on increasing total taxes without taking into consideration the tax structure of the country would lead to a reduction in per capita income, in contrast to other tax structures that showed positive and neutral effects on per capita income. Tax reform and shifting from income taxes toward consumption taxes and tariffs would therefore enhance the well-being of individuals and increase their share of output.

Design/methodology/approach – This study uses an analytical approach in the framework of an error correction model. This approach allows us to overcome many problems in time series data such as non-stationary, serial correlation and endogeneity of variables, which have been ignored in many published studies dealing with time series data.

Findings – The analysis shows that consumption and tariffs have a positive effect on per capita gross domestic product growth, whereas income taxes negatively influenced this growth measure. This implies that attention must be paid to a preference for consumption and tariffs to provide sustained growth. The authors recommend that the government objective should shift from raising revenues to achieving social justice and efficiency.

Research limitations/implications – There are two main limitations inherent this study. The first limitation in regard to the missing data in the series for labor force and average years of schooling, interpolation method used to overcome this shortage. While the second limitation is about the importance of the tax structure itself and its direct impact on such patterns of investment which have been considered but within narrow limits.

Practical implications – The relationship between taxes and economic growth is a controversial aspect of economics, because of its high impact on the decisions made by individuals and institutions, along with its direct influence on the economy as a whole. The authors recommend that the Jordanian government’s objective should shift from raising revenues to achieving social justice and efficiency. Furthermore, Jordan’s weak tax performance and ineffective tax structure indicate the importance for policymakers of focusing more closely on enhancing future per capita growth, which can be done by shifting from income tax toward consumption and trade taxes. On another level, policymakers can reform the tax structure in favor of long-run growth by addressing the importance of consumption taxes and trade taxes in their policies, rather than increasing tax rates.

Social implications – The character of growth is more important than its magnitude. Economic growth should be reflected in the alleviation of poverty reduced inequality and ultimately better living standards. Additionally the authors believe that sustained economic growth can be achieved only if it is broadly based and inclusive. This implies the need to generate jobs for the growing workforce and the adoption of policies to protect and cater for the vulnerable segments of the population. Otherwise economic policy will fail to achieve its objectives.
1. Introduction

Interest in studying the relationship between fiscal policy and economic growth in developing countries has grown in recent decades with the recognition of a need to stimulate inclusive growth in response to budget deficits arising from increased spending by governments. For the growth to be inclusive, it should be linked with policies related to poverty and inequality reduction that assist in increasing the well-being of citizens. Fiscal policy may affect economic growth through several channels, including labor supply, physical capital, human capital, and total factor productivity, as well as crowding out the private sector through increasing the cost of financing[1]. For instance, income taxes on labor influence decisions on whether to participate in the labor market and how much to work, while corporate income taxes affect savings and investment decisions, as well as rates of return on projects. Fiscal measures such as increasing spending on health and education on one hand, while reducing taxes on the other, can help to raise human capital stock and to promote growth. According to Lucas (1988) and Barro (2001), the main driver of economic growth is the accumulation of human capital. Finally, fiscal policy measures could assist in promoting growth by enhancing productivity, either by increasing spending on research and development (R&D) or by offering tax incentives to encourage private sector investment in R&D.

Many studies have been conducted in this field, yet there is conflicting evidence in the literature regarding the relationship between fiscal policy and economic growth in general and between taxes and economic growth in particular. In addition, there have been mixed results and extensive debate regarding the impact of both taxes and spending on growth, depending on national conditions, model specifications and estimation techniques. A fair assessment would be that empirical studies have raised a range of issues that must be considered, but have provided no definitive answers. Recent findings by Arnold (2008) and Arnold et al. (2011) have significantly influenced policy debate in Europe. Based on their findings, the OECD (2010) and European Commission (2013) recommend moving toward a growth-oriented tax structure. Xing (2012) finds that shifts toward property taxes are associated with higher economic growth in the long run. Some studies (Tanzi, 1980; Sabahin, 1998) have found that countries with low tax rates have witnessed higher economic growth, while others (Koester and Kormendi, 1989; Easterly and Rebelo, 1993; Djankov et al., 2010; Johansson et al., 2008; Kneller et al., 1999; Lee and Gordon, 2005) suggest the contrary.

After almost three decades of economic reforms, the relationship between tax structure and economic growth in Jordan is still unfavorable to the promotion of economic growth. In addition, the relationship between taxes and economic growth is still not clear for policymakers. This study attempts to answer the following questions: To what extent does tax reform promote national economic growth? Is there a relationship between the tax structure and economic growth? If there is a relationship, what kind of tax structure is desirable for promoting growth? Does the tax structure matter for long-run growth? In particular, we have tested the relation between the tax structure and per capita income growth in Jordan in the framework of an error correction model (ECM). This approach allows us to overcome many problems in time series data such as non-stationarity, serial correlation and endogeneity of variables, which have been ignored in many published studies dealing with time series data.
2. Literature review

Tax changes and their effect on economic activity have stimulated a major public policy debate in recent years. Policymakers and academics alike are interested in the relationship between tax structure and economic growth. The intensity of the debate stems largely from the fact that measuring this relationship is extremely challenging (Gale and Samwick, 2014). Many studies have utilized endogenous growth models to examine the economic effects of tax composition (Barro, 1991a, b; Jones et al., 1993). According to such models, fiscal policy measures of taxation and spending are the most significant endogenous variables and can help to analyze how fiscal policy affects long-term growth (Barro and Sala-i-Martin, 1992; Rebelo, 1991). In contrast to this view, neoclassical growth theory stipulates that the main drivers of growth in the long run are capital accumulation and labor. In addition, long-term growth is driven by exogenous factors, while government policy can have only a transitory effect on growth.

Barro’s (1990) model incorporates fiscal policy as an endogenous variable, introducing productive public spending as a positive variable that affects the marginal product of private capital and produces long-run growth endogenously. Lucas (1990) employed a two-sector endogenous growth model, where only human capital and time were used in the production of new human capital. He found that growth rate was invariant to changes in capital tax rates when labor supply was fixed. Kim (1998) used a one-sector endogenous growth model for the US economy with human capital in the production function. His model had labor supply as an exogenous variable and included several types of taxes and rates. He concluded that the elimination of all taxation raised the growth rate by 0.85 percentage points. Turnovsky (2000) also applied an AK model with productive government expenditure and elastic labor supply to the US economy. He found that an increase in capital income tax rate of 12 percentage points reduced growth by around 0.5 percentage points, while a reduction of capital and income tax rates each by 8 percentage points raised long-run growth by 0.4 percentage points. King and Rebelo (1990), Rebelo (1991), and Devereux and Love (1994) developed endogenous growth models where long-run growth can be achieved through human capital accumulation. This offsets the otherwise decreasing returns of physical capital accumulation. The long-run growth rate is endogenous in these models and can be influenced by fiscal policy. Tax policy changes can affect post-tax rates of return on physical and human capital investment, hence saving and investment decisions, and ultimately the growth rate. Gale and Samwick (2014) emphasize that the structure and form of tax financing are significant factors in achieving economic growth. Lucas (1988) argues that the distortions resulting from fiscal policy have negative effects on growth. This view is not valid when other variables are included in the model to offset the negative effects of fiscal policy. Nevertheless, these models suggest that fiscal policy in general—and tax policies in particular—affect economic growth.

Several researchers, such as Futagami et al. (1993) and Sturm et al. (1998), have investigated and tested the endogenous growth model developed by Barro and have failed to find clear empirical evidence that public spending as a variable affects production possibilities and growth. Nonetheless, Kneller et al. (1999) find evidence that supports Barro (1990). The study is distinguished from other research in that it adjusts for government budget constraints. The results show that both non-distortional taxation and productive government expenditure can enhance growth. Capolupo (2000) examines the long-run impact of government spending and taxation using an endogenous growth model. The study uses a model modified from those of Barro (1990) and Lucas (1988), linking human capital accumulation with government spending on public education. Tax is levied on output using a human capital accumulation equation. The results concur with other studies that taxation, when used for productive purposes, can enhance economic growth. Jones (1995) argues that when using time series data, persistent movement in variables
emphasized by growth models must be offset to achieve long-run growth; otherwise, the growth model is inconsistent with time series evidence.

Rao (2006) shows that most empirical studies are misleading in claiming to adopt endogenous growth models, whereas they are in fact using exogenous growth models. He claims that the estimated long-run equation is actually a production function and not a long-run growth equation. It can be seen from the literature that the relationship between tax structure and economic growth has been neglected and is still not clear enough to show which types of taxation will assist in achieving economic growth. Weaknesses in their methodology also make the findings of many such studies questionable. However, we have found that recent works by Gemmell et al. (2011), Arnold et al. (2011), and Acosta-Ormachea and Yoo (2012) offer more specific answers regarding the relationship between tax structure and economic growth, including how changes in tax structure affect long-run economic growth. On the other hand, some researcher show that there are other factors such as personality and overconfidence of chief executive officers influence the corporate tax planning and tax policy that have negative effects on corporate tax policy (Aliani et al. 2016).

There have been various studies of the relationship between fiscal policy instruments and growth using endogenous growth models, but their empirical findings are both inconsistent and inconclusive. Applying the endogenous growth model approach to one country in this study revealed the presence of weaknesses and non-robust results. Therefore, we took the approach adopted by Arnold et al. (2011) and Acosta-Ormachea and Yoo (2012) to analyze the relation between the tax structure and economic growth for Jordan. The difference between this and other approaches is that we have limited the analysis to one country. We employ a vector error correction model (VECM). Srithongrung and Kriz (2014) explored the effects of taxes and expenditure on state income growth at subnational level using panel vector autoregression to eliminate the effect of endogenous problems associated with fiscal policy and growth. They found that taxes negatively affected short-term growth, while capital and operational expenditures had positive effects in the medium term. Reed (2008) found that the tax burden had negative effects through all estimation techniques used in his study. A report by the International Monetary Fund (2015) suggests that fiscal policy encourages growth through macro and structural tax and spending measures. Arin and Koray (2006) utilize a VAR model to examine the impact of different tax policy innovations on macroeconomic activity in Canada. The study examines the effect of disaggregated tax groups on major macroeconomic variables (i.e. output, price level, interest rate, and tax revenue) rather than applying an aggregate tax measure. The results indicate that the effect of different tax groups on output vary and suggest that decomposing total taxes into subcategories would yield results that are more accurate. Munir and Sultan (2016) examine the effect of taxes on economic growth using time series analysis for the years 1976 to 2014. The study utilizes the autoregressive distributive lag model and an ECM to examine the short- and long-run relationships between different forms of taxes (i.e. direct and indirect taxes) and growth in Pakistan. The findings suggest the existence of a long-run relationship between taxes and real gross domestic product (GDP).

In this study, we employ techniques to overcome most of the problems associated with previous models, such as long-run cointegration between variables and endogeneity of variables based on a nonstructural approach, i.e. the VECM. Studies of economic growth and taxes in Jordan have been restricted in their number and scope, mainly focusing on the effects that changes in tax rates have on the consumption patterns of individuals, or the effects of changing tax rates and tax incentives on the patterns of investment decisions. The significance of the tax structure itself and its immediate influence on such patterns of consumption and investment have been reviewed, but within narrow limits.
3. Tax structure and economic growth

From 1980 to 2015, the experience of Jordan related to the design of its tax structure was mixed. Legislators changed general sales tax and income tax rates many times in order to mobilize revenue, rather than seeking to establish the most appropriate tax structure. It is worth mentioning that after a quarter-century of tax system reforms, more than 15 years of which have been under IMF programs, Jordan’s tax structure still does not support fiscal policy in terms of generating adequate revenues to finance government spending. There are several reasons for this. First, the level of unplanned spending causes spending to exceed revenues; the difference cannot be covered by imposing new taxes or increasing tax rates, because the existing tax burden is very high. Second, high rates of tax evasion prevent revenue growth from matching increased spending. Finally, more than 90 percent of spending is on wages and salaries which cannot be reduced or contained. Indeed, the fiscal situation in Jordan is worsening from year to year. By 2015, the fiscal deficit had widened to about 7 percent of GDP and the debt-to-GDP ratio was close to 85 percent. The main reason for this is that income distribution and economic growth were not taken into account in designing an appropriate tax structure. This shows the importance of the recommendation by Alm (1996) that taxes should be raised in a way that treats individuals fairly, minimizes interference in economic decisions, and does not impose undue costs on tax administrators or taxpayers.

There is evidence that as tax structure has developed in Jordan, income tax revenues have grown over a period of many years, in particular after the introduction of the income tax law for the period 2009-2014. One possible interpretation is that tax reforms have been made in order to improve the tax system’s revenue productivity. A report by the United States Agency for International Development (2010) found that the tax system in Jordan had achieved a relatively strong performance in terms of revenue collection and productivity. Corporate income tax revenue productivity was slightly above the worldwide average of 0.13, while personal income tax productivity was only 0.05, compared to an international average of 0.14. On the other hand, general sales tax productivity was comparable to the international average. These results support our assertion that tax reforms are meant to increase revenue collection, rather than supporting inputs to production that may influence growth. The data in Table I show that the period of tax reform was not associated with improved well-being of Jordanians; on the contrary, there was an increase in poverty and a decline in economic growth, as well as fluctuations in income inequality measured by the Gini coefficient over the years[2]. The data show that inequality increased from 36.1 percent in 1985 to 41.7 percent in 1990 and then decreased from 41.7 percent in 1990 to 37.6 percent in 2015. This raises the question of whether tax reform has benefited or harmed the economy. Data suggest that even when economic growth was strong, inequality, unemployment, and poverty were high too.

In any case, has this reform resulted in increased growth and decreased poverty? Data suggest that even with higher income tax productivity, GDP growth rates have declined.

<table>
<thead>
<tr>
<th>Year</th>
<th>Poverty rate (%)</th>
<th>Unemployment rate (%)</th>
<th>Inequality (%)</th>
<th>Growth rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>3.0</td>
<td>5.4</td>
<td>36.1</td>
<td>−2.7</td>
</tr>
<tr>
<td>1990</td>
<td>1.5</td>
<td>16.8</td>
<td>41.7</td>
<td>−0.3</td>
</tr>
<tr>
<td>1995</td>
<td>14.4</td>
<td>15.4</td>
<td>36.4</td>
<td>6.2</td>
</tr>
<tr>
<td>2000</td>
<td>11.0</td>
<td>13.7</td>
<td>38.8</td>
<td>4.2</td>
</tr>
<tr>
<td>2005</td>
<td>14.7</td>
<td>14.8</td>
<td>37.7</td>
<td>8.1</td>
</tr>
<tr>
<td>2010</td>
<td>14.4</td>
<td>12.9</td>
<td>37.6</td>
<td>2.3</td>
</tr>
<tr>
<td>2015</td>
<td>14.4</td>
<td>13.0</td>
<td>37.6</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Source: World Bank and IMF Database

Table I.
Key social indicators
1985-2015
The shortage of other sources of government finance makes taxation an urgent issue. A little modification in the income of individuals or companies could have a great influence on tax receipts and on the investment decisions of individuals and companies, thus ultimately on economic growth. This is why the government has taken some steps to reform Jordan’s tax system in order to address its multiple weaknesses. The tax system was complicated, difficult to manage and comply with, unresponsive to growth and to changes in economic structure, and caused economic distortions. In addition, the old system involved numerous loopholes and exemptions which reduced its efficiency and were obstacles to equity.

Table II shows that before 1985, the lower income tax rate was 5 percent for both individuals and companies, while the corresponding marginal tax rates were 45 and 55 percent. From 1985 to 2009, the lower tax rate on individuals was unchanged and the marginal tax rate was reduced to 25 percent, whereas for companies, the lower rate was increased to 15 percent and the marginal tax rate was reduced to 35 percent. At the end of 2009, the government raised the lower personal income tax level to 7 percent and reduced the marginal tax rate to 14 percent, simultaneously reducing corporate income tax rates slightly, to 14 and 30 percent. During reforms of the tax law, numerous issues were raised in relation to the predicted effects on the general budget, economic growth, and economic efficiency. In 2012, after two years of implementation, a new draft income tax law was submitted to Parliament with the intention of mobilizing more revenue, rather than promoting growth in order to ensure fiscal stability. It should also be mentioned that in 2014, Parliament approved a draft income tax law, which came into force on January 1, 2015, introducing gradual changes to individual and corporate tax rates. The personal income tax rate was increased progressively from 7 to 10 percent on each Jordanian dinar (JD) for the first JD10,000, 15 percent on the second JD10,000 and 20 percent on any additional earnings. Corporate tax rates were also increased, from 14 to 20 percent on legal persons[3].

Figure 1 shows a breakdown of Jordanian Government revenues from 1980 to 2015, with a trend for indirect taxes to form an increasingly large proportion. In 1980-1983, sales taxes accounted for 6.6 percent of revenues and their relative importance grew to the

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Taxes</th>
<th>Indirect Taxes</th>
<th>Other Non Taxes</th>
<th>Real Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-1983</td>
<td>40%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>1984-1987</td>
<td>50%</td>
<td>33%</td>
<td>17%</td>
<td>10%</td>
</tr>
<tr>
<td>1988-1991</td>
<td>60%</td>
<td>45%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>1992-1995</td>
<td>70%</td>
<td>55%</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>1996-1999</td>
<td>80%</td>
<td>65%</td>
<td>5%</td>
<td>25%</td>
</tr>
<tr>
<td>2000-2003</td>
<td>90%</td>
<td>75%</td>
<td>0%</td>
<td>30%</td>
</tr>
<tr>
<td>2004-2007</td>
<td>100%</td>
<td>80%</td>
<td>0%</td>
<td>35%</td>
</tr>
<tr>
<td>2008-2011</td>
<td>110%</td>
<td>90%</td>
<td>0%</td>
<td>40%</td>
</tr>
<tr>
<td>2012-2015</td>
<td>120%</td>
<td>100%</td>
<td>0%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Source: General Government Statistics Bulletin, Ministry of Finance

Table II. Evolution of income tax rates 1985-2014
extent that this figure reached 48 percent in the period 2012-2015. Conversely, during the same period, the contribution of tariffs (customs duties) and income taxes on individuals fell from 31.1 and 4.9 to 5.6 and 2.9 percent, respectively. The decline in the relative importance of personal income tax is explained by the granting of exemptions and tax breaks. The contribution of corporate income tax to total revenue grew from 7.1 to 10.8 percent in the same period.

Fluctuations in the relative importance of taxes came about because of legislative changes to income tax and to general sales tax[4]. Value-added tax replaced consumption tax in 1994 and this increased the general sales tax rate from 7 to 16 percent.

Table III shows that these developments were reflected in the tax system and that all varieties of tax represented an increasing percentage of GDP, to finance government capital expenditure and boost economic development. Despite these developments, the tax system has retained some basic weaknesses and still favors some sectors over others through the differential tax rates imposed on the various sectors, or via the granting of tax exemptions and incentives. Table III reveals that capital spending as a share of GDP fell from 15 percent in 1980-1983 to 4 percent in 2012-2015, in spite of an increase of approximately 5 percent in direct and indirect taxes as a share of GDP during the same period. However, GDP growth rates manifest an inverse relationship with capital expenditure, in contradiction to economic theory. There are two main reasons for this. The first is the high proportion of current expenditure within total public expenditure; for example, part of capital expenditure consists of a large portion of wages and salaries because it used to employ workers with high wages and salaries. The second is inefficient public investment management, which hindered economic growth[5].

Figure 2 charts an average increase in direct taxes as a share of GDP from 2.6 percent in 1980-1983 to 3.5 percent in 2012-2015. As for indirect taxes, their relative importance grew more strongly on average during the same period, from 11.9 to 15.4 percent. Thus, the relative importance of direct and indirect taxes in relation to GDP grew by about 5 percent, reaching approximately 19.8 percent in 2008-2011, in comparison with 7.2 percent in 1980-1983. This was achieved largely by an average increase in indirect taxes of 11 percent between 1980 and 2015. Pertaining to expenditure, economic theory states that growth in capital expenditure will induce growth in GDP. In this case, Table III shows that economic growth declined from 8.3 percent in 1980-1983 and 2004-2007 to 3.1 percent in 2012-2015, while capital expenditure fell as a proportion of GDP by approximately 11 percentage points, from 14.9 to 4 percent. The reason for this is that capital projects undertaken by the government are predominantly infrastructure projects in education, health, and roads, all of which require a long time to deliver results[6]. It should be added that the rapid growth in

### Table III.
The relative importance of average taxes as a share of GDP

<table>
<thead>
<tr>
<th>Period</th>
<th>Domestic revenues</th>
<th>Direct taxes</th>
<th>Indirect taxes</th>
<th>Capital expenditure</th>
<th>Growth of GDP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-1983</td>
<td>21.4</td>
<td>2.6</td>
<td>11.9</td>
<td>14.9</td>
<td>8.3</td>
</tr>
<tr>
<td>1984-1987</td>
<td>22.9</td>
<td>2.7</td>
<td>11.2</td>
<td>14.3</td>
<td>2.4</td>
</tr>
<tr>
<td>1992-1995</td>
<td>30.6</td>
<td>5.7</td>
<td>15.1</td>
<td>7.8</td>
<td>6.4</td>
</tr>
<tr>
<td>1996-1999</td>
<td>27.5</td>
<td>4.5</td>
<td>14.9</td>
<td>7.9</td>
<td>3.6</td>
</tr>
<tr>
<td>2000-2003</td>
<td>24.9</td>
<td>4.0</td>
<td>15.2</td>
<td>7.0</td>
<td>4.7</td>
</tr>
<tr>
<td>2004-2007</td>
<td>26.7</td>
<td>5.1</td>
<td>19.3</td>
<td>7.8</td>
<td>8.2</td>
</tr>
<tr>
<td>2008-2011</td>
<td>23.4</td>
<td>4.5</td>
<td>15.3</td>
<td>6.2</td>
<td>4.4</td>
</tr>
<tr>
<td>2012-2015</td>
<td>22.4</td>
<td>3.5</td>
<td>15.4</td>
<td>4.0</td>
<td>3.1</td>
</tr>
</tbody>
</table>

**Source:** Calculations based on data from the monthly and annual bulletins of the Ministry of Finance and Central Bank of Jordan
private sector spending, along with activities carried out in the same period, could become a strong source of growth, particularly in the real estate sector.

It can be argued that as direct and indirect taxes increase as a percentage of GDP, individuals and companies feel the tax burden weighing more heavily on them, which makes them more inclined to evade or avoid their tax liabilities. This reduces tax revenues and limits the government’s ability to support and finance capital projects, which in turn increases the budget deficit and the public debt.

Table IV shows that changes in domestic revenues and income tax were volatile between 1980 and 2015 in comparison with GDP growth during the same period. Nominal GDP grew by 16 percent in 1980-1983 and 8 percent in 2012-2015, while domestic revenues increased by 22 and 10 percent in those years and income tax increased by 21 and 9 percent, respectively. Thus, tax revenue in Jordan has grown strongly as a proportion of GDP over the last quarter-century, whereas GDP growth has stayed comparatively stable. This invites the conclusion that in practice, taxation has no direct influence on GDP growth.

4. Methodology and data
In order to determine whether the tax structure plays some role in economic growth, it is quite important to test the predictions of the model with respect to tax structure. A review of empirical growth models indicates that a majority of them fail to take account of fiscal
policy determined by the tax structure as an endogenous variable. Instead, they tend to focus on the effects of amending personal and indirect tax rates on the consumption patterns of individuals, or the effects of changing tax rates and tax incentives on patterns of investment decisions. The significance of the tax structure itself and its direct influence on such patterns of consumption and investment have been addressed within narrow limits.

The use of endogenous growth models, as explained earlier, is found to be inconsistent for Jordan; they suffer from weaknesses and spurious regression. Therefore, we take an approach similar to that of Arnold et al. (2011) and Acosta-Ormachea and Yoo (2012), employing an ECM including control variables and tax types. For instance, Arnold et al. (2001) examine the impact of revenue-neutral changes in tax structure on the long-run level of GDP per capita, using annual panel data for 21 OECD countries over the period 1970-2004 within an error-correction framework. The study employed a pooled mean group (PMG) estimator developed by Pesaran et al. (1999) to study the relation between tax structure and growth. The use of PMG estimations enables a selective treatment of variables and a less restrictive specification of the model. The study finds evidence that revenues raised from taxes on income are linked to lower GDP per capita in the long run. On the other hand, Acosta-Ormachea and Yoo (2012) examined the relation between tax composition and long-run economic growth during from 1970 to 2009. Their study uses a comprehensive set of panel data covering many countries across different income groups. The results suggest that revenue-neutral shifts toward taxes on income from property and on consumption adversely affect long-term economic growth. However, some of these results do not hold for low-income countries. To follow this method of modeling and to estimate the response of growth to change in tax structure, we first investigated the impact of domestic revenues on per capita growth rate. In this study, we used VECM to account for long-run relationships between variables, as shown in the following equation:

\[
\Delta RPCI_t = \alpha_0 + \alpha_1 \Delta RPCI_{t-1} + \alpha_2 \Delta K_{t-1} + \alpha_3 \Delta Aysch_{t-1} + \alpha_4 \Delta T_{t-1} + \alpha_5 \Delta POP_{t-1} + \alpha_6 ECT_{t-1} + u_t
\]

where \( RPCI \) is the real per capita income growth at time \( t \); \( K \) the investment ratio; \( POP \) the population growth; and \( T \) the tax type expressed as share of total revenue, included as a control variable in the equation to ensure revenue neutrality[7]. The error correction specification \( ECT \) indicates the long-run relationship whereby per capita income growth depends on the change in per capita income over the last year, the change in investment ratio, the change in population, and changes in tax structure. \( ECT_{t-1} \) is the lagged error correction term departure from the long-run cointegrating relations between these variables.

The above equation constitutes a vector autoregression model in first difference, which is a VAR type of ECM. Therefore, the ECM can be extended to the following equations:

\[
\Delta K_t = \beta_0 + \beta_1 \Delta RPCI_{t-1} + \beta_2 \Delta K_{t-1} + \beta_3 \Delta Aysch_{t-1} + \beta_4 \Delta T_{t-1} + \beta_5 \Delta POP_{t-1} + \beta_6 ECT_{t-1} + u_2_t
\]

\[
\Delta Aysch_t = \delta_0 + \delta_1 \Delta RPCI_{t-1} + \delta_2 \Delta K_{t-1} + \delta_3 \Delta Aysch_{t-1} + \delta_4 \Delta T_{t-1} + \delta_5 \Delta POP_{t-1} + \delta_6 ECT_{t-1} + u_3_t
\]

\[
\Delta POP_t = \gamma_0 + \gamma_1 \Delta RPCI_{t-1} + \gamma_2 \Delta K_{t-1} + \gamma_3 \Delta Aysch_{t-1} + \gamma_4 \Delta T_{t-1} + \gamma_5 \Delta POP_{t-1} + \gamma_6 ECT_{t-1} + u_4_t
\]
\[ \Delta T_t = \eta_0 + \eta_1 \Delta RPCI_{t-1} + \eta_2 \Delta K_{t-1} + \eta_3 \Delta \text{Aysch}_{t-1} + \eta_4 \Delta T_{t-1} + \eta_5 \Delta \text{POP}_{t-1} + \eta_6 \text{ECT}_{t-1} + u_{4t} \] (5)

According to this approach, the estimation of the relationship between tax structure and economic growth should be done by separating taxes into indirect and direct forms to measure the influence of each on growth. Direct taxes include income tax, corporate taxes and personal taxes, whereas indirect taxes include consumption tax and trade taxes. We then estimated the change in tax structure and its effect on economic growth. Hence, we constructed several models, each derived from Equation (1) and each taking account of different tax specifications and control variables under the assumption of revenue neutrality.

For the purpose of this study, we applied two popular time series econometric techniques, the cointegration test and VECM, to annual Jordanian data for the period 1980-2015, published by the IMF, the Jordanian Ministry of Finance, the Central Bank of Jordan, and the Department of Statistics[8]. In addition, we have represented the tax structure that existed until the end of 2014. All variables were taken as natural logarithms and deflated by the GDP deflator where appropriate. As some data were not readily available for the whole period 1980-2015, we resorted to the common method of data interpolation, assuming linearity[9].

5. Test results

In order to test the effects of tax structure on economic growth, we constructed a model using a long series of annual data, from 1980 to 2015, since tax structures do not change often. The model was corrected for first-order serial correlation, because most economic variables have long memory structures and therefore many lags of serial correlation. We tested for serial correlation using the Breusch-Godfrey serial correlation LM, the VEC residual portmanteau test for autocorrelation and the Jarque-Bera normality test.

The results of the residual normality test, tabulated in Tables AII and AIII, indicate that the hypothesis of no serial correlations was rejected for up to the second lag at the 5 percent significant level. The results of the other residual tests show that the residuals had no serial correlation and were normally distributed and homoscedastic (Tables AII and AIII).

In constructing an ECM to test the relationship between per capita growth and tax structure, we encountered several problems with time series data. The first was whether or not the data sets of taxes and growth were integrated in the first order. The results of augmented Dickey Fuller unit root tests (Table AIV) show that most of the variables included in the model were integrated in the first order at the 1 and 5 percent significance levels, except average years of schooling, which was found to be integrated in the second order[10]. Given that all other variables were integrated in the first order, the second step was to test the cointegration relationship between variables, in particular between taxes and growth. Table V shows the results for longer lag structures using the Akaike information criterion (AIC), the Schwarz information criterion (SC), and the Hannan-Quinn information criterion (HQ), as these variables are often integrated.

<table>
<thead>
<tr>
<th>Lag</th>
<th>Log L</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>257.0634</td>
<td>na</td>
<td>5.34e-12*</td>
<td>-14.60990*</td>
<td>-13.88432*</td>
<td>-14.36577*</td>
</tr>
</tbody>
</table>

Notes: FPE: Final prediction error. *indicates lag order selected by the criterion; LR: sequential modified LR test statistic (each test at 5 percent level)

Table V. VAR lag order selection criteria
To confirm that the variables were cointegrated and to determine the number of cointegrating equations, we ran the Johansen cointegration test prior to the VECM. The test results show that all variables included in the model were cointegrated, with no trend in the series having an intercept in the cointegration relation. The values of trace statistics at \( r = 0, r = 1, r = 2, \text{ and } r = 4 \) exceed the critical value at 5 percent significance; thus, we reject the null hypothesis of no cointegrating equations. In addition, the trace test and the maximum eigenvalue test indicate three cointegrated equations, as shown in Table AV.

After confirming the long-term relationship between the variables in question, the third problem to address when dealing with this type of data set is endogeneity of taxes and growth, because some variables may appear on both the left hand side and right hand side of the equations. Dealing with the endogeneity problem to check whether growth will induce changes in taxes and spending, some studies including that of Reed (2008) have used the standard approach, choosing one-period-lagged independent variables to create overlapped space between fiscal policy and economic growth. In this study, we have followed Kneller et al. (1999) and most recent studies, such as Arnold et al. (2011) and Acosta-Ormachea and Yoo (2012), who suggest that regressions employing aggregate income levels are likely to suffer from the endogeneity problem, while it appears to be less of a concern in regressions using the growth rate of per capita income. Using growth rates and one-period lags for independent variables, we overcame the endogeneity problem in this study and controlled for factors affecting economic growth.

Nevertheless, using a VECM allowed us to combine the long-run and short-run behavior of the variables and deal with non-stationary series that are known to be cointegrated. To test if the model was stable and reliable, we used the AR roots of a characteristic polynomial test. The results in Table AV indicate that the VAR model satisfies the stability condition and we can continue with our analysis. In addition, Figure 3 shows that the model has no root outside the unit circle, indicating that it is a stable VECM. These findings testify for the stability of the estimated VECM explained in Equation (1).

Table VI shows the long-run relationship between per capita income growth, investment, population and labor productivity for three cointegrating vectors during the period 1980-2015 for Jordan, calibrated in the VECM. The results suggest that the cointegration equation has a significant positive relationship with investment and labor productivity,
Table VI. Estimation results of VECM, with real GDP per capita as dependent variable.

<table>
<thead>
<tr>
<th>Tax structure variables</th>
<th>Excluding indirect taxes</th>
<th>Excluding direct taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>-0.396180** (0.17920)</td>
<td>-0.401224** (0.17244)</td>
</tr>
<tr>
<td>Investment</td>
<td>4.716728*** (2.37770)</td>
<td>4.146621*** (2.24903)</td>
</tr>
<tr>
<td>Labor productivity</td>
<td>1.561661*** (0.55546)</td>
<td>2.014334*** (0.52559)</td>
</tr>
<tr>
<td>Control variable: Real</td>
<td>-0.696688* (1.35538)</td>
<td>-1.872188* (1.21603)</td>
</tr>
<tr>
<td>domestic revenue</td>
<td>2.139171*** (0.58399)</td>
<td>-2.572501* (1.41354)</td>
</tr>
<tr>
<td></td>
<td>1.469968*** (0.64834)</td>
<td>-0.566953* (1.46518)</td>
</tr>
<tr>
<td></td>
<td>1.754004*** (0.75141)</td>
<td>2.153687*** (0.58010)</td>
</tr>
<tr>
<td></td>
<td>2.192959** (1.29827)</td>
<td>4.253630*** (1.57351)</td>
</tr>
<tr>
<td></td>
<td>2.192959** (1.29827)</td>
<td>0.416184*** (2.76160)</td>
</tr>
</tbody>
</table>

*Significant at 10 percent level. **Significant at 5 percent level. ***Significant at 1 percent level.

Notes: Standard errors are in brackets.
while taxes and population have a negative relationship with per capita income growth. According to the results of the model in Table VI, a percentage point increase in income tax share compensated by a reduction in the share of consumption and tariffs is associated with a decrease in long-run per capita growth by 0.6 percentage points. Disaggregating income tax into corporate taxes and personal taxes shows that income tax in general, corporate income tax, and personal income tax in particular have negative effects on long-run per capita growth. A percentage point increase in corporate income tax and personal income tax offset by consumption and tariffs will lead to a decrease in long-run per capita income by 0.25 and 3.1 percentage points, respectively. When excluding direct and tariffs from the model estimation, values for indirect taxes including consumption taxes offset by direct taxes and tariffs indicate that a percentage point increase in consumption tax is associated with a 4.2 percentage point increase in long-run per capita growth. On the other hand, we find a positive relationship between trade tax and per capita growth. A percentage point increase in trade tax when excluding other type of taxes from the estimation is associated with a 0.4 percentage point increase in per capita income. In general, the effects of total taxes are associated with a 0.7 percentage point decrease in per capita income growth.

Table VI shows that only population and total taxes have a negative sign and a significant effect on per capita income. It can be seen that the growth rate of real GDP per capita is positively related to investment and productivity. Several factors contribute to this result for Jordan. First, since the beginning of the Syrian crisis in 2011, many Syrian refugees have fled to Jordan and this substantial influx has led to a decrease in economic growth (Abdih et al., 2014). Second, population growth, including among refugees, has been linked to reduced standards of living and increased poverty. The third factor is that the population of Jordan combines youth with high growth rates and immigrants, making job creation a major development challenge. Finally, there are high rates of unemployment and population growth.

Continuing with our analysis, to investigate the effects of tax structure on per capita growth and to determine whether these would have short- or long-term effects, we used the impulse response function. This traces the effect of changes in current and future values of each variable on the current value of one of the VAR structural errors, assuming that this error returns to zero thereafter. The results charted in Figure A1 show that in response to changes in income taxes, per capita income growth was reduced immediately after the third year and that the reduction in per capita income growth continued in the long term. This suggests that direct taxes have a negative effect on per capita growth. Conversely, the test response of per capita income to changes in indirect taxes indicates that indirect taxes affect per capita growth positively. This suggests that indirect taxes have a positive effect on per capita growth in the short and long term. The response of per capita growth to changes in tariffs shows that raising them increases per capita growth in the short and long term, while in the medium term it has a negative effect. The response of per capita income growth to changes in consumption tax reveals a positive effect in the short and medium term, while increased consumption tax then begins to affect per capita income growth negatively after eight years. Interestingly, the effect of corporate taxes on per capita income growth was found to be negative in the short and long term, but positive in the medium term.

When total taxes were included in the model, it was found that they had a statistically significant negative influence on per capita income, which means that relying on increasing taxes without considering tax structure would depress growth of GDP per capita. This is true when compared with other tax structures that manifested positive or negative impacts on GDP per capita income growth. It is interesting to note that if we include each tax in the model separately, the results indicate that direct taxes, comprising income tax, corporate taxes and personal taxes, influence per capita income growth negatively and that all direct taxes are distortionary; they greatly reduce per capita growth, in both the short and long term.
Consumption taxes and trade taxes, conversely, positively influence per capita income. It is worth observing the positive and significant results of the model for GDP per capita. However, despite GDP per capita having increased by 345 percent between 1980 and 2015, the impact of this increase on poverty alleviation and inequality in the country is not apparent.

6. Conclusions, policy implications and future work

In this study, we have tried to shed some light on the relationship between per capita income growth and taxes in Jordan, in order to identify the key determinants governing this relationship and to determine the effects on GDP per capita income growth, if any, of direct taxes, indirect taxes, income taxes, tariffs, and consumption taxes. The results of VECM estimation indicate that deviation from the long-run relationship affects productivity and taxes significantly. In other words, only changes in productivity and taxes will restore the economy to equilibrium.

Our analysis shows that consumption and tariffs have positive effects on per capita GDP growth, whereas income tax, corporate tax and personal tax negatively influenced this growth. This implies that attention must be paid to a preference for income taxes to provide sustained growth. In spite of recent reductions in tax rates and the negative effects on growth and decline in investment projects, along with other drivers of growth, Jordan’s GDP growth rate has remained positive, which suggests that investment and productivity are vital to economic growth. Accordingly, tax revenues must be used to fund productive projects, which have a direct role in stimulating economic growth, whereas non-productive expenditure may have a negative impact on long-term economic growth. The tax system is closely connected with investment decisions in terms of transparency and fairness. The overhauling of the tax structure of the country is not just a matter of raising revenues, but also about a tax system designed to promote inclusive growth, to encourage good governance, to meet society’s priorities for addressing income inequality, and to promote social justice.

The relationship between taxes and economic growth is a controversial aspect of economics, because of its strong impact on the decisions made by individuals and firms, along with its direct influence on the economy as a whole. Since the need for revenues to finance government spending will continue, it becomes possible for governments to shift from raising revenues to achieving social justice and efficiency. Based on the analysis in this study, policymakers should address several issues to achieve long-run economic growth by reforming the tax system. First, a shift from income taxes to consumption and tariffs will be associated with an increase in per capita income growth. Second, the amendments of tax laws and the complexity of taxes and procedures have discouraged investors and citizens from investing in the country. Third, a more simplified tax system and transparent procedures need to be implemented in order for Jordan’s economy to attract investment and compete in international markets. Given the widespread evasion of taxes, the government should work toward minimizing tax evasion by easing tax filing procedures, containing untaxable sectors and individuals, and broadening the tax base. Implementation of these steps by the government must be accompanied by corrective measures from the tax department related to tax filing, tax tracking, tax compliance, time, and procedures. Furthermore, Jordan’s weak tax performance and ineffective tax structure indicate the importance for policymakers of focusing more closely on enhancing future per capita growth, which can be done by shifting from income tax toward consumption and tariffs. On another level, policymakers can reform the tax structure in favor of long-run growth by addressing the importance of consumption taxes and tariffs in their policies, rather than increasing tax rates. However, it should be noted that not all changes in the tax structure will have the same impact on growth. To conclude by pointing to some future research in this study. First, it would be good to distinguish between direct and indirect effects of tax structure on main sectors of the economy. New research should distinguish the response of
changing tax structure by different sectors. Second, the present study drew largely on the direct impact of tax structure on economic growth. For a more comprehensive understanding of how tax structure affects economic growth, this needs to be broadened to include indirect effects of taxes. Therefore, further work is needed to explore in detail the total effects including direct and indirect effects of shifting tax structure from one tax to another. Finally, there is a need to develop a better analysis of the welfare effects of different aspects of tax structure, particularly the significance of the tax structure itself and its immediate influence on such patterns of consumption and investment and the effect of a shift from income taxes to consumption and tariffs.

Notes
1. Crowding out is a phenomenon that occurs when an increased public spending drive down and reduces private sector spending in the economy.
2. The Gini coefficient is a proxy for income inequality. It ranges between 0 and 1, where 0 corresponds to perfect equality and 1 to perfect inequality.
3. In terms of communications, mining, insurance, and financial intermediation companies, the new law imposes a rate of 20 percent on the first JD100,000 and 25 percent on any additional income, while for banks, the rates are 20 percent on the first JD100,000 and 35 percent thereafter.
4. Jordan introduced several tax laws during the period 1980-2015 and made around 17 amendments, of which 9 applied to income tax only.
6. In addition, as explained earlier, capital expenditure consists of a large portion of wages and salaries, as well as, there are inefficiencies in public investment management that hindered achieving economic growth.
7. Revenue neutrality implying that any change in a tax component should be offset by an equivalent change in another component to leave total tax revenue as a share of GDP unchanged.
8. Data for 2015 obtained from Budget 2015 and IMF projection.
9. Interpolation was used to address the fact that some data on the labor force and average years of schooling were missing from the series. This method is used to determine the present or future value of a factor when the exact factor does not appear in either a present or future value table. Interpolation assumes that the change between two values is linear and that the margin of error is insignificant.
10. Average years of schooling have been excluded from the model, due to the facts that using different integrating orders in the VECM will lead to superior results. In addition, there are missing data from the series.

References


Further reading


Appendix 1

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Millions of Jordanian dinars</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic Revenues (excluding grants)</td>
<td>326.9</td>
<td>482.4</td>
<td>684.5</td>
<td>1,264</td>
<td>1,470.0</td>
<td>1,637.6</td>
<td>2,875.7</td>
<td>4,167.2</td>
<td>5,539.5</td>
</tr>
<tr>
<td>Tax revenues</td>
<td>219.8</td>
<td>290.4</td>
<td>436.4</td>
<td>857.3</td>
<td>1,034.4</td>
<td>1,250.9</td>
<td>2,442.6</td>
<td>3,522.5</td>
<td>4,681.9</td>
</tr>
<tr>
<td>Direct taxes</td>
<td>39.1</td>
<td>56.5</td>
<td>125.0</td>
<td>236.4</td>
<td>239.1</td>
<td>261.3</td>
<td>516.6</td>
<td>786.6</td>
<td>876.1</td>
</tr>
<tr>
<td>Income tax</td>
<td>39.1</td>
<td>48.9</td>
<td>75.3</td>
<td>129.3</td>
<td>153.8</td>
<td>187.0</td>
<td>351.9</td>
<td>660.0</td>
<td>754.2</td>
</tr>
<tr>
<td>Personal income tax</td>
<td>16.1</td>
<td>22.9</td>
<td>25.3</td>
<td>50.1</td>
<td>48.2</td>
<td>58.2</td>
<td>86.7</td>
<td>150.2</td>
<td>161.9</td>
</tr>
<tr>
<td>Corporate income tax</td>
<td>23.0</td>
<td>25.5</td>
<td>50.0</td>
<td>79.2</td>
<td>99.3</td>
<td>119.4</td>
<td>265.2</td>
<td>514.8</td>
<td>592.2</td>
</tr>
<tr>
<td>Indirect taxes</td>
<td>180.7</td>
<td>233.9</td>
<td>311.3</td>
<td>620.9</td>
<td>795.2</td>
<td>999.6</td>
<td>1,926.0</td>
<td>2,723.9</td>
<td>3,805.8</td>
</tr>
<tr>
<td>Consumption tax</td>
<td>22.4</td>
<td>48.9</td>
<td>96.0</td>
<td>197.0</td>
<td>337.0</td>
<td>518.6</td>
<td>1,133.5</td>
<td>1,841.9</td>
<td>2,604.8</td>
</tr>
<tr>
<td>Trade tax</td>
<td>100.6</td>
<td>110.5</td>
<td>114.1</td>
<td>232.1</td>
<td>255.4</td>
<td>225.4</td>
<td>290.5</td>
<td>266.0</td>
<td>310.0</td>
</tr>
<tr>
<td>Fees and licenses</td>
<td>57.7</td>
<td>74.6</td>
<td>101.3</td>
<td>189.1</td>
<td>202.8</td>
<td>290.5</td>
<td>266.0</td>
<td>310.0</td>
<td>341.1</td>
</tr>
<tr>
<td>Non-tax revenues</td>
<td>107.1</td>
<td>192.0</td>
<td>248.1</td>
<td>406.7</td>
<td>435.6</td>
<td>386.7</td>
<td>433.1</td>
<td>644.7</td>
<td>857.6</td>
</tr>
<tr>
<td>Nominal GDP</td>
<td>1,512.7</td>
<td>2,101.9</td>
<td>2,632.5</td>
<td>4,141.7</td>
<td>5,359.2</td>
<td>6,596.3</td>
<td>9,955.7</td>
<td>17,936.0</td>
<td>24,697.5</td>
</tr>
</tbody>
</table>

Percent of GDP

| Revenues (excluding grants) | 21.6 | 23.0 | 26.1 | 30.5 | 27.4 | 24.8 | 28.9 | 23.2 | 22.4 |
| Tax revenues | 14.5 | 13.8 | 16.6 | 20.7 | 19.3 | 19.0 | 24.5 | 19.6 | 19.0 |
| Direct taxes | 2.6 | 2.7 | 4.8 | 5.7 | 4.5 | 4.0 | 5.2 | 4.5 | 3.5 |
| Income tax | 2.6 | 2.3 | 2.9 | 3.1 | 2.9 | 2.8 | 3.5 | 3.7 | 3.1 |
| Personal income tax | 1.1 | 1.1 | 1.0 | 1.2 | 0.9 | 0.9 | 0.9 | 0.8 | 0.7 |
| Corporate income tax | 1.5 | 1.2 | 1.9 | 1.9 | 1.9 | 1.8 | 2.7 | 2.9 | 2.4 |
| Indirect Taxes | 11.9 | 11.1 | 11.9 | 15.0 | 14.8 | 15.2 | 19.3 | 15.2 | 15.4 |
| Consumption tax | 1.5 | 2.3 | 3.7 | 4.8 | 6.3 | 7.9 | 9.1 | 10.3 | 10.7 |
| Trade tax | 6.7 | 5.3 | 4.3 | 5.6 | 4.8 | 3.4 | 2.9 | 1.5 | 1.3 |
| Fees and licenses | 3.8 | 3.5 | 3.9 | 4.6 | 3.8 | 3.9 | 5.0 | 3.4 | 3.4 |
| Non-tax revenues | 7.1 | 9.1 | 9.5 | 9.8 | 8.1 | 5.9 | 4.4 | 3.6 | 3.5 |
| Nominal GDP | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Percent of total tax revenues

| Revenues (excluding grants) | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Tax revenues | 67.2 | 60.2 | 63.8 | 67.8 | 70.4 | 76.4 | 84.9 | 84.5 | 84.5 |
| Direct taxes | 12.0 | 11.7 | 18.3 | 18.7 | 16.3 | 16.0 | 18.0 | 19.2 | 15.8 |
| Income tax | 12.0 | 10.1 | 11.0 | 10.2 | 10.5 | 11.4 | 12.2 | 16.0 | 13.6 |
| Personal income tax | 4.9 | 4.7 | 3.7 | 4.0 | 3.3 | 3.6 | 3.0 | 3.6 | 2.9 |
| Corporate income tax | 7.0 | 5.3 | 7.3 | 6.3 | 6.8 | 7.3 | 9.2 | 12.4 | 10.7 |
| Indirect taxes | 55.3 | 48.5 | 45.5 | 49.1 | 54.1 | 61.0 | 67.0 | 66.4 | 68.7 |
| Consumption tax | 6.8 | 10.1 | 14.0 | 15.8 | 22.9 | 31.7 | 39.4 | 44.2 | 47.9 |
| Trade tax | 30.8 | 22.9 | 16.7 | 18.4 | 17.4 | 13.8 | 10.1 | 6.4 | 5.6 |
| Fees and licenses | 17.6 | 15.5 | 14.8 | 15.0 | 13.8 | 15.6 | 17.5 | 14.8 | 15.2 |
| Non-tax revenues | 32.8 | 39.8 | 36.2 | 32.2 | 29.6 | 23.6 | 15.1 | 15.5 | 15.5 |

Note: Data for 2015 were obtained from the 2015 budget

Source: Calculations based on data from monthly and annual bulletins of the Ministry of Finance and Central Bank of Jordan

Table AI. Revenue trends, 1980-2015
Appendix 2

VEC residual portmanteau tests for autocorrelations
Null hypothesis: no residual autocorrelations up to lag h
Date: September 3, 2017 Time: 13:44
Sample: 1980 2015
Included observations: 32

<table>
<thead>
<tr>
<th>Lags</th>
<th>Q-Stat</th>
<th>Prob.</th>
<th>Adj Q-Stat</th>
<th>Prob.</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>61.72131</td>
<td>na*</td>
<td>63.71232</td>
<td>na*</td>
<td>na*</td>
</tr>
<tr>
<td>2</td>
<td>97.29550</td>
<td>na*</td>
<td>101.6381</td>
<td>na*</td>
<td>na*</td>
</tr>
<tr>
<td>3</td>
<td>146.8297</td>
<td>0.0000</td>
<td>156.3165</td>
<td>0.0000</td>
<td>47</td>
</tr>
<tr>
<td>4</td>
<td>188.0545</td>
<td>0.0000</td>
<td>203.4307</td>
<td>0.0000</td>
<td>83</td>
</tr>
<tr>
<td>5</td>
<td>221.7036</td>
<td>0.0000</td>
<td>243.3111</td>
<td>0.0000</td>
<td>119</td>
</tr>
<tr>
<td>6</td>
<td>260.4323</td>
<td>0.0000</td>
<td>290.9771</td>
<td>0.0000</td>
<td>155</td>
</tr>
<tr>
<td>7</td>
<td>304.3238</td>
<td>0.0000</td>
<td>347.1607</td>
<td>0.0000</td>
<td>191</td>
</tr>
<tr>
<td>8</td>
<td>332.2541</td>
<td>0.0000</td>
<td>384.3885</td>
<td>0.0000</td>
<td>227</td>
</tr>
<tr>
<td>9</td>
<td>361.8935</td>
<td>0.0000</td>
<td>425.6359</td>
<td>0.0000</td>
<td>263</td>
</tr>
<tr>
<td>10</td>
<td>395.2069</td>
<td>0.0002</td>
<td>474.6919</td>
<td>0.0000</td>
<td>299</td>
</tr>
<tr>
<td>11</td>
<td>425.9877</td>
<td>0.0006</td>
<td>515.6387</td>
<td>0.0000</td>
<td>335</td>
</tr>
<tr>
<td>12</td>
<td>456.3036</td>
<td>0.0016</td>
<td>569.5692</td>
<td>0.0000</td>
<td>371</td>
</tr>
</tbody>
</table>

Notes: The test is valid only for lags larger than the VAR lag order; df is degrees of freedom for (approximate) $\chi^2$ distribution

Table AII.
Residual portmanteau tests

<table>
<thead>
<tr>
<th>Tests</th>
<th>Values</th>
<th>p-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual serial correlation LM</td>
<td>34.57695</td>
<td>0.0961</td>
</tr>
<tr>
<td>Residual heteroskedasticity</td>
<td>400.4271</td>
<td>0.3468</td>
</tr>
<tr>
<td>Jarque-Bera normality</td>
<td>14.33597</td>
<td>0.1582</td>
</tr>
</tbody>
</table>
### Appendix 3

<table>
<thead>
<tr>
<th>Variable name</th>
<th>ADF test Level</th>
<th>1%</th>
<th>5%</th>
<th>ADF test 1%</th>
<th>5%</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per capita income (PCI)</td>
<td>−0.629</td>
<td>−3.639</td>
<td>−2.951</td>
<td>−4.082</td>
<td>−3.639***</td>
<td>−2.951</td>
</tr>
<tr>
<td>Average years of schooling (AYSCH)</td>
<td>−2.217</td>
<td>−3.639</td>
<td>−2.951</td>
<td>−4.614</td>
<td>−3.646</td>
<td>−2.954</td>
</tr>
<tr>
<td>Private labor force (Privlab)</td>
<td>−2.540</td>
<td>−3.639</td>
<td>−2.951</td>
<td>−5.004</td>
<td>−3.646</td>
<td>−2.954</td>
</tr>
<tr>
<td>Domestic revenues (DR)</td>
<td>−2.563</td>
<td>−3.639</td>
<td>−2.951</td>
<td>−5.004</td>
<td>−3.639***</td>
<td>−2.951</td>
</tr>
<tr>
<td>Direct taxes (DT)</td>
<td>−2.358</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−4.614</td>
<td>−3.646</td>
<td>−2.954</td>
</tr>
<tr>
<td>Indirect taxes (IDT)</td>
<td>−0.759</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−5.313</td>
<td>−3.646***</td>
<td>−2.954</td>
</tr>
<tr>
<td>Tariffs(CD)</td>
<td>−2.040</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−4.516</td>
<td>−3.653***</td>
<td>−2.957</td>
</tr>
<tr>
<td>Capital expenditures (Cexp)</td>
<td>−1.919</td>
<td>−3.653</td>
<td>−2.948</td>
<td>−6.543</td>
<td>−3.689***</td>
<td>−2.971</td>
</tr>
<tr>
<td>Consumption tax</td>
<td>−0.159</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−6.447</td>
<td>−3.639***</td>
<td>−2.951</td>
</tr>
<tr>
<td>Income tax</td>
<td>−2.358</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−6.643</td>
<td>−3.639***</td>
<td>−2.951</td>
</tr>
<tr>
<td>Personal income tax</td>
<td>−2.351</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−6.643</td>
<td>−3.639***</td>
<td>−2.951</td>
</tr>
<tr>
<td>Investment</td>
<td>−2.227</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−5.713</td>
<td>−3.639***</td>
<td>−2.951</td>
</tr>
<tr>
<td>Property tax</td>
<td>−1.421</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−4.806</td>
<td>−3.639***</td>
<td>−2.951</td>
</tr>
<tr>
<td>Population</td>
<td>0.595</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−2.660</td>
<td>−3.639***</td>
<td>−2.951</td>
</tr>
<tr>
<td>Corporate tax</td>
<td>−2.005</td>
<td>−3.632</td>
<td>−2.948</td>
<td>−6.795</td>
<td>−3.639***</td>
<td>−2.951</td>
</tr>
</tbody>
</table>

**Notes:** MacKinnon (1996) one-sided p-values. The null hypothesis is the data series has a unit root (non-stationary). **,** ***Denote rejection of null hypothesis at 10, 5 and 1 percent levels, respectively.

### Table AIV.

Augmented Dickey-Fuller test statistic

### Appendix 4

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Trace statistic</th>
<th>0.05 critical value</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace test indicates 3 cointegrating eqn(s) at the 0.05 level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None*</td>
<td>0.920196</td>
<td>159.4922</td>
<td>69.81889</td>
<td>0.000</td>
</tr>
<tr>
<td>At most 1*</td>
<td>0.729057</td>
<td>78.59059</td>
<td>47.85613</td>
<td>0.000</td>
</tr>
<tr>
<td>At most 2*</td>
<td>0.511696</td>
<td>36.80351</td>
<td>29.79707</td>
<td>0.066</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.243207</td>
<td>13.86539</td>
<td>15.49471</td>
<td>0.087</td>
</tr>
<tr>
<td>At most 4*</td>
<td>0.143266</td>
<td>4.948999</td>
<td>3.841466</td>
<td>0.026</td>
</tr>
</tbody>
</table>

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

| None*                    | 0.920196   | 80.90163        | 33.87687            | 0.000  |
| At most 1*               | 0.729057   | 41.78708        | 27.58434            | 0.004  |
| At most 2*               | 0.511696   | 22.93812        | 21.13162            | 0.027  |
| At most 3                | 0.243207   | 8.917292        | 14.28460            | 0.283  |
| At most 4*               | 0.143266   | 4.948999        | 3.841466            | 0.026  |

**Notes:** MacKinnon *et al.* (1999) p-values. **Denotes rejection of the hypothesis at the 0.05 level.

### Table AV.

Johansen cointegration test

Tax structure and economic growth
### Appendix 5

<table>
<thead>
<tr>
<th>Root</th>
<th>Modulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000000</td>
<td>1.000000</td>
</tr>
<tr>
<td>1.000000</td>
<td>1.000000</td>
</tr>
<tr>
<td>−0.560075 − 0.621448i</td>
<td>0.836589</td>
</tr>
<tr>
<td>−0.560075 + 0.621448i</td>
<td>0.836589</td>
</tr>
<tr>
<td>0.370260 − 0.747296i</td>
<td>0.833966</td>
</tr>
<tr>
<td>0.370260 + 0.747296i</td>
<td>0.833966</td>
</tr>
<tr>
<td>0.612700 − 0.526735i</td>
<td>0.807992</td>
</tr>
<tr>
<td>0.612700 + 0.526735i</td>
<td>0.807992</td>
</tr>
<tr>
<td>0.777903 − 0.194573i</td>
<td>0.801867</td>
</tr>
<tr>
<td>0.777903 + 0.194573i</td>
<td>0.801867</td>
</tr>
<tr>
<td>−0.060929 − 0.773062i</td>
<td>0.775460</td>
</tr>
<tr>
<td>−0.060929 + 0.773062i</td>
<td>0.775460</td>
</tr>
<tr>
<td>−0.737056 − 0.155693i</td>
<td>0.753320</td>
</tr>
<tr>
<td>−0.737056 + 0.155693i</td>
<td>0.753320</td>
</tr>
<tr>
<td>−0.068801</td>
<td>0.068801</td>
</tr>
</tbody>
</table>

Table AVI. Roots of characteristic polynomial  

*Note:* VEC specification imposes 2 unit root(s)
Appendix 6

Figure A1. Pen
EMJB 13,1

Appendix 7

Vector error correction estimates
Date: March 23, 2017 Time: 14:36
Sample (adjusted): 1,984 2015
Included observations: 32 after adjustments

Standard errors in () and *statistics in [ ]

<table>
<thead>
<tr>
<th>Cointegrating Eq:</th>
<th>CointEq1</th>
<th>CointEq2</th>
<th>CointEq3</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLOG(RPCI(−1))</td>
<td>1.000000</td>
<td>0.990000</td>
<td>0.990000</td>
</tr>
<tr>
<td>DLOG(RKRATIO(−1))</td>
<td>0.000000</td>
<td>1.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>DLOG(POP(−1))</td>
<td>0.000000</td>
<td>0.000000</td>
<td>1.000000</td>
</tr>
<tr>
<td>LOG(LPROD(−1))</td>
<td>−0.028878</td>
<td>0.640614</td>
<td>0.073615</td>
</tr>
<tr>
<td>(0.01075)</td>
<td>(0.20741)</td>
<td>(0.01891)</td>
<td></td>
</tr>
<tr>
<td>[−2.68557]</td>
<td>[3.08857]</td>
<td>[3.89262]</td>
<td></td>
</tr>
<tr>
<td>LOG(RDRRATIO(−1))</td>
<td>−0.047489</td>
<td>0.100838</td>
<td>−0.008307</td>
</tr>
<tr>
<td>(0.02114)</td>
<td>(0.40783)</td>
<td>(0.03718)</td>
<td></td>
</tr>
<tr>
<td>[−2.24607]</td>
<td>[0.39449]</td>
<td>[−0.22339]</td>
<td></td>
</tr>
<tr>
<td>DLOG(RVATRATIO(−1))</td>
<td>0.018481</td>
<td>−2.481462</td>
<td>−0.226171</td>
</tr>
<tr>
<td>(0.03335)</td>
<td>(0.64323)</td>
<td>(0.05865)</td>
<td></td>
</tr>
<tr>
<td>[0.55421]</td>
<td>[−3.85779]</td>
<td>[−3.85638]</td>
<td></td>
</tr>
<tr>
<td>DLOG(RKRATIO(−1))</td>
<td>0.434529</td>
<td>−6.717084</td>
<td>−0.719661</td>
</tr>
</tbody>
</table>

Error correction:

<table>
<thead>
<tr>
<th></th>
<th>DLOG(RPCI)</th>
<th>DLOG(POP)</th>
<th>DLOG(LPROD)</th>
<th>DLOG(RKRATIO)</th>
<th>DLOG(RVATRATIO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CointEq1</td>
<td>−5.48965</td>
<td>0.345854</td>
<td>2.155687</td>
<td>−1.428888</td>
<td>4.252636</td>
</tr>
<tr>
<td>(0.5705)</td>
<td>(0.18149)</td>
<td>(0.58010)</td>
<td>(1.53633)</td>
<td>(1.57351)</td>
<td></td>
</tr>
<tr>
<td>[−5.00164]</td>
<td>[−3.86031]</td>
<td>[−3.85937]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CointEq2</td>
<td>−0.034407</td>
<td>0.123765</td>
<td>0.361120</td>
<td>−0.165593</td>
<td></td>
</tr>
<tr>
<td>(0.06725)</td>
<td>(0.08536)</td>
<td>(0.22901)</td>
<td>(0.23153)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[−0.51164]</td>
<td>[−2.96117]</td>
<td>[4.63517]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CointEq3</td>
<td>−0.032278</td>
<td>12.34029</td>
<td>6.038561</td>
<td>0.005425</td>
<td>1.42124</td>
</tr>
<tr>
<td>(0.78699)</td>
<td>(3.68089)</td>
<td>(0.99726)</td>
<td>(2.67552)</td>
<td>(2.70655)</td>
<td></td>
</tr>
<tr>
<td>DLOG(RPCI(−1))</td>
<td>1.864405</td>
<td>−2.342071</td>
<td>0.290656</td>
<td>−1.168385</td>
<td>1.452059</td>
</tr>
<tr>
<td>(0.48922)</td>
<td>(2.93194)</td>
<td>(0.19424)</td>
<td>(0.62995)</td>
<td>(1.66994)</td>
<td></td>
</tr>
<tr>
<td>[3.40219]</td>
<td>[−1.02213]</td>
<td>[1.06343]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DLOG(RPCI(−2))</td>
<td>0.360301</td>
<td>−1.600228</td>
<td>−0.005425</td>
<td>−0.130576</td>
<td>0.060629</td>
</tr>
<tr>
<td>(0.17069)</td>
<td>(0.06777)</td>
<td>(0.21665)</td>
<td>(0.58125)</td>
<td>(0.58766)</td>
<td></td>
</tr>
<tr>
<td>[2.12676]</td>
<td>[−2.00114]</td>
<td>[−0.08005]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DLOG(RKRATIO(−1))</td>
<td>0.039445</td>
<td>−0.080397</td>
<td>−0.071635</td>
<td>0.002519</td>
<td>−0.272560</td>
</tr>
<tr>
<td>(0.09497)</td>
<td>(0.01964)</td>
<td>(0.00827)</td>
<td>(0.16847)</td>
<td>(0.17033)</td>
<td></td>
</tr>
<tr>
<td>[0.79733]</td>
<td>[−0.34688]</td>
<td>[−3.64693]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DLOG(RKRATIO(−2))</td>
<td>0.021913</td>
<td>0.064774</td>
<td>−0.031333</td>
<td>−0.000614</td>
<td>0.104851</td>
</tr>
<tr>
<td>(0.03753)</td>
<td>(0.01490)</td>
<td>(0.00764)</td>
<td>(0.01278)</td>
<td>(0.01292)</td>
<td></td>
</tr>
<tr>
<td>[0.58589]</td>
<td>[0.36840]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DLOG(POP(−1))</td>
<td>0.867693</td>
<td>−8.757093</td>
<td>0.050766</td>
<td>−0.173381</td>
<td>0.626039</td>
</tr>
<tr>
<td>(0.65192)</td>
<td>(3.05421)</td>
<td>(0.25884)</td>
<td>(0.82747)</td>
<td>(2.22001)</td>
<td></td>
</tr>
<tr>
<td>[1.33097]</td>
<td>[−2.86722]</td>
<td>[0.19612]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DLOG(POP(−2))</td>
<td>1.106186</td>
<td>−2.200430</td>
<td>−0.166540</td>
<td>−0.107148</td>
<td>1.238967</td>
</tr>
<tr>
<td>(0.36377)</td>
<td>(1.70425)</td>
<td>(0.14444)</td>
<td>(0.46173)</td>
<td>(1.23877)</td>
<td></td>
</tr>
<tr>
<td>[3.04986]</td>
<td>[1.29114]</td>
<td>[−1.15304]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DLOG(LPROD(−1))</td>
<td>−0.005728</td>
<td>2.204110</td>
<td>0.183293</td>
<td>0.986837</td>
<td>0.530364</td>
</tr>
</tbody>
</table>

Table AVII. Vector error correction estimates (continued)
Tax structure and economic growth

<table>
<thead>
<tr>
<th>D(LOG(LPROD(-2)))</th>
<th>(0.31520)</th>
<th>(1.47670)</th>
<th>(0.12515)</th>
<th>(0.40008)</th>
<th>(1.07337)</th>
<th>(1.08522)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.841745</td>
<td>-0.096900</td>
<td>-0.063993</td>
<td>1.342281</td>
<td>-1.00179</td>
<td>0.271260</td>
</tr>
<tr>
<td></td>
<td>(0.41261)</td>
<td>(1.93265)</td>
<td>(0.16778)</td>
<td>(0.52335)</td>
<td>(1.40742)</td>
<td>(1.42022)</td>
</tr>
<tr>
<td></td>
<td>-4.46777</td>
<td>-0.05014</td>
<td>-0.39072</td>
<td>2.56364</td>
<td>-0.07132</td>
<td>0.19100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D(LOG(RDRAATIO(-1)))</th>
<th>0.07456</th>
<th>0.91833</th>
<th>-0.043583</th>
<th>-0.042832</th>
<th>0.129024</th>
<th>0.365836</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.07824)</td>
<td>(0.36655)</td>
<td>(0.03106)</td>
<td>(0.06911)</td>
<td>(0.26463)</td>
<td>(0.26937)</td>
</tr>
<tr>
<td></td>
<td>0.95164</td>
<td>2.50537</td>
<td>-1.40304</td>
<td>0.48427</td>
<td>1.35811</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D(LOG(RDRAATIO(-2)))</th>
<th>-0.050342</th>
<th>-1.03543</th>
<th>-0.035107</th>
<th>0.038887</th>
<th>-0.139249</th>
<th>-0.234387</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.06663)</td>
<td>(0.31215)</td>
<td>(0.02645)</td>
<td>(0.08457)</td>
<td>(0.22889)</td>
<td>(0.22839)</td>
</tr>
<tr>
<td></td>
<td>-0.75557</td>
<td>-3.31749</td>
<td>-1.32708</td>
<td>0.49822</td>
<td>-0.61373</td>
<td>-1.02176</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D(LOG(RVATRATIO(-1)))</th>
<th>0.016319</th>
<th>0.302013</th>
<th>-0.000921</th>
<th>-0.008238</th>
<th>0.073981</th>
<th>-0.188408</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.04753)</td>
<td>(0.22267)</td>
<td>(0.01887)</td>
<td>(0.06033)</td>
<td>(0.16185)</td>
<td>(0.16364)</td>
</tr>
<tr>
<td></td>
<td>0.34335</td>
<td>1.35635</td>
<td>-0.48833</td>
<td>-1.46267</td>
<td>0.45154</td>
<td>-1.15138</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D(LOG(RVATRATIO(-2)))</th>
<th>0.086882</th>
<th>-0.299779</th>
<th>-0.018769</th>
<th>-0.089701</th>
<th>-0.014934</th>
<th>-0.411396</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.03728)</td>
<td>(0.17465)</td>
<td>(0.01489)</td>
<td>(0.04173)</td>
<td>(0.12869)</td>
<td>(0.12835)</td>
</tr>
<tr>
<td></td>
<td>0.232999</td>
<td>-1.71642</td>
<td>-1.26801</td>
<td>-2.06476</td>
<td>-0.11764</td>
<td>-2.36221</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C</th>
<th>0.032814</th>
<th>-0.043811</th>
<th>-0.002253</th>
<th>-0.024394</th>
<th>-0.00558</th>
<th>-0.056162</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.00545)</td>
<td>(0.02553)</td>
<td>(0.00216)</td>
<td>(0.00692)</td>
<td>(0.01866)</td>
<td>(0.01876)</td>
</tr>
<tr>
<td></td>
<td>0.34335</td>
<td>1.35635</td>
<td>-0.48833</td>
<td>-1.46267</td>
<td>0.45154</td>
<td>-1.15138</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>( R^2 )</th>
<th>0.990215</th>
<th>0.827223</th>
<th>0.857744</th>
<th>0.868519</th>
<th>0.54517</th>
<th>0.881921</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{Adj.} R^2 )</td>
<td>0.845242</td>
<td>0.665245</td>
<td>0.720504</td>
<td>0.778775</td>
<td>0.127190</td>
<td>0.771222</td>
</tr>
<tr>
<td>Sum sq. resid</td>
<td>0.005797</td>
<td>0.127238</td>
<td>0.000914</td>
<td>0.009340</td>
<td>0.067225</td>
<td>0.068717</td>
</tr>
<tr>
<td>SE equation</td>
<td>0.019037</td>
<td>0.089176</td>
<td>0.007558</td>
<td>0.024160</td>
<td>0.064819</td>
<td>0.065535</td>
</tr>
<tr>
<td>( F )-statistic</td>
<td>12.38754</td>
<td>5.107007</td>
<td>6.327591</td>
<td>8.275265</td>
<td>1.301164</td>
<td>7.968486</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>92.45203</td>
<td>43.03286</td>
<td>122.0104</td>
<td>84.82173</td>
<td>53.24117</td>
<td>52.88888</td>
</tr>
<tr>
<td>Akaike AIC</td>
<td>-4.77823</td>
<td>-1.689554</td>
<td>-6.825649</td>
<td>-4.301358</td>
<td>-2.327573</td>
<td>-2.306618</td>
</tr>
<tr>
<td>Schwarz SC</td>
<td>-0.405384</td>
<td>-0.956686</td>
<td>-5.892781</td>
<td>-3.568980</td>
<td>-1.594705</td>
<td>-1.572750</td>
</tr>
<tr>
<td>Mean dependent</td>
<td>0.002245</td>
<td>-0.001285</td>
<td>-0.000494</td>
<td>0.012964</td>
<td>0.000821</td>
<td>-0.007837</td>
</tr>
<tr>
<td>SD dependent</td>
<td>0.048396</td>
<td>0.154129</td>
<td>0.014296</td>
<td>0.051367</td>
<td>0.069582</td>
<td>0.137014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Determinant resid covariance (dof adj.)</th>
<th>4.58E-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determinant resid covariance</td>
<td>7.15E-22</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>506.6017</td>
</tr>
<tr>
<td>Akaike information criterion</td>
<td>-24.33761</td>
</tr>
<tr>
<td>Schwarz criterion</td>
<td>-19.31592</td>
</tr>
</tbody>
</table>

Table AVII.

Corresponding author
Metri Fayez Mdanat can be contacted at: metri.mdanat@gju.edu.jo

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Emerald is excited to announce a recent partnership with Peerwith, a platform that provides authors with a variety of services.

The Emerald Peerwith site can be found here: https://authorervices.emeraldpublishing.com/

Peerwith connects academics seeking support for their work with a relevant expert to get their research submission-ready. Peerwith experts can help with the following: language editing, copy editing, scientific editing, translation services, statistical support, funding application support, visuals, video, publication support, literature search, peer review and indexing services. Authors post their assignments on the Peerwith site, experts provide a quote, and the fee and conditions are then agreed upon directly between the author and the expert.

While we are not, of course, guaranteeing publication upon use of Peerwith, we hope that being able to direct academics to this resource either before submission or during the peer review process will help authors further improve the quality of their papers and increase their chances of positive reviews and acceptance.

Academics with relevant expertise can sign up as an expert on the Peerwith system here: https://www.peerwith.com/services/offer
EuroMed Journal of Business

Volume 13 Number 1 2018

The official journal of

Number 1
1 Editorial advisory board
2 Demystification of the glass ceiling phenomenon: gender stereotyping and successful managers’ personality traits in Greece Konstantinos Vatsalakis, Georgia Sakka and Christos Lemonakis
20 Performance of SMEs in Tangier: the interface of networking and wasta Yassine Sefiani, Barry J. Davies, Robin Bown and Neilson Kite
44 Modularity approach to improve the competitiveness of tourism businesses: empirical evidence from case studies Pasquale del Vecchio, Giustina Secundo and Giuseppina Passiante
60 Audit report timeliness: does internal audit function coordination with external auditors matter? Empirical evidence from Tunisia Ahmed Atef Oussii and Neila Bouilla Taktak
75 Production technologies and low-technology knowledge-intensive venturing Glykeria Karagouni
86 Do glamour, self-sexualisation and scopophilia influence celebrity endorsement? Catarina Peixoto Carvalho and Antonio Azevedo

www.emeraldinsight.com/loi/emjb