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African Journal of Business Management

ARTICLES

Research

Full Length Research Paper

Audit research: A systematic literature review of published research on ISI Web of Science between 2002 and 2013

Marcelo de Santana Porte[1,3*], Irina Saur-Amaral[2,3] and Joaquim Carlos da Costa Pinho[3]

[1]University of Minho, Portugal.
[2]Portuguese Institute of Marketing Administration (IPAM), Portugal.
[3]University of Aveiro, Portugal.

We examined the international scientific productivity on auditing between 2002, when the Sarbanes-Oxley Act (SOX) was published, and the end of 2013, based on a bibliometrics/scientometrics analysis of scientific articles included in the Web of Science from the Institute for Scientific Information (ISI). A database was created including 2,394 publications. As a contribution it was possible to systematically identify the main features of the auditing publications in the extended literature through bibliometrics and scientometrics analysis for the creation of its state of art in auditing. It is important that other researchers study the reason for the growth in auditing publications and identify relevant concepts, theories, methodologies, and emerging issues that have arisen in the field of auditing considering that there is a transactional empirical gap for future studies in the literature.

Key words: Bibliometrics, scientometrics, scientific production, Social Science Citation Index (SSCI), literature review.

INTRODUCTION

Although researchers from several fields of knowledge have used bibliometric/scientometric techniques to know what is being produced in terms of scientific publications, the number of studies on accounting, and specifically auditing, is quite low. The study conducted by Moya and Prior (2008) can be cited as an example. In the study, they highlighted the scientific production on accounting from an entire decade published in Spanish journals.

Another example is the research done by Neto et al. (2009), in which the authors analyzed the temporal evolution of work published at the Annual Meeting of the National Association of Post-Graduation in Management Programs (ENANPADs), in Brazil. In both cases research was done between 1996 and 2005.

There is, therefore, an increase in the frequency of use of bibliometrics/scientometrics in scientific studies as a

*Corresponding author. E-mail: marcelo_porte@hotmail.com; Tel: +55 6182662897.

methodological way of identifying the scientific production of peers. Bibliometric studies can be found in different fields, such as venture capital (Cornelius and Persson, 2006), economics (Lee et al., 2010), supply chain management (Charvet et al., 2008), corporate governance (Durisin and Puzone, 2009), marketing (Stremersch and Verhoef, 2005; Stremersch et al., 2007), family companies (Casillas and Acedo, 2007), among others.

Studies on international entrepreneurship (Kraus, 2011) and on family businesses (Chrisman et al., 2010; Kraus et al., 2011) were conducted some years ago. The objective of the studies was to describe the state of the art through the analysis of citation in order to characterize the main topics, gaps, research basis and tendencies in the field, thus demonstrating the need to know what is being published from a holistic view to interpret results.

Such research is important in terms of scientific investigation, as it refers to a bibliometric and scientometric perspective on worldwide scientific production on auditing. In our longitudinal study, we aimed at presenting a global view of the state of the art of publications in auditing through a bibliometric and scientometric study of Web of Science. We examined some specific objectives in the literature of the field as a basis, such as: Category from Web of Science; Distribution of the published source and number of citations; Sources of publications with Impact Factor (IF), Eigenfactor (EF), and Article Influence (AI); Chronological evolution of the publication number; Profile of the partnerships between authors, language of works, research funding; Countries of publication; Distribution of published Institutions; Description of the most cited documents; Productivity of authors and co-authors; Keywords most used; H-Index profile of publications.

The sample period starts in 2002 due to the global impact that auditing experienced after the scandal involving Eron's financial reports, audited by Arthur Andersen, which culminated in the creation of SOX. The objective of this act is to ensure the formulation of auditing mechanisms and reliable security in businesses, including the guidelines for the formation of committees in charge of supervising its activities and operations in order to reduce the risks of the business, prevent fraud or ensure there is a way to identify it if it takes place, guaranteeing transparency in corporate management.

This research was as a scientific precept of the study conducted by Verbeek et al. (2002), which addresses the key indicators that should be used to support a bibliometric study: number of publications, data sources, citations, impact factor, time evolution of the number of publications, publishing countries, productivity of the authors and co-authors.

In agreement with Verbeek et al. (2002), this study might be able to assist junior and senior researchers in future research. Also, there is a lack of research directed to bibliometrics and scientometrics in accounting, particu-

larly concerning publications present in international databases and covering the auditing subject.

REVIEW OF THE LITERATURE

It is not a novelty that scholars from several sciences are concerned about what is published in their fields. With the development in technology and countless sources of publications in several fields, there is an increase in the need for researchers to use technological resources alongside the methodology research for a systematic review of the literature and even as a way to a better development of reliable indicators for the analysis of scientific activity, once the databases are being used as the sampling universe in several scientific researches, such as Web of Science from the Institute for Scientific Information (ISI) (Chang and Ho, 2010; Duan, 2011; Kostoff et al., 2007; Kostoff et al., 2006; Machacek and Kolcunova, 2008; Nerur et al., 2008).

In their study, Verbeek et al. (2002) demonstrate how science can be mapped using technological measurement instruments. It is worth noticing that the same authors also report that the quantitative indicators should be supplemented with qualitative analyses from the experts in each field.

It is common to link a quantitative study to a research involving bibliometrics/scientometrics; however there are qualitative studies, such as Leal et al. (2013), and Bogdan et al. (2009) that are also used in the literature primarily to (i) explore how the field has evolved over time, (ii) identify groups of research themes that have emerged over time and the relationships between them, and also (iii) identify the cooperation evaluation between authors and countries.

There are several forms of applicability of bibliometric/scientometric studies, such as:

(i) disclosure of the publications of a country (Butler, 2003; Daraio and Moed, 2011; Fetscherin et al., 2010; Jacobsson and Rickne, 2004; Jimenez-Contreras et al., 2003; Kostoff et al., 2007, 2005, 2007, 2006; Sarafoglou, 2006; Schoeneck et al., 2011);
(ii) creation of research networks between university-industry-government/university-industry/public-private partnership (PPP) (Abramo et al., 2009, 2011; Hayashi, 2003; Marsilio et al., 2011; Park and Leydesdorff, 2010);
(iii) a field/subfield of Science (Alfalla-Luque and Medina-Lopez, 2009; Chabowski et al., 2011; Cornelius et al., 2006; Etemad, 2004; Kim and McMillan, 2008; Ma and Stern, 2006; Rubin and Chang, 2003; Serenko and Bontis, 2013; Talukdar, 2011; Uysal, 2010; Walter, 2010);
(iv) specific contributions of an author (Diamond, 2007; Meyer et al., 2004; Uslay et al., 2009);
(v) scientific production of a scientific journal or

journal group (Biemans et al., 2007; Casey and McMillan, 2008; Francisco, 2011; Kirchler and Holzl, 2006; Mazzon and Hernandez, 2013; McMillan and Casey, 2007; Ramos-Rodriguez and Ruiz-Navarro, 2004; Salas and Sobrevias, 2011; Valacich et al., 2006);
(vi)   books as knowledge distribution agents (Serenko et al., 2012);
(vii)   Dissemination of a theory in a scientific field (Weerakkody et al., 2009).

In a research conducted by Groot and Garcia-Valderrama (2006) it is seen that "*the number of publications in top international journals is the best predictor of the results of peer review*," emphasizing how important it is for the researcher to publish in international journals to raise their academic reputation or even to assist in raising funds for investment in research and development.

Nevertheless, funding agencies use such resources as one of the indicators to assess the quality of the publications, verifying whether the research makes use of good reputation sources of publications, and whether the research references have a good impact factor (IF), so that they can offer financial support for research. According to Groot and Garcia-Valderrama (2006), to provide financial resources to support academic research programs the sponsors evaluate the quality of their publications and productivity of their collaborators.

With the global economic downturn the economics of knowledge becomes an important factor for increasing the Gross Domestic Product (GDP) of a nation. Investment in Research and Development (R&D) is one way to try to overcome recession in the future. However, high R&D costs associated with limited sources of public funding increasingly restrict the allocation of funds for scientific development which are distributed according to the merit and capacity of researchers (Abramo et al., 2009).

Confirming the information above, Bengisu and Nekhili (2006) conducted a study in which they seek to align the Turkish efforts of technology anticipation to the international Science and Technology (S&T) activities. Furthermore, they aimed to collect quantitative information on priority technologies in order to fund research and invest in technology.

METHODOLOGY

The word "audit*" was used in the topic field (including title, abstract and keywords) with a limited survey period from 1900 to 2013 on the citation database data at the Social Science Citation Index (SSCI) in Web of Science. After this procedure the refinement showed 40,140 results. The next process was the completion of the document type selection, refining Article and Review groups, therefore reducing the results to 34,670. After that, the Business Economics research field was selected, as, based on a pre-test, this is the field that is closest to the proposed theme, creating an indicator of 4,572 results. However, it is worth noticing that, although there was a refining in the above-mentioned field, other

fields are present since the same publication might be classified in more than one field; so, to guarantee the best research scope, there were no exclusions of fields that were not refined precisely due to the fact that these publications are in another field, and if such exclusion happened it would also exclude the publications from one of the fields chosen for refinement. It is worth noticing that the present data listed here was updated up to January 10, 2014.

The next step was to select the publications from 2002 to 2013, a total of 2,480 results, and transport them to the EndNote X5 program so that a Systematic Literature Review and content analyses could be conducted in order to highlight the results found in only in the auditing field. After this it was possible to find 2,394 publications in auditing once the outlines were excluded. Then these references were transported to the Nvivo10 program with purpose of developing a specific database on the subject so that a quantitative (Category from Web of Science; Distribution of the published sourced and number of citations; Sources of publications with Impact Factor (IF), Eigenfactor (EF), and Article Influence (AI); Chronological evolution of the publication number; Profile of the partnerships between authors, language of works, research funding; Countries of publication; Distribution of published Institutions; Description of the most cited documents; Productivity of authors and co-authors; H-Index profile of publications) and qualitative (Keywords most used) approach could be conducted based on statistics, mathematics and content analyzes. It is worth noting that most of the quantitative data were generated directly by the Web of Science system and only tabulated by researchers.

The results will provide future researchers with the knowledge of who the main auditing authors are in the Web of Science database, and will also provide information such as: which institutions are performing studies in the field, which publication sources, authors, and countries publish the most, what are the most used keywords, among others.

RESULTS

Based on the methodological assumptions used for the period between 2002 and 2013, after the Systematic Literature Review, 86 publications were found from a total of 2,480 publications to have no connection with the auditing field, so 2,394 publications were used in this research (Table 1).

The publications in auditing can be divided into four major categories classified by Web of Science: Business Finance, Economics, Management and Business. However, Business Finance is the most expressive because it consists of more than half of the publications in the field. The other three balance each other with a range of 19 to 22% of the found results. It is worth noting that the same item can be classified in more than one area (Table 2).

The journal that publishes the most in auditing is the Auditing Journal of Practice and Theory (299; 12.5%), followed by Accounting Review (162; 6.8%) and Contemporary Accounting Research (158; 6.6%). The top 13 journals put together represent more than half of the publications in the field (1,233; 51.5%), highlighting the importance its editors give to the topic. The Accounting Review also carries another feature, the ratio of times its studies were cited (3,577) and without self-citations (3,191), thus having the second highest average of citations 22.08, short only to the Journal of Accounting

Table 1. Profile of the analyzed publications.

Profile	P	F1 (≅)
Publications from 2002 to 2013 in Web of Science (filter the use of the term "audit*") in the field of Business Economics	2.480	100%
Outlines (Excluded articles for not having any connection to the auditing field)	86	3.47%
Publications selected after content analyzes linked to the auditing field	2.394	96.53%
Publications analyzed in this research	2.394	100%

P = Number of publications.

Table 2. Category distribution in Web of Science by number of publication with a minimum of 2%.

Web of science categories	P	F1 (E)
Business Finance	1.436	60%
Economics	524	22%
Management	507	21%
Business	449	19%
Ethics	114	5%
Public Administration	75	3%
Operations Research Management Science	54	2%

P = Number of publications.

Research with an average of 31.20 citations per publication (Table 3).

There are many publication sources that hold productions linked to the auditing field (343). However, more than half of the publications (61.5%) can be found in only 13 journals (Table 3), only nine of which include Impact Factor (IF)[1] > 1 (Table 4). The journal that stands out is the Journal of Accounting & Economics for having an IF close to four, and for being the third source of publication with the largest Eigenfactor (EF)[2], second only to the Journal of Business Ethics and Accounting Review, in addition to also having greater Article Influence (AI)[3].

The results show that the authors of almost one third of the publications (758) from the Top 13 publication sources focused on only six journals (AOS, CAR, CGIR, AH, JBE and AJPT) with an IF between [1;2]. The result is even better considering the publication sources with an IF between [1;3] with eight publications (JAE, AR, JAR, AOS, CAR, CGIR, AH, JBE e AJPT) which form a group of 974 publications responsible for nearly 40% of the publications in auditing (Table 5).

It is noticeable that over time there was a trend of more journals publishing about auditing – 2011, with 311 published studies, can be highlighted – since the number of submitted publications probably also increased because of the enactment of the Sarbanes-Oxley Act (SOX) in 2002. The research cannot explain the reason for the increase in publications, but it is worth remembering that in 2005 the public companies of the European Union were forced to adopt the standards of the International Financial Reporting Standards (IFRS), possibly as an indicator of the increase in auditing productions. It is important that other researchers check what the real reason for the growth of such publications was and thus complement the information reported here (Figure 1).

Based on Table 6 we can notice that 79% of the articles found here were produced in partnerships, thus demonstrating the need for group work in order to obtain more significant results. However, the partnerships of two or three authors are significant, as they represent approximately 69% of the studies.

Still on Table 6, we can detect that the studies are mostly published in English (96%). In second place, with a much smaller representation, are the publications written in German, Spanish, Russian and French.

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[1] The Impact Factor is the average of the number of times articles from the journal published in the last two years have been cited in the year in the Journal Citation Reports (JCR). The impact factor is calculated by dividing the number of citations in the JCR a year by the total number of articles published in the two previous years. An impact factor of 1.0 means that, on average, the articles published one or two years ago have been cited one time. An impact factor of 2.5 means that, on average, the articles published one or two years ago have been cited two and half times. The pieces might be citing articles published in the same journal. However, most of the citing articles are from different journals, proceedings or books indexed by the Web of Science. Source: http://admin-apps.webofknowledge.com/JCR/help/h_eigenfact.htm

[2] The Eigenfactor Score calculation is based on the number of times journal articles published in the last five years have been cited in the JCR year, but also considers that journals have contributed to these journal citations highly cited journals influence to the network more than lesser cited journals. The reference to an article in a journal to another article from the same journal is removed, so that Eigenfactor Scores are not influenced by journal self-citation. Source: http://admin-apps.webofknowledge.com/JCR/help/h_eigenfact.htm

[3] The Article Influence determines the average influence of articles in a journal over the first five years after publication. It is calculated by dividing a periodical Eigenfactor Score by the number of articles in the journal, normalized as a fraction of all articles in all publications. This measure is roughly comparable to the journal Impact Factor of 5 years considering that it is an influence citation relation of a journal with the size of the contribution of the journal article for a period of five years. The average Article Influence Score is 1.00. A score higher than 1.00 indicates that each article in the journal has an above average influence. A score less than 1.00 indicates that each article in the journal has below-average influence. Source: http://admin-apps.webofknowledge.com/JCR/help/h_eigenfact.htm

Table 3. Distribution of publication sources according to general data.

Publication sources	Acronym	P	F1 (E)	C1	C2	$\bar{x}$
Auditing-a Journal of Practice & Theory	AJPT	299	12.5%	2,263	1,531	7.57
Accounting Review	AR	162	6.8%	3,577	3,191	22.08
Contemporary Accounting Research	CAR	158	6.6%	1,982	1,738	12.54
Journal of Business Ethics	JBE	105	4.4%	668	609	6.36
Accounting Organizations and Society	AOS	80	3.3%	1,043	925	13.04
Corporate Governance-an International Review	CGIR	62	2.6%	386	345	6.23
Journal of Accounting and Public Policy	JAPP	60	2.5%	166	142	2.77
Journal of Accounting Research	JAR	54	2.3%	1,685	1,638	31.20
Accounting Horizons	AH	54	2.3%	162	145	3
Journal of Accounting & Economics	JAE	54	2.3%	2,214	2,143	41
African Journal of Business Management	AJBM	52	2.2%	28	24	0.54
Accounting and Finance	AF	50	2.1%	150	126	3
European Accounting Review	EAR	43	1.8%	176	164	4.09
The other 330 publication sources	-	1,161	48.5%	NA	NA	NA
Total		2,394	100%	-	-	-

P = Number of publications; C1 = Number of citations. C2 = Number of citation excluding self-citations; = Average of citations per item.

Table 4. Top 13 publication sources by Impact Factor (IF) and Eigenfactor (EF) and Article Influence (AI).

Publication source	Acronym	IF	EF	AI
Journal of Accounting & Economics	JAE	3.912	0.00741	**2.453**
Accounting Review	AR	2.319	0.00795	1.474
Journal of Accounting Research	JAR	2.192	0.00703	2.210
Accounting Organizations and Society	AOS	1.867	0.00364	1.028
Contemporary Accounting Research	CAR	1.564	0.00348	1.094
Corporate Governance-an International Review	CGIR	1.400	0.00164	0.364
Accounting Horizons	AH	1.288	0.00117	NA
Journal of Business Ethics	JBE	1.253	**0.01395**	0.450
Auditing-a Journal of Practice & Theory	AJPT	1.015	0.00110	0.483
Accounting and Finance	AF	0.875	0.00065	0.192
Journal of Accounting and Public Policy	JAPP	0.770	0.00100	NA
European Accounting Review	EAR	0.654	0.00102	0.453
African Journal of Business Management	AJBM	NA	NA	NA

Impact Factor (IF) from 2012; Eigenfactor (EF) e Article Influence (AI) updated until 01/10/2014.

Unfortunately the results show that only 1% of the reported studies reported had funding sources for their research, confirming that governments/companies are not willing to invest in new studies in the auditing field.

A total of 70 countries produced publications involving the auditing field, but 35 of the records did not inform the country of affiliation for its publications. American publications represent more than half of the publications in auditing, followed by Australia, Canada, England, China, among others (Table 7).

In accordance with the fact that more than half of publications are American, seven of the 11 institutions that publish in auditing are also American, with emphasis on the Florida International University System with 130 publications. The results show that American researchers and other countries are associated with American research institutions, making the US the number one country in auditing publications (Table 8).

The article with highest number of citations is "Theorizing change: The role of professional associations in the transformation of institutionalized fields", by Greenwood et al., with 437 citations since 2002 and with the highest citation average: 33.32 per year. The content of the quotation was not analyzed, making it possible for
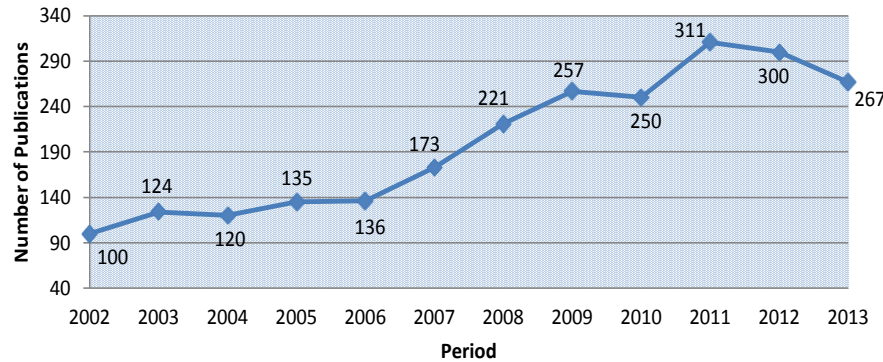
Figure 1. Distribution of publications per year.

Table 5. Distribution of the Impact Factor (FI) of the Top 13 publication sources.

Impact factor in 2012	J	P	Fi ($\cong$)
0 < FI ≤ 1	3	153	6,4%
1 < FI ≤ 2	6	758	31.7%
2 < FI ≤ 3	2	216	9%
3 < FI	1	54	2.3%
Not informed	1	52	2.2%
Not analyzed (N/A)	330	1,161	48.5%
Total	343	2,394	100%

J = Number of publication sources; P = Number of publications.

Table 6. Authors' partnership profile, language of publication and research incentive.

Profile	P	Fi (E)
Number of analyzed publications	2.394	100%
Number of authors per publication		
Publications by one author	495	21%
Publications by two authors	853	36%
Publications by three authors	797	33%
Publications by four authors	205	9%
Publications by more than four authors	44	2%
Language of publications		
English	2,298	96%
German	28	1,2%
Spanish	21	0,9%
Russian	16	0,7%
French	12	0,5%
Other Languages	19	0,8%
Research incentive		
Funded	23	1%
No information about funding	2.371	99%

P = Number of publications.

future research to address this issue so that we may have a parameter of how these citations occurred (Table 9).

The author with the largest number of publications in auditing is Kannan Raghunandan, with 26 publications, being cited 525 times and with the second highest average of citations per study, 20.19, followed only by Jere R. Francis with an average of 26.76 citations. Just as in the most cited articles, the publications per author did not take into account the content of the quotation, such as it must be in future researches (Table 10).

Finally, we observe in Figure 2, popularly known as cloud of terms, the most repeated words among the found publications. It is worth noting that the database is formed by 2,394 publications, about 2,275 of which had keywords in their studies, accounting for 95% of the total. We note the words highlighted in larger font, the common key terms that surround the issue and naturally the term "audit" stands out for being used as filter for the research, however the results also emphasize the nine other terms: management, earnings, quality, performance, corporate, governance, auditor risk, information.

The database composed of 2,394 publications includes about 23,162 citations; and, excluding self-citations, there are 13,010. In more than 10,000 studies there was no citation of the studies analyzed in this research.

Table 7. Top 10 countries with publications.

Countries	P	Fi (E)
USA	1.234	51.5%
Australia	213	8.9%
Canada	199	8.3%
England	177	7.4%
China	145	6.1%
Germany	83	3.5%
Taiwan	82	3.4%
Spain	76	3.2%
Netherlands	74	3.1%
Nova Zealand	59	2.5%
60 other countries	657	27.4%

P = Number of publications.

Table 8. Distribution of the institutions (organizations-enhanced) with publications (authors and co-authors).

Institutions (*Organizations-enhanced*)	Country	P	Fi (E)
Florida International University System	USA	130	5.4%
University of California System	USA	55	2.3%
University of New South Wales	Australia	54	2.3%
University of Wisconsin System	USA	52	2.2%
Pennsylvania Commonwealth System of Higher Education Pcshe	USA	51	2.1%
Hong Kong Polytechnic University	Hong Kong	42	1.8%
Northeastern University	USA	42	1.8%
Nanyang Technological University	Singapore	39	1.6%
Nanyang Technological University National Institute of Education Nie Singapore	Singapore	39	1.6%
Florida International University	USA	38	1.6%
University of Wisconsin Madison	USA	38	1.6%

P = Number of publications.

Table 9. Top 20 most cited studies.

Ranking	Times cited	$\bar{x}$	Authors	Title of the article	Year
1	437	33.62	Greenwood et al.	Theorizing change: The role of professional associations in the transformation of institutionalized fields	2002
2	355	27.31	Klein, A	Audit committee, board of director characteristics, and earnings management	2002
3	238	18.31	Frankel et al.	The relation between auditors' fees for nonaudit services and earnings management	2002
4	217	21.70	Ball, R; Shivakumar, L	Earnings quality in UK private firms: comparative loss recognition timeliness	2005
5	214	17.83	Ball et al.	Incentives versus standards: properties of accounting income in four East Asian countries	2003
6	187	15.58	Ashbaugh et al.	Do nonaudit services compromise auditor independence? Further evidence	2003
7	184	14.15	Mitton, T	A cross-firm analysis of the impact of corporate governance on the East Asian financial crisis	2002
8	170	13.08	DeFond et al.	Do non-audit service fees impair auditor independence? Evidence from going concern audit opinions	2002
9	159	12.23	Morrison, EW	Newcomers' relationships: The role of social network ties during socialization	2002
10	137	11.42	Joh, SW	Corporate governance and firm profitability: evidence from Korea before the economic crisis	2003
11	135	13.50	Agrawal, and Chadha, S	Corporate governance and accounting scandals	2005
12	128	11.64	Palmrose et al.	Determinants of market reactions to restatement announcements	2004
13	125	15.62	Olken, Benjamin A.	Monitoring corruption: Evidence from a field experiment in Indonesia	2007
14	125	9.62	Nelson et al.	Evidence from auditors about managers' and auditors' earnings management decisions	2002
15	124	10.33	Xie et al.	Earnings management and corporate governance: the role of the board and the audit committee	2003
16	122	10.17	Myers et al.	Exploring the term of the auditor-client relationship and the quality of earnings: A case for mandatory auditor rotation?	2003

Table 9. Contd.

17	120	10.91	Anderson et al.	Board characteristics, accounting report integrity, and the cost of debt	2004
18	115	9.58	Chung, HS; Kallapur, S	Client importance, non audit services, and abnormal accruals	2003
19	114	10.36	Abbott et al.	Audit committee characteristics and restatements	2004
20	112	11.20	Srinivasan, S	Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members	2005

$\overline{x}$ = Average of citations per year.

Table 10. Top 10 authors and coauthors with the highest production.

Author	P	Times cited	Times cited excluding self-citation	$\overline{x}$	H-index
Raghunandan, Kannan	26	525	501	20.19	10
Knechel, W. Robert	22	201	175	9.14	7
Gul, Ferdinand A.	19	197	184	10.37	8
Francis, Jere R.	17	455	430	**26.76**	**11**
Krishnan, Jayanthi	17	246	223	14.47	6
Tan, Hun-Tong	17	194	179	11.41	8
Bedard, Jean C.	16	267	245	16.69	9
Trotman, Ken T.	16	140	126	8.75	7
Johnstone, Karla M.	15	172	160	11.47	7
Rama, Dasaratha V.	15	173	168	11.53	7

P = Number of publications; $\overline{x}$ = Average of citations per year.

Figure 2. Cloud of keywords terms.

Table 11. H-index profile of the analyzed publications.

Profile	P
Publications analyzed in this research (a)	2,394
Number of times the analyzed publications were cited (b)	23,162
Number of times the analyzed publications were cited excluding self-citations among referred analyzed publications	13,010
Number of publications that cited the analyzed publications	10,695
Number of publications that cited the analyzed without self-citations among referred analyzed publications	9,210
Average of times the publications were cited (b÷a)	9.68
H-index	66

P = Number of publications.

Excluding self-citations, this number is reduced to 9,210 researches, yielding an average of 9.68 citations per publication and an H-Index of 66 (Table 11).

Through the results found here, we may try to plan, through a global vision, the state of the art in auditing publications through a bibliometric and scientometric study conducted in Web of Science.

Final considerations

Research limitations/implications - The sample consists of articles published in various academic journals that are indexed in the Web of Science from the Institute for Scientific Information (ISI).

The main purpose of this study is to present an overview of the state of the art in auditing publications through a bibliometric/scientometric study in the Web of Science. Practical implications - about 2,394 publications involving the auditing theme during the period from 2002 to 2013, assembled 60% of the results in the category Business Finance. The journal that publishes the most in the field is the Auditing Journal of Practice & Theory with 299 publications, representing 12.5% of the total; the journal that has the most citations is the Accounting Review with 3,577 studies cited including self-citations, and 3,191 without self-citations; however the one that has the best average of citations is the Journal of Accounting Research with an average of 31.20 citations per publication. The Journal of Accounting & Economics has the highest Impact Factor (IF = 3.912) and the highest Article Influence (AI = 2,453), the Journal of Accounting and Business Ethics Review has the highest Eigenfactor (EF = 0.01395). It is clear that over the years the publications in auditing have been evolving, but this research cannot explain the reason for this increase in publications.

However, the Sarbanes-Oxley Act (SOX) was created in 2002 and that European Union publicly held companies were forced to adopt the rules of International Financial Reporting Standards (IFRS) in 2005. Since it is not easy for one to do research alone, results showed that 79% auditing productions are conducted in partnerships. There is a balance between two authors (36%) and three authors (33%) per publication. Besides, almost all (96%) are written in English and most researches in the field (99%) have no funding sources, thus demonstrating the difficulty experienced by researchers in the field. The country that publishes the most is USA, with more than half (55%) of the publications found. USA also houses seven of the 11 institutions that produce the most about this topic. The one that stands out is the Florida International University System, with over 130 publications in auditing; The article that stands out with the highest number of citations is "Theorizing change: the role of professional associations in the transformation of institutionalized fields", by Greenwood et al., with 437 citations since 2002 and the highest average of citations per year 33.32. The author with the largest number of publications in auditing is Kannan Raghunandan, with 26 publications, being cited 525 times and with the second highest average of citations per study, 20.19, followed only by Jere R. Francis with an average of 26.76 citations;

The most common keywords, except for "audit" because it was already used as a filter, were: management, earnings, quality, performance, corporate, governance, risk auditor, information. The data collected here formed a database of 2,394 publications, with 23,162 citations and 13,010 without self-citation. Over 10,000 studies have cited one of the publications surveyed here and, excluding self-citation, over 9,000 publications, generating an average of 9.68 citations per publication and an H-Index of 66.

Originality/value - The main contribution of this study is that it systematically plans the main features of the auditing publications in the extended literature through a bibliometric and scientometric analysis to create its state of the art. In addition, the study outlines the main contributions in auditing in the indexed literature in the database of the Web of Science.

Future research - It is important that other researchers investigate what the real reason is for the growth in

auting publications and identify relevant concepts, theories, methodologies, and emerging issues that have arisen in the field of auditing given that there is a gap for future transactional empirical studies in the literature.

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Full Length Research Paper

Fame versus no name: Gauging the impact of celebrities and non-celebrities endorsement on purchase

Bhavesh Kumar J. Parmar[1*] and Rajnikant P. Patel

[1]Department of Business Management, S.P. College of Engineering, Gujarat Technological University, India.
[2]G.H. Patel Postgraduate Institute of Business Management, Sardar Patel University, India.

The use of celebrity in advertising has become a trend for companies and one of the best ways to strengthen brand image and marketing of products/services. Today, every company is promoting its products by using celebrities to gain customer's attention and thus increase the market share. Advertising ideas involve this approach, and the choice of picking right celebrity is made through these strategic motives. The important point for all companies is whether celebrity endorsement is beneficial for organization in long term or it is just to create awareness for once. Does it really increase purchase intention? The question is which factors guide customers in making decision regarding a good or a service when an organization is rendering messages through different media by the word of mouth of big celebrities. The study focuses on these aspects using Gujarat State of India. It identifies the link between celebrity and non-celebrity endorsement and consumers' perception and attitude towards the endorsed product. The study explores whether celebrity or non-celebrity endorsement helps to build a positive linkage towards the endorsed product.

Key words: Celebrity, non-celebrity, endorsement, advertisement effectiveness, purchase intention.

INTRODUCTION

Fighting to catch consumers' attention and market share, Indian companies have gone out of their ways to choose celebrities to endorse their brands. It makes tremendous sense for a brand to get hold of a celebrity for its endorsement. Presently around 400 television channels are broadcasting in India. Indian advertisement industry saw the growth of a new trend in the latter part of the 1980s. Hindi film and TV stars as well as sportspersons were engaged in endorsing top most brands. Celebrity advertisement out of the total number of advertisements aired is as high as 25-30% in western countries and around 60% in India (Patel, 2009). Another research states that the target audience age group of 15-30 gets influenced by first cricketers, second Bollywood film stars and then music, festivals and food (Kulkarni and Gaulkar, 2005). In the Indian context, several examples can be found to establish the hypothesis that celebrity endorse-ments can exaggerate the overall brand.

A well designed celebrity endorsed commercial can change the future of the brand forever (Blazey and Ganti, 2005).

A celebrity endorser used in an advertisement can be interpreted as inspirational reference group that serves as a point of comparison or reference for an individual by effectively communicating values, attitudes and providing a specific guide for behavior (Schiffman and Kanuk, 2004). In general, potential hazards of celebrity endorsement are the costs, the possibility that celebrity overshadows brand image, or it can change the image and overexposure of the celebrity, especially when a celebrity becomes an endorser for many different products (For example, one of famous Indian Bollywood star endorses several brands/products starting from SUV, pesticides, water pumps, insurance, biscuits, chocolate, fabrics and so on). Non-celebrity endorsed advertisements can also gain positive 'attitudes towards the advertisement', 'attitude towards the brand' being advertised and 'intentions to purchase endorsed brands' (Mehta, 1994). This research investigates whether or not non-celebrity endorsement can be as effective as celebrity endorsement in selected FMCG product categories. Consumers in India are exposed to several new products every other day followed by marketers' differentiation, positioning techniques. Therefore, it will be interesting to investigate the impact of celebrity endorsements on consumers' buying behaviour in India. From a business perspective, this research study would be useful in understanding perceptions of Indian consumers towards celebrity and non-celebrity endorsements.

LITERATURE

Celebrity: According to McCracken (1989), "A celebrity endorser is an individual who enjoys public recognition and who uses this recognition on behalf of a consumer good by appearing with it in an advertisement (marketing communication)"; whereas, Pringle (2004) says "Celebrity is anyone who is familiar enough to the people he wishes to present the brand to and add values to the communication by associating with their image and reputation."

Non-celebrity: According to Mohan (2001), "A non-celebrity is a person who, prior to placement in the campaign, has no public notoriety but appears in an advertisement for the product"

The Source Credibility Model: A source/celebrity that is more expert has been found to be more persuasive (Aaker and Myers, 1987) and tgenerate more intentions to buy the brand (Ohanian, 1991) Schumann and Thompson (1988) found that expert celebrities produce higher recall of product information than non-expert

celebrities; a possible exception to the belief that the more credible a source is, the more persuasive the source is likely to be. A source that lacks credibility can be more persuasive than a high credibility source, since those favoring the advocacy will feel a greater need to ensure that a position with which they agree is being adequately represented (Aaker and Myers, 1987).

Celebrity attractiveness

According to Erdogan (1999), attractiveness does not mean simply physical attractiveness, but includes any number of attributes that consumers might perceive in a celebrity endorser: for example, intellectual skill, personality properties, lifestyles, or athletic prowess. Along with respondents in Kahle and Homer's study (1985), they were more likely to buy an Edge razor after seeing an attractive celebrity in a magazine advertisement than an unattractive celebrity. However, as indicated earlier by both Till and Busler (1998) and Ohanian (1991), the endorser's expertise is more important than physical attractiveness in affecting attitude toward an endorsed brand. Further, Shimp (2000) found that attractiveness alone is subordinate in importance to credibility and matches up with the audience and brand. Johnson and Harrington (1998) point out those without doubt attractive celebrity endorsers positively improve attitudes towards advertising and brands, but whether they are able to create purchase intentions is uncertain.

Celebrity likeability

Celebrity likeability refers to the positive or negative feelings that consumers have toward a celebrity (Mowen and Minor, 1998). It can also be defined as the extent to which the source is viewed as behaving in a way that matches the desires of those who observe him or her. Various studies suggest that advertisement liking is one of the most important forecasters of brand liking, second only to in-going, or prior, brand attitude (Thorson, 1991). Brand liking is affected by a spokesperson's likeability. Respondents tend to like brands that are associated with the characters that they have a high regard for (Callcott and Philips, 1996). Meanwhile, Urde (1999) states that likable spokespersons increase attention toward a brand enhance brand liking and thus create a considerable impact on the consumers' purchase behavior and their loyalty towards the brand.

Celebrity expertise

Erdogan (1999) defines celebrity endorsers' expertise as 'the extent to which a communicator is perceived to be a source of valid assertions 'Respondents' actions in

response to the source's recommendations seem to vary directly with the source's perceived level of expertise and the target person's level of agreement with those recommendations. Subjects exposed to a source perceived as highly expert exhibit more agreement with the source's recommendation than did those exposed to a source with low expertise (Ohanian, 1990). The level of perceived celebrity expertise should predict celebrity endorser effectiveness.

Celebrity trustworthiness

Trustworthiness is the degree of confidence consumers place in a communicator's intent to convey the assertions s/he considers most valid (Ohanian, 1990). Giffin (1967) describes favorable disposition, acceptance, psychological safety, and perceived supportive climate as favorable consequences of trust. Much of the literature supports the positive effect of trustworthiness on effectiveness. Perceived communicator trustworthiness has also been shown to produce a greater attitude change than perceived expertise (McGinnies and Ward, 1980). The extant literature on celebrity endorsers suggests that trustworthiness is an important predictor of celebrity endorsement effectiveness.

Measurement scales

Celebrity endorser is a person who advertises a product, a person well known for his/her achievements in areas which are different from the advertised product category (Friedman and Friedman, 1979). Ohanian (1990) created a scale to measure the effectiveness of celebrity endorsers through establishing the endorser's credibility. This is achieved through measuring the expertise, trustworthiness and attractiveness the endorser possesses in the advertisement. Advertising is used with the aim of creating purchase desire that will ultimately lead to the purchases of products and services (Ohanian, 1990).

Celebrity endorsers are frequently used in all forms of advertising and indicate the perception of their effectiveness. The endorser's perceived expertise and trustworthiness are a means to measure the credibility of the endorser and the latter is positively associated with purchase aspirations (Ohanian, 1991) (Table 1).

These purchase aspirations implicate want and desire to purchase a product that will ultimately lead to product purchases. According to Tom et al. (1992), target audiences generally have positive feelings towards celebrity endorsers. They include effectiveness of celebrity endorsement, celebrity endorsers and purchase intention (Kamins et al., 1989); added-value of the endorsement (Agrawal and Kamakura, 1995); celebrity endorsers' positive and negative effects (Till and Shimp, 1998), congruence between product/brand and endorser

(Till and Busler, 2000), consumer association with the endorser (Till and Busler, 2000; Daneshvary and Shwer, 2000), attractiveess, credibility and trust in celebrities (Dean and Biswas, 2001). There should be congruence between the celebrity and the product in terms of characteristics such as image, expertise (Till and Busler, 1998) or attractiveness (Baker and Churchill, 1977; Kahle and Homer, 1985). The match-up hypothesis specifically suggests that the effectiveness depends on the existence of a 'fit' between the celebrity spokesperson and endorsed brand (Till and Buster, 1998). The celebrity-product match model states that attractive endorsers are more effective when promoting products used to enhance one's attractiveness (Kamins, 1990) and that the impact will be not significant in the case of a product that is unrelated to attractiveness. Kahle and Homer (1985) found that in the case of attractiveness related products the use of physically attractive celebrities increased message recall; product attributes, and purchase intention. Mehta (1994) has found that there were no significant differences between celebrity and non-celebrity endorsed advertisements concerning attitude towards the advertisement, attitude towards the brand and intentions to purchase endorsed brands. When confronted with unknown/non-celebrity endorsers, consumers were significantly more focused on the brand and its features. However, Petty et al. (1983) have found the opposite results. Celebrity endorsers pass on their symbolic meanings and acquired associations to the products they endorse easier because they have an ability to communicate with mass. Several benefits of using celebrities are nurturing trust and drawing attention on brands.

Research hypotheses:

The following research hypotheses were formulated for this study:

H1: There is a significant relationship between Purchase Behavior of products and celebrity's characteristics.
H2: There is a significant relationship between Purchase Behavior of products and Non-celebrity's characteristics.

RESEARCH METHODOLOGY

This work studies the effectiveness of celebrity and non-celebrity endorsements on buying behavior; therefore, it is an exploratory research.

Sampling plan

Target Population: The target population comprises males and females of eighteen years and above; they are from major cities of the State of Gujarat (India): Ahmedabad, Rajkot, Vadodara, Surat, Bhavnagar Mehsana and Himatnagar.

Table 1. Summary of Scale used in the research.

Construct	Scale	Reference
Physical attractiveness	Beautiful – Not Beautiful Elegant – Plain Sexy – Not sexy Pleasant – not pleasant	Kahle and Homer (1985), McGuire (1985), Kamins et al. (1989), Ohanian (1990), Till and Busler (1998), David and Benedikte (2003)
Trustworthiness	Dependable – Undependable Honest – Dishonest Reliable – Unreliable Sincere – Insincere Believable – Not believable Having good reputation – Not having good reputation	Kahle and Homer (1985), Kamins et al. (1989), Roobina (1990), Till and Busler (1998), Priester and Petty (2003)
Expertise	Experienced – Inexperienced Knowledgeable – Unknowledgeable Qualified – Unqualified Skilled – Unskilled Professional – Unprofessional	Roobina (1990), Kamins et al. (1989), Till and Busler (1998)
Likability	Familiar – Unfamiliar Similar – Dissimilar I can relate – I cannot relate Appropriate – Not appropriate Logical – Illogical	Kahle and Homer (1985), Kamins et al. (1989), Till and Busler. (1998)

Sample size: Total 968 sample size is kept for this research.

Data collection: The data were gathered from personal interviews conducted at the convenience of the interviewer and respondents. The data were collected using face to face interview.

Data analysis

As shown in Table 2, out of the 968 respondents 55.3 percent (535) were males and 44.7 percent (433) were females. In terms of age, 35 percent (339) of the respondents were in the age group of 12-18 years as well as 19-25 years; followed by 43.7 percent (423) respondents who were between 26-35 years old. 21.2 percent (206) of the respondents were in the age group of 36 -50 and more than 50 years.

Respondents have to give their choice for advertisement from the pair of advertisement (celebrity and non-celebrity) for each product category. The selection of advertisement was on the basis of taking all the advertisements, including print advertisements as well as a television commercial. The pair of advertisements selected were on the basis of maximum frequency of appearance in television and print media. Table 3 shows choice of advertisement over another in the pair of advertisement.

In the detergent powder/soap category, 60.7% responded they like non-celebrity; same happened with oral care (51%). Bakery products were highest among non-celebrity endorsed advertisement (64.7% Kid endorsed the Oreo brand), chocolate (53%) and life insurance (64.7%). The celebrity advertisements liked by respondents were home cleaning (61% famous TV star Hussain

endorse Harpic brand toilet cleaner) and skin care (68.8% Aishwarya Rai endorse L'Oreal skin cream). Hair care is highest among celebrity endorsed advertisement (72% Ketrina Kaif endorse Pentene brand shampoo), followed by snack food (71.7% Parneeti Chopra endorse Kurkure), tea (53.9%, Saif Ali khan endorse Tajmahal Tea), soft drink (70.7%, M.S. Dhoni endorse Pepsi).

RESULT AND DISCUSSION

Data were analyzed by SPSS. In this study, four types of endorser's characteristics (i) physical attractiveness, (ii) Trustworthiness, (iii) Expertise and (iv) Likability factors were tested with the help of twenty items and using a 7 - point scale (Table 4). The results of the hypothesis related to relationship between purchasing behavior of various products and celebrity's characteristics were partially supported. Detergent, oral care, bakery, skin care and tea product were partially supported, whereas home cleaning, hair care, snack food, chocolate, soft drink are those products, whose hypotheses were rejected. This result is matched with Till and Busler (1998), on the match up hypothesis in relation to endorser expertise. They suggest that its importance is limited by the degree to which attractiveness "fits" well with the advertised product. Thus, for example, physical attractiveness might be useful when selling cosmetics

Table 2. Demographic profile of respondents.

Profile of respondents			
Characteristics	**Measuring variables**	**Frequency**	**Percentage**
Gender	Male	535	55.3
	Female	433	44.7
Age	12 t o18 years	29	3
	19 to 25 years	310	32
	26 to 35 years	423	43.7
	36 to 50 years	193	19.9
	More than 50 years	13	1.3
Educational Qualification	Up to HSC	121	12.5
	Graduate	454	46.9
	Post Graduate	372	38.4
	Other	21	2.2
Occupation	Business	88	9.1
	Service	393	40.6
	Professional	75	7.7
	Student	226	23.3
	Housewife	182	18.8
	Other	04	0.4
Annual Family Income	Below Rs. 1 Lac	98	10.1
	Rs. 1 lac. to 3 lac.	294	30.4
	Rs. 3 Lac to 7 Lac	374	38.6
	Rs. 7 Lac to 12 Lac	163	16.8
	More than 12 Lac	39	4.0

Table 3. Likeness of celebrity and non-celebrity advertisement for selected product categories.

Category	Advertisement	Frequency	Percentage
Detergent powder/soap	Celebrity (Salman Khan)	380	39.3
	Non Celebrity	588	60.7
Home cleaning	Celebrity (Hussain)	590	61.0
	Non Celebrity	378	39.0
Oral Care	Celebrity (Shahrukh Khan)	471	48.7
	Non Celebrity	497	51.3
Skin Care	Celebrity (Aishwarya Rai)	666	68.8
	Non Celebrity	302	31.2
Hair Care	Celebrity (Ketrina Kaif)	697	72.0
	Non Celebrity	271	28.0
Bakery products	Celebrity (Amitabh Bachchhan)	342	35.3
	Non Celebrity	626	64.7
Snack food	Celebrity (Parneeti Chopra)	694	71.7
	Non Celebrity	274	28.3
Chocolates	Celebrity (Ketrina Kaif)	455	47.0
	Non Celebrity	513	53.0
Tea	Celebrity (Saif Ali Khan)	522	53.9
	Non Celebrity	446	46.1
Soft drinks	Celebrity (MS Dhoni)	684	70.7
	Non Celebrity	284	29.3

Table 4. Regression analysis of purchase behavior of product categories.

Product category	Measurement scale	Celebrity			Non-celebrity		
		β	p value	Result	β	p value	Result
Detergent products	Physical attractiveness	0.030	0.287	Partially accepted	0.021	0.431	Rejected
	Trustworthiness	0.018	0.574		0.001	0.980	
	Expertise	-0.111	0.001		-0.034	0.350	
	Likability	2.480	0.924		-0.008	0.801	
Home cleaning	Physical attractiveness	0.015	0.573	Rejected	0.030	0.222	Partially accepted
	Trustworthiness	-0.018	0.558		0.025	0.462	
	Expertise	-0.039	0.213		-0.082	0.018	
	Likability	-0.012	0.706		0.022	0.480	
Oral Care	Physical attractiveness	-0.002	0.938	Partially accepted	0.001	0.980	Rejected
	Trustworthiness	-0.073	0.034		-0.025	0.498	
	Expertise	-0.010	0.775		-0.007	0.863	
	Likability	0.006	0.857		0.004	0.912	
Skin Care	Physical attractiveness	0.005	0.882	Partially accepted	0.006	0.845	Rejected
	Trustworthiness	-0.095	0.008		-0.050	0.196	
	Expertise	-0.014	0.699		-0.028	0.483	
	Likability	-0.001	0.970		0.048	0.190	
Hair Care	Physical attractiveness	0.045	0.141	Rejected	0.043	0.128	Rejected
	Trustworthiness	-0.050	0.161		-0.051	0.186	
	Expertise	-0.031	0.387		-0.044	0.271	
	Likability	-0.049	0.170		0.014	0.701	
Bakery products	Physical attractiveness	0.053	0.069	Partially accepted	0.001	0.972	Partially accepted
	Trustworthiness	-0.050	0.138		-0.041	0.266	
	Expertise	0.037	0.275		0.080	0.033	
	Likability	-0.071	0.035		-0.068	0.045	
Snack food	Physical attractiveness	0.003	0.925	Rejected	0.043	0.658	Partially accepted
	Trustworthiness	-0.044	0.188		-0.051	0.200	
	Expertise	0.002	0.945		-0.044	0.268	
	Likability	-0.031	0.351		-0.070	0.035	
Chocolates	Physical attractiveness	-0.019	0.506	Rejected	0.022	0.388	Rejected
	Trustworthiness	-0.044	0.170		-0.029	0.396	
	Expertise	0.023	0.486		-0.013	0.713	
	Likability	-0.018	0.575		-0.033	0.302	
Tea	Physical attractiveness	0.064	0.035	Partially accepted	0.018	0.522	Rejected
	Trustworthiness	-0.035	0.322		0.003	0.936	
	Expertise	-0.074	0.037		-0.020	0.602	
	Likability	0.060	0.087		-0.050	0.161	
Soft drink	Physical attractiveness	-0.002	0.957	Rejected	0.006	0.835	Rejected
	Trustworthiness	-0.042	0.263		-0.007	0.867	
	Expertise	-0.065	0.084		-0.036	0.385	
	Likability	0.040	0.276		0.009	0.812	

Source: Primary data.

but not when selling computers; same was concluded by Varsha Jain et al. (2009) on cerebral products like books and healthcare products, they would not prefer celebrities. For non-celebrity endorsers only three products, home cleaning (Lizol tile cleaner, Expert spoke person used in Ad.), bakery (Orio biscuit, Kid used in Ad.) and snack food (Bingo,) hypothesis were partially supported. The advertisement selected under this category is effective. Majority of products endorsed by celebrities are liked and having positive effect of endorsement. This is in accordance with Erdogan (1999) and Kamins (1990), who proved that the presence of celebrity endorsers affects purchase decisions of consumers positively; therefore, producers and retailers have always preferred to use celebrity endorsements in order to sell their products.

This study found that consumers exposed to celebrity endorsement significantly differ from consumers exposed with a non-celebrity endorser on endorser's physical attractiveness, trustworthiness, expertise and likability. Home cleaning and snack food are the two product categories we found in which non-celebrity endorsement is more effective. Celebrities do have some common characteristics which include their recognition, status or their popularity but each celebrity may have his or her own unique image or cultural meaning which has been identified by McCracken (1989). So it can be said that a celebrity may be effective endorser of a product; however, he or she can endorse another product with the same effectiveness (McCracken, 1989). Commercials that do not use famous celebrities have been enjoying considerable success of using non-celebrity. Indeed, relatively unknown models have helped to add a touch of reality to commercials. Non-celebrity models and real life settings are effective in increasing persuasive power and gaining consumers' sympathy.

Limitation and future research

In the celebrity and non-celebrity chosen in advertise-ments, the researcher presents respondents with comparisons of celebrities versus non-celebrity (unknown individuals). The studies are generally compared to an unknown (e.g. Friedman et al., 1976). This may not accurately depict a realistic alternative to a celebrity endorsement. When companies use an unknown, the advertising campaigns generally do not appear identical to those using a celebrity. Only the questionnaire snapshots of advertisement are shown; cannot give all the details of endorsed products. The assumption is respondents have to recall advertisement and present their views. Future research should replicate in other product/service categories of high involvement.

Conflict of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

The relation between organizational trust, organizational support and organizational commitment

EĞRİBOYUN Dursun

Turkish Land Forces' Training and Doctrine Command (EDOK), Turkey.

Organizations are bodies composed of people who gather in order to reach specific objectives. This situation prompts the organizations to produce people oriented policies and increase the interest in the subject of organizational commitment. However, there are not much academic studies in Turkey on organizational commitment. The general objective of this research was to assess the relationship between organizational trust, organizational support and organizational commitment of administrators/teachers. The participants of this research were administrators/teachers who are employed in the secondary education schools in the provincial centre of Bolu, Turkey. The sample was not taken in the research and it was worked on all universe. This research is in the form of a relational screening model and was both descriptive and explanatory in terms of aim. 601 usable surveys were gathered for this research using three scales. The explanation of the relation between the organizational trust, organizational support and organizational commitment levels of the teachers and administrators with a mathematical model has been realized via multiple linear regression analysis and in the analyses enter method has been used. When the variance analysis regarding the perceptions of the administrators and teachers about organizational trust, organizational support and organizational commitment is inspected, the organizational commitments of the administrators and teachers exhibit a meaningful difference according to the joint impact of organizational trust and organizational support. The multiple linear regression model calculated has been also supported by LISREL software. According to the findings obtained as a result of the studies carried out within this framework, it is concluded that organizational trust and organizational support are the most substantial factors that affect the organizational commitment. In accordance with the findings of this research, it can be stated that organizational trust and organizational commitment of the administrators/teachers will be stronger when they feel that their organizations are supportive and bound up in them.

Key words: Organizational trust, organizational support and organizational commitment.

INTRODUCTION

Our age is experiencing a major change. The age in which we are living is the one that witnesses the maximum and fastest change (Erdogan, 2004, p.1). Therefore, the strategies to be developed in the field of education and the methods that will be implemented in schools in which these strategies will be realized need to be contemplated in accordance with this age. The formation of this environment requires the existence of well-educated people and the implementation of human-centric policies towards staff (Rossen, 1999). This can be achieved with the well planned and applicable education policies.

In our age, the importance and power of education is approved to be a meaningful factor for the happiness of both the individuals and the nation. Within this scope, education is used as a valid instrument to ensure the happiness of the individuals and the nation and gains strength day by day, by increasing its importance (Basaran, 1999). Therefore, in order for education to fulfill its individual, social and economic functions, it can be said that there should be a balance and harmony between the social and economic development objectives of the society and the objectives of education. Such a harmony is only possible when employees are supported in their jobs, their trust in their organizations is provided and their productivity is increased by developing their organizational commitment.

Organizations are bodies composed of people who gather in order to reach specific objectives. Organizations need to utilize effectively the human factor which is one of the most important resources in order to reach their aims and maintain their continuity in the competitive world (Topaloglu, 2010, p.1). Moreover, today individuals who are educated, productive, accordant with organizational objectives and loyal to the organization enable the organization to meet with success. This situation prompts the organizations to produce people oriented policies and increases the interest in the subject of organizational commitment (Çetinel, 2008, p.1).

Social systems also have missions that can be identified as maintaining their presence and carrying out productive activities. Within this scope, finding motivating factors in fulfilling organizational roles in an organization and improving these factors are of prime importance for organizational effectiveness and productivity (Akalin, 2006, p.1). Organizations have been developing methods that will increase the organizational commitments of the employees and**;** researching the factors underlying their commitments; making evaluations regarding the benefits that this commitment will provide, and analyzing the bonds between these factors and organizational commitment. According to the findings obtained as a result of the studies carried out within this framework, it is concluded that organizational trust and organizational support are the most substantial factors that affect the organizational commitment (Kaplan, 2010, p.106).

Organizational trust, organizational support and organizational commitment in educational institutions are not the phenomena that have been newly discovered. Organizational trust, organizational support and organizational commitment are the approaches that have been known, whose benefits have been believed in and that have been implemented for a long time. However, these implementations are limited to people and cannot be institutionalized adequately.

In the literature, different research regarding organizational trust, organizational support and organizational commitment has been conducted in the fields of psychology, business, health, tourism etc. However, the frequency of occurrence of the implementations about organizational trust, organizational support and organizational commitment especially in the official educational institutions is very limited. In this research, the perceptions of the administrators and teachers who are employed in the secondary education schools, regarding organizational trust, organizational support and organizational commitment and the relation between them, have been analyzed.

Organizational trust

Organizational trust means that even though employees do not have the possibility to affect the decision makers, they believe that the organization will work for their benefit or at least will not harm them, and they are voluntary to be undefended against the behaviors they will not control (Cetinel, 2008, p.2). Increase in the rate of environmental and economic changes, rise of the need for flexibility and cooperation, appreciation of the team and team works, and transformation of the relations with the employees and career patterns have raised the importance of organizational trust. It is estimated that organizations cannot reach their goals without trust. Moreover, trust is one of the most important elements of efficient relationships and mutual trust is a vital situation (Iscan and Sayin, 2010, p.196).

In the studies of Nyhan and Marlowe (1997, p.615), trust consists of three dimensions that measure the belief that an individual or group makes confidential efforts to behave in accordance with any commitment, is honest in negotiations; doesn't take excessive advantage of another. Therefore, organizational trust is assessed by emotional, cognitive and intended behavior dimensions.

In the researches regarding trust, firstly it engaged psychologists, sociologists, political scientists and economists, and then it became the subject of studies in the fields of organization theory, management and organizational behavior (Asunakutlu, 2006, p.18). In the most general sense, trust is perceived as honesty and a concept based on truth (Koc and Yazıcıoglu, 2011, p.47).

According to Ozer et al., 2006, p.106, trust comprises the belief in commitments of an individual or a group to their behavior and intentions, their expectations

regarding moral, fair and constructive behaviors, and considering the rights of others; and according to Luhmann (1979, cited by Vo, 2010, p.18), it represents the level of reasonable, moral and predictable confidence of someone in someone else. In the studies performed, trust comes into existence at both individual and organizational level, but trust in a person and trust in an organization are different concepts. In the studies of Nyhan and Marlowe (1997, p.618), organizational trust generally involves trust in organization and trust in supervisor, and in the literature, a combination of these two concepts is named organizational trust. Within this context, trust underlies all the intraorganizational relationships horizontally and vertically (Demircan and Ceylan, 2003, p.142).

Gilbert and Li-Pang (1998, cited by Ribbers, 2009, p.7) formulated organizational trust as "a feeling of confidence and support in an employee; it is a belief that an employer will be straightforward and succeed in his/her commitments". Mishra et al. (1990, cited by Durdag and Naktiyok, 2011, p.15) summarized it as "perceptions of the employees concerning the support provided by the organization, and their belief that the leader will be honest and stand by his/her word''. In one sense, this is the work environment where the employees feel intimate with and adopt each other.

Within this context, trust models become prominent in institutionalizing trust. In order to reflect the accepted differentiation of system and staff trust, researchers adopt generally the model developed by Luhmann. In this model, trust in supervisor represents the staff trust towards the present supervisor that is the most important mediator of organizational or environmental complexity and the organizational trust distinguishes the attitude of trust towards the organization as a whole (Nyhan and Marlowe, 1997, p.617).

Organizational support

In recent years, behaviors towards increasing the efficiency and productivity in organizations have been examined widely in the literature. Especially the subject of organizational support is the one which gains impor-tance because of the competition, chaos and uncertainty in the business world of the 21st Century. Therefore, the efforts of organizations to deal with the needs of their employees and satisfy them enable the employees to feel themselves precious, capable and necessary. As a result of this, the concept of organizational support comes into existence (Kose and Gonulluoglu, 2010, p.87). Organiza-tional support is the belief that employees develop about how much the organization for which they work values their contributions and cares about their well-being (Akalin, 2006, p.9).

In today's business world, employees need to be supported in their organization as a matter of human

psychology. Organizational support which is extremely important for employees is one of the meaningful resources for meeting the emotional needs such as being respected, accepted, approved and valued. With organizational support, organization remarks that it is aware of the employees' contribution to the organization, it cares about their well-being and it is pleased to work with them, and meets the individual's need to belong, be respected and approved (Armeli et al., 1998, cited by Ozdemir, 2010, p.133; Martin, 1995, cited by Akin, 2008, p.142).

In the organizational support theory, Eisenberger et al. (1986, p.500) stated that employees form a general belief regarding how much the organization values their contributions and cares about their well-being. Moreover, in their definition, they focused on the perceptions concerning that the organization cares about the contribution of the employees and values their well-being, as well as the perceptions about whether the organization realizes the rules, policies and activities affecting the employees voluntarily or with external effects. Because it is stated that the faith in the fact that the organizations realize the organizational activities voluntarily in favor of employees affects perceived organizational support positively (Eisenberger et al., 1986, p.504). The concepts that can be deducted from the definitions made by researchers can be evaluated that the organization values the contributions of the employees, cares about the well-being of the employees and the policies, rules and activities that affect the employees are based on voluntariness.

While focusing on the consequences of perceived organizational support, Rhoades and Eisenberger (2002, p.699-701) define the factors affecting organizational support as characteristics such as justice, supervisor support, rewards such as recognition-payment-promo-tion, business conditions such as job safety, autonomy, stressful factors, education, magnitude of the organization, personal and demographical features of the employees, and express the consequences as impacts on work such as organizational commitment, job satisfaction and positive mood and interest in work, fulfillment, tension, desire to stay in the organization and behavior of separating from the organization.

Organizational commitment

In a general sense, commitment is characterized as the psychological power of someone, who commits themselves to an organization, by Maranto and Skelly (2003) and it is evaluated as the relative power of someone who identifies themselves with an organization and is involved in a specific organization (Lahiry, 1994, cited by Puusa and Tolvanen, 2006, p.31).

Mowday et al. (1979, p.225) identify commitment as a bond or loyalty. These researchers state that commitment

has three components, which are the commitment to the values and objectives of the organization, the desire to belong to the organization and the request to endeavor for the benefit of the organization. As remarked by Cetin (2004, p.90), it is possible to conclude that organizational commitment means the psychological commitment of the individual such as participation in work, the loyalty to and the faith in organizational values.

Organizational commitment has been understood generally as psychological commitment in the research carried out so far and it has been identified in this direction. According to these identifications, organizational commitment is employee's adoption of the objectives and values of the organization with the desire to stay in the organization and endeavor for it; the employee's identification with the objectives and values of the organization without financial worries, as primary aim by feeling the desire to stay in the organization, and psychological commitment of the employee to the organization (Balay, 2000, p.16; Beckeri et al., 1979, cited by Tella et al., 2007, p.6; Yuksel, 2003, p.176).

Today, the concept of organizational commitment has become one of the contemporary subjects that need to be focused on. In the organizational commitment model developed by Allen and Meyer (1990, p.2), commitment approach is defined as affective, continuance and normative commitment. Affective commitment is the atmosphere where the individuals adhering strictly to the organizations identify, and integrate themselves with the organization, and feel content to be a member of the organization. Continuance commitment is the situation in which gains occur when the employee continues to work and penalty occurs when he/she does not continue to work. Normative commitment is the responsibility for and faith in the organization the individual has.

In the forthcoming years, Allen and Meyer expanded the perspective of organizational commitment and developed a new model of universal organizational commitment in order to complete many definitions of rapidly increasing commitment in research literature in their study of 1991. In 1997 they identified organizational commitment as a psychological condition regarding the question how the individual seeks his/her organizational commitment, and the desire to stay in the organization. In this research, it is found out that according to the three-component model of organizational commitment of Meyer and Allen (1997, p.2), there are three tendencies characterized as the employee's commitment to the organization.

It is assessed that the indicators of organizational commitment which Atak (2009, p.89) utilized in his research will be a good example to summarize the definitions of organizational commitment. Atak (2009) accepts the indicators of organizational commitment as follows: (a) Adopting the organizational objectives and values, (b) Making extraordinary endeavors and sacrifices for the organization, (c) Feeling a great desire to stay in the organization, (d) Identification with the organization, (e) Internalizing the organizational objectives and values.

Within this context, emotional commitment of employees to the organization, their identification with the organization and their participation are expressed as "affective commitment" (Cetin, 2004, p.95). At the same time affective commitment can be described as emotional bond of employee to organization, its identification and its participation in the organization. The commitment of the employees to the organization as a result of the comparison of the cost of leaving from the organization with the cost of staying in the organization can be described as "continuance commitment". The employee, who understands that the cost of releasing from the organization is higher than the cost of staying in the organization, stays in the organization because he/she needs to (Cetin, 2004, p.95). "Normative commitment" can be explained as the commitment of the employees to the organization with the sense of obligation. This type of commitment stems from the fact that the employees feel obliged to stay in the organization continuously because of the personal commitment or loyalty (Cetin, 2004, p.96). These definitions are accentuated because studies about them are focused on and their relations with other variables are examined within the scope of the research.

The relationship between organizational trust, organizational support and organizational commitment

Organizational trust and organizational support are meaningful concepts for organizational commitment. As long as the employees feel the support of the supervisors in the activities they carry out and their endeavors are cared about and appreciated, the trust they feel for their organizations and supervisors will increase, their commitment will improve, consequently they will strive more for their organization to reach its goals and aims.

Consequently, much research has been conducted about organizational trust, organizational support and organizational commitment. For example in Akalin's (2006, p.43) research, it is stated that human resources applications affect the relation between perceived organizational support and organizational commitment or the trust felt for the management. Whitener (2001, cited by Akalin, 2006, p.43) revealed that as long as the employees feel the commitment and support of their organization, their trust and commitment become stronger because employees interpret the human resources applications and reliability of the management as an indicator of the organization's commitment to them. In Akalin's (2006, p.102) research regarding this scope, results similar to these findings were obtained, a high level of relation between perceived organizational support

and affective commitment was detected and it was concluded that as long as perceived organizational support increases, affective commitment increases, too.

While concentrating on the concept of trust, Büte, 2011 p.176 indicated that the commitment to organization and commitment to management are interrelated concepts but have different processor and consequences; while trust in organization affects organizational commitment, low turnover rate and education level, trust in supervisor affects employee satisfaction and exhibiting the creative behavior.

Gadot and Talmud, 2010, p.2835, stated in the research that highly strong ties, increasing social support among the team members, reciprocity and mutual trust between the organization members are the strict and positive predictions of the job satisfaction and organizational commitment, and established that within this context, perceived organizational support is a mediator between perceived organizational policies and a set comprising job consequences such as job satisfaction, organizational commitment, tension and job performance.

In Demirel's (2008, p.192) research, it is underlined that supervisor support and trust increase the affective commitment of the employees to the organization; thus, supervisors need to pay more attention to the behaviors based on trust in order to provide employees with the commitment to the organizational values and enable them to identify themselves with the organization. Consequently, as stated by Ribbers (2009, p.7), organizational trust is the faith in the supervisor to be honest and succeed in the subject of commitment, thanks to the trust in supervisor and the feeling of support. This definition can be evaluated as one of the most meaningful expressions summarizing the relation between trust, support and commitment.

The purpose of the research

The purpose of this research is to determine the relation between organizational trust, organizational support and organizational commitment of the administrators and teachers who are employed in the secondary education schools in the city center of Bolu Province, Turkey and to reveal whether there are statistically meaningful differences between the organizational trust, organizational support and organizational commitments of the administrators and teachers.

In order to reach this purpose, an answer has been sought to the question "whether there is a statistically meaningful relation between the organizational trust, organizational support and organizational commitments of the administrators and teachers who are employed in the secondary education schools''. So the study was performed in four stages to respond to this question. These stages were analyzed in the form hereinafter set forth.

1. Is there a statistically meaningful relation between the organizational trust and organizational support of the administrators and teachers who are employed in the secondary education schools?
2. Is there a statistically meaningful relation between the organizational trust and organizational commitments of the administrators and teachers who are employed in the secondary education schools?
3. Is there a statistically meaningful relation between the organizational support and organizational commitments of the administrators and teachers who are employed in the secondary education schools?
4. Is there a statistically meaningful relation between the organizational trust, organizational support and organizational commitments of the administrators and teachers who are employed in the secondary education schools?

METHOD

Research model

This research sought to identify organizational trust, organizational support and organizational commitment perceived by the administrators and teachers who are employed in the secondary education schools and the type and level of the relation between them. This research is a study in the relational screening (survey) model.

The research is both descriptive and explanatory in terms of its purpose because in the theoretical framework organizational trust, organizational support and organizational commitment have been addressed in all their parts and defined with reference to various perspectives and approaches.

Data collection method and tools

In the research, data were collected from the administrators and teachers through several scales. To that end, a data collection tool was prepared and applied to the whole administrators and teachers in order to measure the demographical characteristics and the variables to be utilized in the research. In the research, data on organizational trust, organizational support and organizational commitment were collected by conducting a literature review and implementation of data collection tool (scale). Within this context, resources about the research were detected, national and foreign research, publications and books were reviewed, and the foreign ones were translated into Turkish. Finally the theoretical framework of the research was established. In the selection of data collection tools, relative literature was reviewed, previously applied data collection tools regarding organizational trust, organizational support and organizational commitment were analyzed and it was concluded that the Organizational Trust Inventory (OTI) developed by Nyhan and Marlowe (1997), the short form of the Survey of Organizational Support (Survey of POS) developed by Eisenberger et al. (1986) and the Organizational Commitment Questionnaire (OCQ) developed by Allen and Meyer (1990) are suitable data collection tools for the purpose of the research.

These three data collection tools were utilized in the research. Organizational Trust Inventory developed by Nyhan and Marlowe to determine the organizational trust perceptions of the administrators and teachers was adapted to Turkish by Demircan (2003). The reliability, explanatory factor analysis and validity tests of the data collection tool were performed by Nyhan and Marlowe (1997) and

the coefficient of internal consistency (Cronbach Alpha) was calculated as .96. This value is the indicator of high reliability in the literature of statistics.

The Organizational Trust Scale has two sub-dimensions, which are trust in supervisor and trust in organization, consists of 12 items and assesses the organizational trust as emotional, cognitive and intended behavior. The sub-dimension of trust in supervisor is made up of 8 items and covers items 1-8. The sub-dimension of trust in organization is made up of 4 items and covers items 9-12.

The Survey of Organizational Support was used secondarily, and developed by Eisenberger et al. (1986) in order to determine the organizational support perceptions of the administrators and teachers was adapted to Turkish by Akin (2008). Reliability, explanatory factor analysis and validity tests of the data collection tool were performed by Eisenberger et al. (1986) and the coefficient of internal consistency was calculated as (Cronbach Alpha) .97. This value indicates that the data collection tool has a high reliability.

The Survey of Organizational Support has one dimension and 36 items. However, this data collection tool can be used as a short form consisting of 16 items created by the researchers through selection among the items in the scale. In this research, the short form was utilized. 2nd, 3rd, 5th, 6th, 9th, 12nd, 13rd questions were prepared as reverse questions in the original text in English and this characteristic was preserved in their Turkish adaptation.

The Organizational Commitment Questionnaire was used thirdly, and developed by Allen and Meyer (1990) to determine the organizational commitment perceptions of the administrators and teachers. This was adapted to Turkish by Wasti (2000). Reliability, explanatory factor analysis and validity tests of the data collection tool were performed by Allen and Meyer (1990) and the coefficient of internal consistency (Cronbach Alpha) was calculated as .87 for affective commitment, .75 for continuance commitment and .79 for normative commitment. This value indicates that the data collection tool has high reliability and can be used in the researches to be conducted. At the same time, this model covers multidimensional organizational commitment models and represents the components establishing organizational commitment. The sub-dimensions of these components form the entirety of the organizational commitment.

Organizational Commitment Questionnaire is a data collection tool which has three sub-dimensions, which are affective commitment, continuance commitment and normative commitment, and 24 items. Sub-dimension of affective commitment is made up of 8 items and covers items 1-8, sub-dimension of continuance commitment is made up of 8 items and covers items 9-16, sub-dimension of normative commitment is made up of 8 items and covers items 17-24. 4th, 5th, 6th 8th, 9th, 12nd, 18th, 19th and 24th questions were prepared as reverse questions in the original text in English and this characteristic was preserved in their Turkish adaptation.

All of three data collection tools have a Likert-type scale, as 1 (Strongly disagree), 2 (Disagree), 3 (Generally disagree), 4 (Not sure), 5 (Generally agree), 6 (Agree), 7 (Strongly agree).

Participants

The participants are composed of the school administrators and teachers who are employed in the secondary education schools in the center of Bolu Province, Turkey. According to the data received from Bolu Provincial Directorate of National Education, there are 17 secondary schools in the city center. In these schools, there are 812 educators including 90 administrators and 722 teachers in total. In this research, the whole administrators and teachers have been studied on, rather than sampling. Within the scope of the study, data collection tools were distributed to 812 educators in total

including 90 administrators and 722 teachers. The data collection tools were withdrawn after 20 days.

After being checked, 601 data collection tools in total, 72 of which belonged to administrators and 529 of which belonged to teachers, were proved to be appropriate for the research and were used in the assessment. The personal data of participants to the study are shown in Table 1.

Implementation of pilot study and data collection tool

Before commencing the research, a pilot study was carried out in order to prevent possible errors in the implementation, control whether the articles in the data collection tools were understood correctly, and test the reliability levels in terms of the factor structures of the data collection tools. In the pilot study, the data collection tools (scales) were applied to 60 educators in a secondary education school in the center of Bolu Province and it was checked whether the questions were understood correctly. The prepared scale was applied to both administrators and teachers in the same form and the same questions were directed.

Moreover, in addition to this application, three lecturers who can give information in this regard in Abant Izzet Baysal University were interviewed, the received opinions and recommendations were analyzed, and the data collection tool was finalized.

Validity and reliability

For reliability in this research, both pilot application and the test and test again method were utilized, and Cronbach Alpha values were used in the main research performed over the pilot application and the whole participants, and while evaluating the results of the research, the distinctiveness of each article was examined by analyzing the correlation of the edited article total. The pilot application was realized with a 15- day break as preliminary test and final text, and the results are given in Table 2.

When Table 2 is analyzed, a direct (positive) relation of medium level has been found between preliminary and final tests of organizational trust, organizational support and organizational commitment (Ural and Kılıc, 2005, p.220). In the factor analysis made according to the data achieved from preliminary and final tests, it is established that factors are properly distributed; explaining 50 percent of total variance and their eigenvalue is over 1.

Firstly, research questions were assessed while meetings were held with experts so as to assess the validity of structure, content and application of this question form and afterwards, the statistical analysis method, with which these questions will be tested, and the data collection tool appropriate for that method were determined. Lastly, the data collection tool in the research was tested on a sample group of 60 educators in order to establish the validity of application while also aiming to assess the content and clarity of the scale. Since opinions and suggestions of the experts in the field regarding the scale items were taken and no problems regarding the content and clarity of the scale were encountered, it was concluded that the contents of the data collection tools were valid.

Since the data collection tools employed in the research were used in a different culture and on a different sample, the data had to go through a factor analysis and the reliabilities of the data regarding the obtained factors had to be ensured. Therefore, in the conducted research the factor analysis method was used in the testing of the structural validity of the data collection tools which were used for the measurement of the organizational trust, organizational support and organizational commitment. With this technique, it was determined whether each data collection tool measured more than one structure, in other words, whether it was one-dimensional or not. After the validity and reliability of the data collection tools were

Table 1. The personal data of participants of the study.

Personal data	Administrator		Teacher	
	f	%	f	%
Sort of school				
The public high school	9	12.5	49	9.3
The vocational high school	39	54.1	278	52.6
The high school of Anatolian	20	27.8	178	33.6
The high school of science	4	5.6	24	4.5
Total	72	100.0	529	100.0
Educational status				
Associate degree	-	0.0	7	1.3
Teacher's college	3	4.2	10	1.9
Consummation of license	4	5.6	7	1.3
License	48	66.6	410	77.5
Postgraduate education	17	23.6	95	18.0
Total	72	100.0	529	100.0
Branch				
Science of technology	20	27.8	133	25.2
Social sciences	26	36.0	198	37.4
Vocational lessons	21	29.2	146	27.6
The fine arts	5	7.0	52	9.8
Total	72	100.0	529	100.0
Seniority				
1-5 years	1	1.4	48	9.1
6-10 years	7	9.7	102	19.3
11-15 years	18	25.0	166	31.4
6-20 years	18	25.0	110	20.7
21 yıl and longer	28	38.9	103	19.5
Total	72	100.0	529	100.0
Age				
30 and younger	4	5.6	68	12.8
31-40	30	41.6	285	53.9
41-50	22	30.6	141	26.7
51 and older	16	22.2	35	6.6
Total	72	100.0	529	100.0
Gender				
Female	19	26.4	256	48.4
Male	53	73.6	273	51.6
Total	72	100.0	529	100.0

tested, confirmatory factor analyses were also conducted by the LISREL software in order to ascertain whether the factor structure of the data collection tools had the same dimensions as the ones suggested by the researchers who developed the scale.

While the statistics regarding the common variances (communalities) in the conducted work were examined, a value of 0.30 was taken as a base. Items that were loaded onto values regarding factor loads under 0,30 were eliminated. This showed that the items significantly contributed to the measurement of their relevant dimensions. The Varimax rotation method was employed in the factor analysis, since it made the variables loaded into a factor more distinct and minimized the correlation of a factor with other factors.

Table 2. Results of pilot implementation.

Scale		α	r	p
Organizational Trust	Preliminary Test	.938	.661	0.00*
	Final Test	.946		
Trust –in-Supervisor	Preliminary Test	.932		
	Final Test	.924		
Trust-in-Organization	Preliminary Test	.901		
	Final Test	.904		
Organizational Support	Preliminary Test	.931	.565	0.00*
	Final Test	.945		
Organizational Commitment	Preliminary Test	.817	.527	0.00*
	Final Test	.881		
Affective Commitment	Preliminary Test	.737		
	Final Test	.762		
Continuance Commitment	Preliminary Test	.682		
	Final Test	.702		
Normative Commitment	Preliminary Test	.750		
	Final Test	.851		

Note: * $p < 0{,}01$

The research began with the reliability analysis (Construct Validity by Using Consistency Criteria). This analysis was applied to test the reliability of the factors amongst themselves. Afterwards Squared Multiple Correlation and Corrected Item- Total Correlation values were also examined. In the research, a value of 0,20 was taken as the lower values for both values.

While the reliability analysis was conducted, Cronbach-Alpha coefficients were also calculated. After the assessments done in this context, the factor structures and Cronbach-Alpha internal consistency coefficients obtained for each scale were presented below.

The validity and reliability of the organizational trust scale: Organizational trust was measured by 12 items. The internal consistency coefficient was calculated as $α = .895$. It was proposed that the organizational trust items would be collected under two factors; one of them being trust in supervisor, and the other trust in organization. After the factor analysis with Varimax rotation, it was observed that the two factors became apparent as expected. The first factor is composed of eight items and is named trust in supervisor. The internal consistency coefficient of the factor was calculated as $α = .881$.

The internal consistency efficiency of the second factor was calculated as $α = .851$. It was observed that four items in the second factor were items that measured the trust in organization.

As a result of the reliability analysis made again by examining communalities and corrected item correlation value, the following coefficients were determined: organizational trust internal consistency coefficient $α = .893$, trust in supervisor internal

consistency coefficient $α = .898$ and trust in the organization $α = .888$. In order to specify the variables in these factors, the rotating process was also repeated. This process was again carried out by the varimax method. The variables in the factors and also factor loads were determined by examining the factor matrix that developed as a result of the rotating process. These values are shown in Table 3.

The validity and reliability of the organizational support scale. The organizational support was measured by 16 items. Internal consistency coefficient was calculated as $α = .921$. It was proposed that the organizational support items be collected under one single factor. As a result of the factor analysis with varimax rotation, only one factor was observed to become apparent as it had been expected.

No values, whose corrected item correlation value and the square of their multiple correlations were below 0.20, were found. These coefficients indicate that the factors are very reliable in themselves and that they have internal validity. The factor loads in the factor were also determined by examining the factor matrix that developed as a result of the rotating process. These values are shown in Table 4.

The validity and reliability of the organizational commitment scale: The organizational commitment was measured by 24 items. Internal consistency coefficient was calculated as $α = .892$. It was proposed that the organizational commitment items be collected under three factors, which are affective commitment, continuance commitment and normative commitment. As a result of the factor analysis with varimax rotation, three factors were observed to become apparent as it had been expected. The first factor consists

Table 3. Items and component loads of the organizational trust scale.

Factor	Relevant values	Factor load	Factor load
Factor 1:	ot1	.728	
Trust in supervisor	ot2	.765	
	ot4	.772	
	ot5	.815	
	ot6	.741	
	ot7	.780	
	ot8	.752	
Factor 2:	ot10		.825
Trust in organization	ot11		.897
	ot12		.909

Total variance explained: 42.429%. Item eigenvalue: 5.186. Total variance explained: 25.752%. Item eigenvalue: 1.632.

Table 4. Organizational support scale items and component loads.

Factor	Relevant values	Factor load
Organizational Support	os1	.691
	os2	.612
	os3	.743
	os4	.587
	os5	.745
	os6	.775
	os7	.650
	os8	.636
	os9	.781
	os10	.635
	os11	.581
	os12	.735
	os13	.740
	os14	.697
	os15	.654
	os16	.582

Total variance explained: 46.404%. Item eigenvalue: 7.425.

of eight items and is referred to as affective commitment. The internal consistency coefficient of the factor was calculated as α = .881.

The internal consistency coefficient of the second factor was calculated as α = .725. It was observed that the eight items in the second factor were items that measured continuance commitment. The third factor also consists of eight items and is referred to as normative commitment. The internal consistency coefficient of the factor was calculated as α = .821.

As a result of the reliability analysis made again by examining communalities and corrected item correlation value, the following coefficients were determined: organizational commitment internal consistency coefficient α = .859; affective commitment internal consistency coefficient α = .829; continuance commitment internal consistency coefficient α = .705 and normative commitment internal consistency coefficient α = .771. In order to specify the variables in these factors, the rotating process was also repeated. This process

was again carried out by the varimax method.

The variables in the factors and also factor loads were also determined by examining the factor matrix that developed as a result of the rotating process. These values are shown in Table 5. Confirmatory factor analysis (CFA) was also used in the research to examine the obtained values as well as to test the theoretical structures. In this research, in the interpretation of fit indexes, x^2/Sd, RMSEA (Root Mean Square Error of Approximation), S-RMR (Standardized Root Mean Square Residual), NNFI (Non-Norrmed Fit Index) and CFI (Comparative Fit Index) values were taken as measures. As a result of the assessments, the scale index values for the CFA used in the research and the obtained values are shown in Tables 6 and 7. For the confirmatory factor analysis of the research model, structural equation modeling path analysis was used and the obtained values were confirmed by the essential requirement t-values. In the path analysis the efforts were made to define the relation between organizational trust, organizational

Table 5. Organizational commitment scale items and component loads.

Factor	Relevant values	Factor load	Factor load	Factor load
	oc1	.628		
	oc4	.482		
Factor 1: Affective commitment	oc5	.769		
	oc6	.845		
	oc7	.594		
	oc8	.782		
	oc11		.609	
	oc12		.556	
Factor 2: Continuance commitment	oc14		.787	
	oc15		.725	
	oc16		.523	
	oc17			.678
	oc20			.719
Factor 3: Normative commitment	oc21			.702
	oc22			.652
	oc23			.607

Total variance explained: 21.993%; Item eigenvalue: 5.272. Total variance explained: 16.487%; Item eigenvalue: 1.932. Total variance explained: 15.699%; Item eigenvalue: 1.464.

Table 6. The goodness-of-fit index values of the researched relation before assessment.

GOF measure	Good fit	Acceptable fit	Value	State of GOF
x^2/Sd	$0<x^2/Sd<2$	$2<x^2/Sd<3$	3.59	NOT FIT
RMSEA	$.00<RMSEA<.05$	$.05<RMSEA<.08$	.066	ACCEPTABLE
SRMR	$.00<RMR<.05$	$.05<RMR<.10$	.067	ACCEPTABLE
NNFI (TLI)	$.95<NNFI<1.00$	$.90<NNFI<.95$	.95	GOOD FIT
CFI	$.95<NNFI<1.00$	$.90<NNFI<.95$	.96	GOOD FIT

Note: x^2 =4361,44; Sd = 1214

Table 7. The goodness-of-fit index values of the researched relation after assessment.

GOF measure	Good fit	Acceptable fit	Value	State of GOF
x^2/Sd	$0<x^2/Sd<2$	$2<x^2/Sd<3$	2.86	ACCEPTABLE
RMSEA	$.00<RMSEA<.05$	$.05<RMSEA<.08$	.056	ACCEPTABLE
SRMR	$.00<RMR<.05$	$.05<RMR<.10$	.056	ACCEPTABLE
NNFI (TLI)	$.95<NNFI<1.00$	$.90<NNFI<.95$	.97	GOOD FIT
CFI	$.95<NNFI<1.00$	$.90<NNFI<.95$	.97	GOOD FIT

Note: x^2 =2305,56; Sd = 807.

support and organizational commitment and it was checked whether the paths of the relation, which were researched with the t-values, had any significance. The values obtained as a result of the first analysis are shown in Table 6.

According to these results, it was concluded that the goodness-of-fit values were statistically not at an acceptable level. According to the results, the ratio of the 4361,44 chi-square to the 1214 degree of freedom is 3,59 and since it is above the recommended value of 3, it is not acceptable. According to these values, the acceptability of the researched relation is not at the acceptable level.

Model goodness-of-fit index values obtained after the examination as a result of the elimination of the correlation of the article sums edited with low factor load values and the variables whose multiple correlations are unacceptable by re-inspecting the relation researched are given in Table 7.

These values were, however, ranked among acceptable values (x^2 =2305,56 ; Sd = 807 and x^2/Sd = 2,86). The obtained x^2/Sd, RMSEA and SRMR values indicate an acceptable fit, while NNFI(TLI) and CFI values indicate a good fit. When the values of the data collection tool obtained as a result of CFA, the essential requirement t-values and the path analysis are examined, it can be stated that the relation intended for the research is appropriate.

All statistical analyses conducted in the research were made with a reliability rate of .95 and the findings obtained as a result of the analysis were interpreted by turning these findings into tables in accordance with the purpose of the study and the questions that the research sought answers for. In this research, relational analysis was done through the correlational kind of relation. In the case when the parametric test conditions were met for the aim of determining the level and direction of the relation between organizational trust- organizational support, organizational trust-organizational commitment and organizational support-organizational commitment variables, Pearson product-moment correlation coefficient was used; and when those conditions could not be met, the Spearman test was used. The explanation of the relation between the perceptions about organizational trust, organizational support and organizational commitment through a mathematical model was carried out by multiple linear regression analysis, while a variance analysis was employed to ascertain if the researched relation had any significance. Moreover, the relation between the researched perceptions was confirmed by the path diagram regarding the coefficients standardized by the LISREL software and the path diagram regarding the T-values.

Average points were used when interpreting the analyses obtained from all three scaling tools (descriptive statistics results), while class interval method was used for grading in accordance with the Likert scale.

Analysis of the data

After the data collection tool was applied and collected, all analyses were made being based on the number of valid and acceptable data collection tools. The research includes the answers that administrators and teachers have given to the items in the scale in the scope of the descriptive analysis.

SPSS statistics software was used when analyzing the data collected for the purpose of the research. After the descriptive findings were shown, LISREL software was also used for the relational findings and accordingly, the necessary confirmatory analyses were conducted.

RESULTS

In the first stage of the research; it was examined whether there was a meaningful relation between the perceptions of administrators and teachers who are employed in the secondary education schools towards organizational trust and organizational support. Shapiro-Wilk normal distribution test was conducted to determine the level and direction of the perceptions towards organizational trust and organizational support. Since, according to the results, the perceptions of the administrators towards organizational trust and organizational support complied with normal distribution, Simple Correlation Analysis (Table 8) was used in the calculation; however, since the perception of the teachers towards organizational trust and organizational support did not comply with normal distribution, the Spearman Analysis (Table 9) was used. Looking at the results (Table 8);

There is a positive, medium level relation between the perceptions of the administrators towards organizational trust, trust in supervisor, trust in organization and organizational support (p <0,01). When their perceptions towards organizational trust, trust in supervisor and trust in organization increase, their perceptions towards organizational support also increase.

Looking at the results concerning the teachers (Table 9), there is a positive, medium level relation between the perceptions of the teachers towards organizational trust, trust in supervisor, trust in organization and organizational support (p <0,01). When their perceptions towards organizational trust, trust in supervisor and trust in organization increase, their perceptions towards organizational support also increase.

Moreover, in the relational model made through LISREL analysis (Figure 1), the path coefficient is meaningful r=.70 (p <0,01) and positive, and this indicates the importance level and direction of the relation between organizational trust and organizational support.

On the other hand, in the relation between these factors, the result is realized as follows: t>1,96 (t=16,72), chi-square=2305,56 df=807 and RMSEA=.056 (Figure 2). According to these findings, it can be said that the support provided for administrators and teacher increases the trust-in-organization.

In the second stage of the research; it has been researched whether there is a meaningful relation between the perceptions of the administrators and teachers who are employed in the secondary education schools regarding organizational trust and organizational commitment. In order to determine the level and direction of the perceptions regarding organizational trust and organizational commitment, normal distribution test of Shapiro-Wilk has been used in this sub-problem. According to the results, because of the fact that administrators' perceptions regarding organizational trust and organizational commitment complied with the normal distribution, Basic Correlation Analysis (Table 10) has been used in the calculation; because of the fact that teachers' perceptions regarding organizational trust and

Table 8. The simple correlation analysis related to administrator's perceptions towards organizational trust and organizational support.

Sorting of variable		Org. trust	Trust in supervisor	Trust in organization	Org. support
Org. Trust	Pearson correlation	1	.948**	.771**	.568**
	p		.000	.000	.000
Trust in Supervisor	Pearson Correlation	.948**	1	.529**	.483**
	p	.000		.000	.000
Trust in Organization	Pearson Correlation	.771**	.529**	1	.550**
	p	.000	.000		.000
Org. Support	Pearson Correlation	.568**	.483**	.550**	1
	p	.000	.000	.000	

Note: ** p < 0,01.

Table 9. The Spearman analysis related to teacher's perceptions towards organizational trust and organizational support.

Sort of variable			Org. trust	Trust in supervisor	Trust in organization	Org. support
Spearman's rho	Org.Trust	Coefficient	1	.773**	.773**	.496**
		p		.000	.000	.000
	Trust in Supervisor	Coefficient	.773**	1	1.000**	.437**
		p			.000	.000
	Trust in Org.	Coefficient	.773**	1.000**	1	.437**
		P	.000			.000
	Org. Support	Coefficient	.496**	.437**	.437**	1
		p	.000	.000	.000	

Note: ** p < 0,01.

organizational commitment didn't comply with the normal distribution, Spearman Analysis (Table 11) has been used. When the findings obtained have been analyzed, the results are as follows:

1. There is a meaningful, p<0.05 level relation between the perceptions of the administrators regarding organizational trust and organizational commitment and perceptions of affective commitment. As their perceptions of organizational trust increase, their perceptions of organizational commitment and affective commitment increase, too.

2. There is a positive, medium level relation at p<0,01 level between the administrators' perceptions of trust-in-organization and their perceptions of organizational commitment and affective commitment; a meaningful relation at p<0,05 level between the perceptions of continuance commitment and normative commitment. As their perceptions of trust-in-organization increase, their perceptions of organizational commitment, affective commitment, continuance commitment and normative commitment increase, too.

When the findings concerning the teachers have been
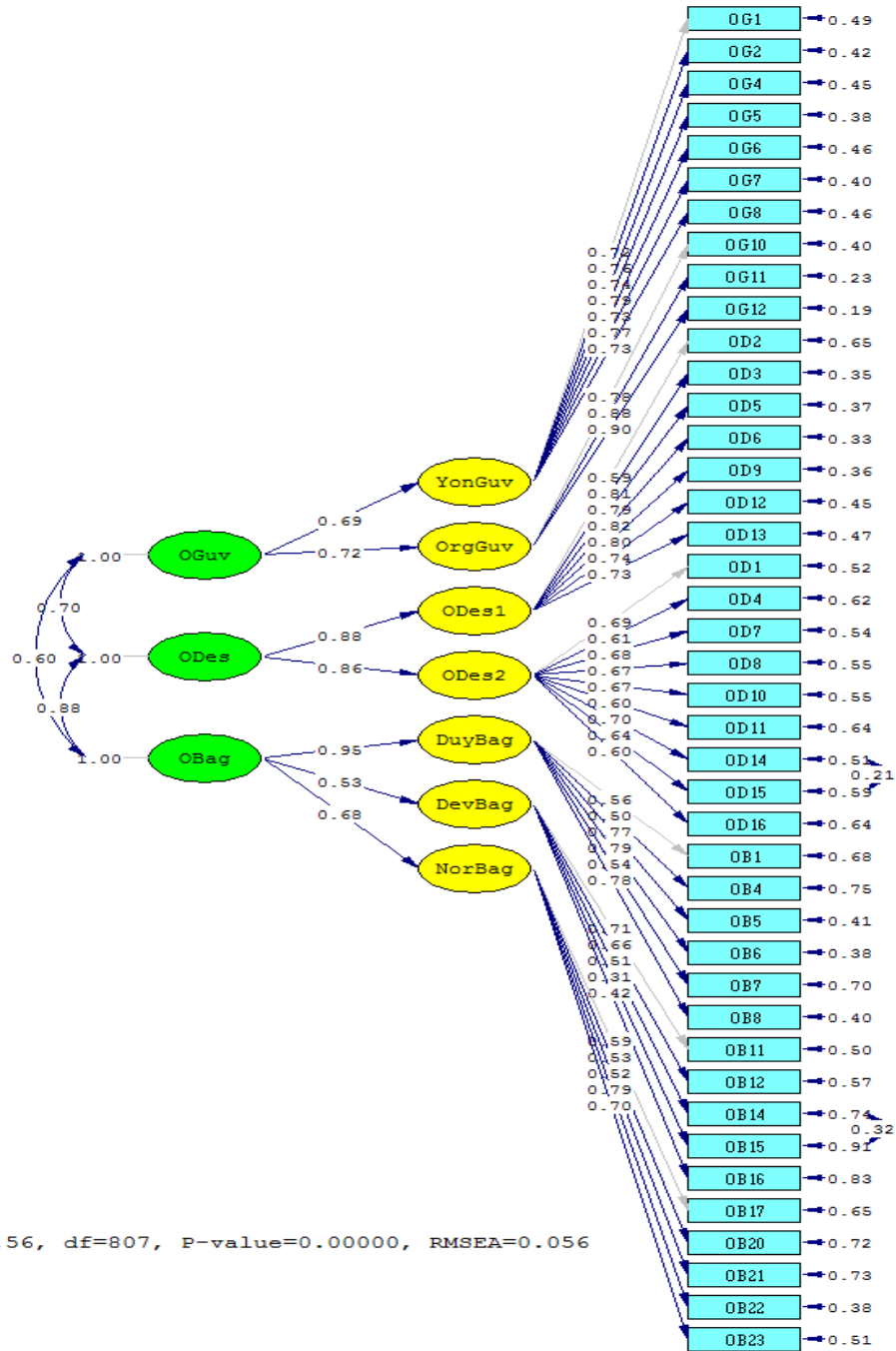
Figure 1. Path diagram of the standardized coefficients.

analyzed, the results are shown in Table 11.

With regard to the teachers, following conclusions have been drawn:

1. There is a positive, medium level relation between the teachers' perceptions of organizational trust and perceptions of organizational commitment, affective commitment and normative commitment and a positive and low level (p<0,01) relation between their perceptions of organizational trust and perceptions of continuance commitment. As their perceptions of organizational trust increase, their perceptions of organizational commitment, affective commitment, continuance commitment and normative commitment increase, too.

2. There is a positive, medium level relation between the teachers' perceptions of trust-in-supervisor and percep-
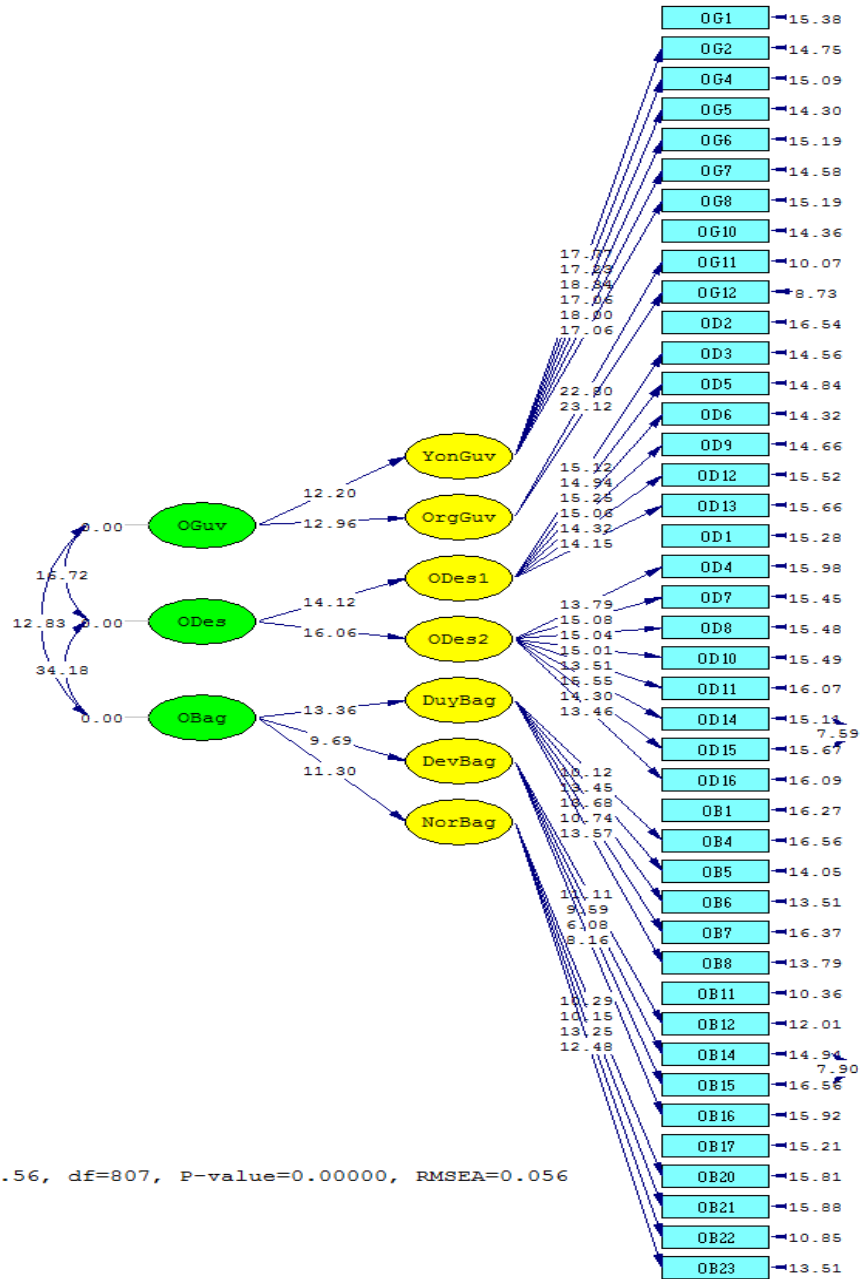
Figure 2. Path diagram of T values.

tions of organizational commitment, affective commitment and normative commitment; a positive, low level (p<0,01) relation between their perceptions of trust-in-supervisor and their perceptions of continuance commitment. As their perceptions of trust-in-supervisor increase, their perceptions of organizational commitment, affective commitment, continuance commitment and normative commitment increase, too.

3. There is a positive, medium level relation between the teachers' perceptions of trust-in-organization and

perceptions of organizational commitment, affective commitment and normative commitment; a positive, low level (p<0,01) relation between their perceptions of trust-in-organization and their perceptions of continuance commitment. As their perceptions of trust-in-organization increase, their perceptions of organizational commitment, affective commitment, continuance commitment and normative commitment increase, too.

Moreover, in the relational model (Figure 1) realized with

Table 10. The simple correlation analysis related to administrator's perceptions towards organizational trust and organizational commitment.

Sort of variable		Org. Commitm.	Affec. Commitm.	Cont. Commitm.	Norm. Commitm.
Org. Trust	Pearson Correlation	.232*	.260*	.051	.086
	p	.049	.027	.671	.117
Trust in Supervisor	Pearson Correlation	.116	.156	-.049	.132
	p	.332	.189	.683	.270
Trust in Organization	Pearson Correlation	.390**	.383**	.235*	.234*
	p	.001	.001	.047	.048

Note: ** p < 0.01; * p < 0.05.

Table 11. The Spearman analysis related to teacher's perceptions towards organizational trust and organizational commitment.

Sort of variable			Org. Commitm.	Affec. Commitm.	Cont. Commitm.	Norm. Commitm.
Spearman's Rho	Org. Trust	Cor. coefficient	.403**	.370**	.231**	.382**
		p	.000	.000	.000	.000
	Trust in Supervisor	Cor. coefficient	.397**	.382**	.192**	.379**
		p	.000	.000	.000	.000
	Trust in Organization	Cor. coefficient	.397**	.382**	.192**	.379**
		p	.000	.000	.000	.000

Note: ** p < 0.01.

LISREL analysis, the fact that path coefficient of organizational trust-organizational commitment is meaningful as r=.60 (p<0,01) and positive shows the significance level and direction of the relation between these two factors. On the other hand, the result is realized in the relation between these factors as follows: t>1,96 (t=12,83), chi-square=2305,56 df=807 and RMSEA=.056 (Figure.2). According to these findings, it can be said that trust perceived by the administrators and teachers in the organization increases the commitment to the organization.

In the third stage of the research; it has been researched whether there is a meaningful relation between the perceptions of the administrators and teachers who are employed in the secondary education schools regarding organizational support and organizational commitment. In order to determine the level and direction of the perceptions regarding organizational support and organizational commitment, normal distribution test of Shapiro-Wilk has been used in this sub-problem. According to the results, because of the fact that administrators' perceptions regarding organizational support and organizational commitment comply with the normal distribution, Basic Correlation Analysis (Table 12)

has been used in the calculation; because of the fact that the teachers' perceptions regarding organizational support and organizational commitment do not comply with the normal distribution, Spearman Analysis (Table 13) has been used;. When the findings obtained have been analyzed, the following results have been reached:

There is a relation at p<0,01 level between perceptions of the administrators regarding organizational support and organizational commitment (a positive and medium level relation); a positive and strong relation between their perceptions of organizational support and perceptions of affective commitment; a relation at p<0,05 level between their perceptions of organizational support and perceptions of normative commitment. As their perceptions of organizational support increase, their perceptions of organizational commitment, affective commitment and normative commitment increase, too.

With regard to teachers, the following results were reached:

There is a positive, medium level relation between the teachers' perceptions of organizational support and perceptions of organizational commitment, affective commitment and normative commitment; a positive, low

Table 12. The simple correlation analysis related to administrator's perceptions towards organizational support and organizational commitment.

Sort of variable		Org. Support	Org. Commitm	Affec. Commitm.	Cont. Commitm.	Norm. Commitm.
Org.Support	Pearson Correlation	1	.585**	.747**	.213	.253*
	p		.000	.000	.072	.032

Note: ** p <0,01; * p<0,05.

Table 13. The Spearman analysis related to teacher's perceptions towards organizational support and organizational commitment.

Sort of variable			Org. Support	Org. Commitm	Affec. Commitm.	Cont. Commitm.	Norm. Commitm.
Spearman's Rho	Org. Support	Cor. coefficient	1	.640**	.698**	.300**	.524**
		p		.000	.000	.000	.000

Note: ** p <0,01.

level (p<0,01) relation between their perceptions of organizational support and their perceptions of continuance commitment. As their perceptions of organizational support increase, their perceptions of organizational commitment, affective commitment, continuance commitment and normative commitment increase, too.

Moreover, in the relational model (Figure 1) realized with LISREL analysis, the fact that path coefficient of organizational support-organizational commitment is meaningful as r=.88 (p<0,01) and positive shows the significance level and direction of the relation between these two factors. On the other hand, it is realized in the relation between these factors (Figure.2) as follows: t>1,96 (t=34,18), chi-square=2305,56 df=807 and RMSEA=.056. According to these findings, it can be said that support perceived by the administrators and teachers in the organization increases the commitment to the organization.

In the final stage of the research; it has been researched whether there is a meaningful relation between the perceptions of the administrators and teachers who are employed in the secondary education schools regarding organizational trust, organizational support and organizational commitment. The explanation of the relation between the organizational trust, organizational support and organizational commitment levels of the teachers and administrators with a mathematical model has been realized via multiple linear regression analysis and in the analyses enter method has been used. The reason why multiple linear regression model has been used in the research is that the number

of the independent variables is more than one and the relation between variables is linear.

In the research organizational commitment has been evaluated as the dependent variable and organizational trust and organizational support as the independent variables. In order to research the reliability of the evaluations made after the multiple linear regression model is established, the model has been tested. Whether the model is proved meaningful, that is, whether is a linear relation between dependent variable and independent variables, and the dependent variable is explained by independent variables have been tested via variance analysis (Table 14).

When the variance analysis regarding the perceptions of the administrators and teachers about organizational trust, organizational support and organizational commitment is inspected, the organizational commitments of the administrators and teachers exhibit a meaningful difference according to the joint impact of organizational trust and organizational support (F= 1,524 and p=,002; p<0,01). This result shows that the model is meaningful.

Within this context, according to the results obtained from the multiple linear regression model established for the perceptions of administrators, the relation between the perceptions of the administrators regarding organizational trust, organizational support and organizational commitment has been found statistically meaningful (p= ,000; p<0,01) (Table 15).

According to the results of the relation between variables regarding perceptions of the administrators, there is a positive and medium level relation (r= ,598) between variables (Table 16).

As per the multiple linear model for administrators

Table 14. The results of variance analysis related to administrator's and teacher's perceptions towards organizational trust, organizational support and organizational commitment.

Source	Type III Sum of Squares	d.f.	Mean squere	F	p
Corrected Model	407.883[a]	454	. 898	3.187	,000
Intercept	5045.824	1	5045.824	1.790E4	,000
Org.Trust	12.741	39	.327	1.159	,263
Org.Support	166.509	68	2 .449	8.687	,000
Org.Trust* Org.Support	149.049	347	.430	1.524	,002
Error	41.156	146	.282		
Total	15562.293	601			
Corrected Total	49.039	600			

Test of Between-Subjects Effects. Dependent Variable: Organizational Commitment. Note: (a) R^2 = ,908 (Adjusted R^2= ,623).

Table 15. The statistically meaningfulness of the regression model related to administrator's perceptions.

ANOVA(b)					
Model		Sum of Squares	d.f.	Mean Square	F	p
1	Regression	18.501	2	9.251	19.195	.000[a]
	Residual	33.252	69	.482		
	Total	51.753	71			

Note: (a) Predictors: (Constant), Org.Trust, Org.Support (b) Dependent Variable: Org.Commitment.

Table 16. The relation between variables regarding perceptions of the administrators.

Model	R	R^2	Adjusted R^2	Std.Error of the Estimate
1	.598 (a)	.357	.339	.694

Note: (a) Predictors: (Constant), Org.Trust, Org.Support.

Table 17. The parameters regarding regression model as to perceptions of the administrators.

Model		B	Std.Error	t	p
	Constant	2,653	,613	4,329	,000
1	Org.Trust	-,176	,140	-1,261	,212
	Org.Support	,595	,104	5,708	,000

Coefficients[a] Note: (a) Dependent Variable: Org.Commitment.

established in accordance with the findings obtained parameters regarding regression model as to perceptions of the administrators (Table 17), it can be said that while the perceptions of administrators regarding organizational commitment are evaluated, their perceptions regarding organizational support (p= ,000) have much more impact than their perceptions of organizational trust (p= ,212).

According to the results obtained from the multiple linear regression model established as per the perceptions of the teachers, the relation in multiple linear regression model established between the perceptions of teachers regarding organizational trust and organizational support, and the perceptions of organizational commitment has been found statistically meaningful (p= ,000; p<0,01) (Table 18).

According to the results of relation between variables regarding perceptions of teachers, there is a positive and medium level relation (r= ,667) between variables (Table 19).

As per the multiple linear model for teachers established in accordance with the findings obtained parameters regarding regression model as to perceptions of the teachers (Table 20), it can be said that while the perceptions of teachers regarding organizational commitment are evaluated, their perceptions regarding

Table 18. The statistically meaningfulness of the regression model related to teacher's perceptions.

Model		Sum of Squares	d.f.	Mean Square	F	p
	Regression	175.497	2	87.749	210.589	.000[a]
1	Residual	219.175	526	.417		
	Total	394.672	528			

ANOVA(b). Note: (a) Predictors: (constant), Org.Trust, Org.Support (b) Dependent Variable: Org.Commitment.

Table 19. The relation between variables regarding perceptions of the teachers.

Model	R	R^2	Adjusted R^2	Std.Error of the Estimate
1	.667 (a)	.445	.443	.646

Note: (a) Predictors: (Constant), Org.Trust, Org.Support

organizational support (p= ,000) have much more impact than their perceptions of organizational trust (p= ,003).

The multiple linear regression model calculated has been also supported by LISREL software. Since the LISREL evaluations are affected by the sample size and complexity of the model, it could be realized on the basis of the values belonging to the 601 administrators and teachers evaluated in the research. Another reason why the evaluations made in the regression model for the administrators and teachers respectively cannot be made on LISREL software is the insufficient number (72) of administrators.

Moreover, in the researches carried out with LISREL software, every latent variable needs to have more than one indicator. However, the articles of the organizational support scale have a single factoral structure. This problem can be solved by classifying the scale articles corresponding to each latent variable and increasing the number of the indicators. So, in the research, the articles of the organizational support scale have been separated into two, average points for each part have been calculated and the relevant latent variable has been given two indicators.

The results of the relation researched via LISREL software indicate that the model has harmonized well (Figure 1). It is obvious that the relation of organizational trust with organizational support and (r= .70 p<.05) organizational commitment (r= .60 p<.05), the relation of organizational support with organizational commitment (r= .88 p<.05) are meaningful. According to fix indexes of the research, goodness of fit indexes presenting how much the findings suit the relation being researched have exhibited high levels. In accordance with the findings obtained within this context, the relation being researched has been supported. In addition, basic requirement T values (t<-1,96 and t> 1,96 and p< .05) have been provided in the research and the ways of the relation being researched have been found meaningful (Figure 2).

Table 20. The parameters regarding regression model as to perceptions of the teachers.

Model		B	Std.Error	t	p
1	Constant	1,409	,208	6,772	,000
	Org.Trust	,122	,042	2,944	,003
	Org.Support	,565	,034	16,458	,000

Coefficients[a] Note: (a) Dependent Variable: Org.Commitment.

DISCUSSION

When the literature is analyzed, a great deal of evidence can be found proving that there is a meaningful relation between organizational support and organizational trust. Ng (2011) and Ngang (2012) have established a meaningful relation between perceived supervisor support and the trust-in-organization of the employees, in their research. Riggle (2007) has revealed that perceived organizational support affects trust in a positive way. Annamali et al. (2010) and Hughes et al. (2008) have also acquired a positive relation between supportive environment and trust. In Eser's (2011) research, a low level, positive and meaningful relation has been detected between trust tendency and organizational support. Gadot and Talmut (2010) state in their research that there is a positive and meaningful relation between provided support and trust-in-organization. Polat (2010) has also confirmed the high level and positive relation between perceptions of organizational support and perceptions of organizational trust.

Also in this research, both administrators' and teachers' perceptions of organizational support and perceptions of organizational trust, trust-in-supervisor and trust-in-organization have been found meaningful at medium level. This result has supported the evaluations mentioned above and the results achieved.

When the literature is reviewed, a great deal of evidence can be found proving that there is a meaningful relation between organizational trust and organizational commitment too. In their researches, Asgari et al. (2008), Cook and Wall (1980), Cetinel (2008), Çubukçu and Tarakçıoğlu (2010), Ngang (2012), Paker (2009), Topaloglu (2010), Vo (2010), and Yilmaz (2008) determined a strong and meaningful relation between trust and organizational commitment of employees. In Demirel's (2008) research, it was found that there is a positive relation between trust-in-organization and trust-in-supervisor, and between affective commitment and continuance commitment. In the researches of Hughes et al. (2008) and Mathebula (2004), there is a meaningful relation between trust and affective commitment in particular. In their research, Gadot and Talmud (2010) stated that there is a positive, meaningful relation between organizational commitment and trust-in-organization.

In this research, the administrators' perceptions of organizational trust and organizational commitment has been found meaningful at p<.05 level; perceptions of trust-in-organization and organizational commitment has been found meaningful at medium level; teachers' perceptions of organizational trust, trust-in-supervisor, trust-in-organization and organizational commitment have been found meaningful at medium level. These results obtained in the research have supported the evaluations.

When the analysis results are examined, it is seen that trust-in-organization of administrators is more effective over their affective commitments. As stated by Cetinel (2008), affective commitment is the most desired dimension of commitment by the organizations, because it means the adoption of the organization's objectives and values by the individuals and results in positive business behaviors. The result of the research regarding administrators has also supported this. It shows that administrators identify themselves with the organization. Therefore, administrators consider themselves as a part of the organization and feel that the organization has a great meaning and importance for them.

It is apparent that organizational trust, trust-in-supervisor and trust-in-organization of the teachers is more effective over their affective commitments. Here, as distinct from the administrators, it is obvious that the teachers trust in their administrators. This result is also supported by the findings of Straiter (2005). As stated by Ozdasli and Yucel (2010), trust-in-supervisor means believing that he/she fulfills his/her promise. The commitment-to-supervisor means accepting him/her emotionally and reasonably. It may be thought that commitment of an employee trusting his/her supervisor will increase. The result of the research has also supported this argument.

However, when the organizational trust of teachers is analyzed, it is revealed that their normative commitment

is perceived, too. As stated by Cetinel (2008), normative commitment does not stem from the fact that employees perceive the commitment to their organizations as a duty, they are required to behave in that way for their own benefit, but also the fact that they believe that what they do is right and moral. This situation concerning teachers can result from the fact that teachers believe that they have responsibilities and duties for the organization in which they work and thus feel obliged to stay in that organization.

When the literature is analyzed, a great deal of evidence can be found proving that there is a meaningful relation between organizational support and organizational commitment. In their researches, Asgari et al. (2008), and Ngang (2012) determined a strong and meaningful relation between supervisors' support and organizational commitment of the employees. In Kaplan's (2010) research, it has been revealed that one of the most important predecessors of organizational commitment is organizational support. Demir (2012), Kose and Gonulluoglu (2010), and Ozdevecioglu (2003) have stated in their researches that there is a positive relation between factors of organizational support and factors of organizational commitment. According to the researchers, there are so many factors that can affect the organizational commitments of the individuals. Organizational support is one of these factors. Akalin (2006), Eisenberger et al. (2001), Eisenberger et al. (1990) Hughes et al. (2008), and Rhoades, et al. (2001) have propounded in their researches that perceived organizational support has a meaningful and positive impact over affective commitment. Rhoades and Eisenberger (2002) have expressed in their research that there is a positive relation between perceived organizational support and organizational commitment, and affective commitment; a negatively meaningful relation between perceived organizational support and continuance commitment. Kaplan (2010) detected a positive relation between perceived organizational support and affective and normative commitment; a negative relation between perceived organizational support and continuance commitment. Gadot and Talmud (2010) and Yih and Lawrance (2011) stated in their researches that there is a positively meaningful relation between provided support and organizational commitment. Ucar and Otken (2010) detected in their research a meaningful relation between organizational support and affective and normative commitment, but did not come across a meaningful relation between continuance commitment and organizational support.

In the research the perceptions of administrators and teachers regarding organizational support and organizational commitment were found meaningful at medium level. As it is expected, according to the order of importance, perceptions of administrators and teachers regarding organizational support is like this: firstly

affective, secondly normative and finally continuance commitment. The results reveal that employees perceiving more support from the organization show tendency to stay in the organization, as a result of this, organizational support increases employees' perceptions of organizational commitment by creating a sense of dedication/devotion to the aims and objectives of the organization. These results achieved in the research have also supported the evaluations made.

There are also researches in the literature that examine the relation between organizational trust, organizational support and organizational commitment and achieve meaningful results. For example Ngang (2012) proved that organizational trust acted as a moderator between the perceived support of administrator and the teachers' commitment, while Sheng et al. (2010) expressed in their research, in which they examined the relation between employee behavior, trust, perceived team support and team commitment, that teamwork behaviors, trust and perceived team support influenced team commitment in a meaningful way. Hughes et al. (2008) in their research examined whether trust and employees' commitment acted as a mediator in explaining the relation between supportive climate and organizational commitment and found a statistically meaningful relation.

The results of this research are supportive of the research results mentioned above. The relation between organizational trust and organizational support and organizational commitment perceptions of both administrators and teachers has been found statistically meaningful. Moreover, it was determined that organizational support perceptions of administrators and teachers were more influential than their perceptions of organizational trust when assessing their perceptions of organizational commitment. This supports the claim that perception of organizational support establishes the trust in organization. Therefore, it can be said that employees who receive social support feel more secure than employees who do not receive social support, and this trust that develops within the organization, as a result, increases their organizational commitments. Also, according to the results of the research, it can be said that if organizational trust level is high, then the organizational commitments of the employees will correspondingly be influenced. The conducted researches show that when trust within the organization increases, the organizational commitments of employees also increase.

On the other hand, as a result of the research; the claim that the perceived organizational support creates a feeling of obligation for the employees that they have to contribute to the welfare of the organization and help the organization reach its goals and that the employees consequently feel more committed to the organization and make more efforts is also supported. As a result, it can be said that the research establishes that 'the trust and organizational commitment of the employees are stronger when they feel their organization is committed to them and supportive of them'.

Conclusion

The aim of this research was to determine the relation between the organizational trust, organizational support and organizational commitment of administrators and teachers. This research was conducted in the secondary schools in the city center of Bolu province and its participants consist of 601 educators with different individual characteristics, 72 of whom are administrators and the remaining 529 are teachers.

Most of the educators that make up the research universe are teachers and it is observed that the participants of the research mainly work at Vocational High Schools or the Social Sciences field. It is also observed that most of the participants are male educators, mostly in the 31-40 age range; they mainly have 11-15 years of experience and the majority have received a bachelor's degree in their related fields. As a result of the conducted research;

a. According to the findings obtained from the research, it has been concluded that there is a meaningful relation between perceptions of the administrators and teachers regarding organizational trust, trust in supervisor and trust in organization trust and their perceptions of organizational support.
b. Moreover, it has been concluded that there is a meaningful relation between the administrators' perceptions of organizational trust and their perceptions of organizational commitment and affective commitment; their perceptions of trust in organization and organizational commitment, affective commitment, continuance commitment and normative commitment. A meaningful relation between teacher's perceptions of organizational trust, trust in supervisor and trust in organization and their perceptions of organizational commitment, affective commitment, continuance commitment and normative commitment has also been found. It is clear that organizational trust and their trust in organization are more effective on the administrators' affective commitment. However, trust in organization and trust-in-supervisor has been found to be more effective on teachers' affective commitment.
c. There is a meaningful relation between the administrators' perceptions of organizational support and their perceptions of organizational commitment, affective commitment and normative commitment. A meaningful relation between teachers' perceptions of organizational support and their perceptions of organizational commitment, affective commitment, continuance commitment and normative commitment was found. The order of importance for the administrators' and teachers'

perceptions of organizational support was as follows: affective commitment, normative commitment and continuance commitment.

d. According to the last review made in the research, a meaningful relation between administrators' and teachers' perceptions of organizational trust, organizational support and organizational commitment was found. The variance analysis with two factors for independent samples shows that the organizational commitments of administrators and teachers vary in a meaningful way according to the common influence of organizational trust and organizational support. In the multiple linear regression model created in this scope, the relation between administrators' and teachers' perceptions of organizational trust and organizational support and their perceptions of organizational commitment was found statistically meaningful. Moreover, it is observed that their perceptions of organizational support are more influential than their perceptions of organizational trust, when assessing administrators' and teachers' perceptions of organizational commitment.

In addition to this, the calculated multiple linear regression model was also supported with the LISREL software. According to the results of the relation that was researched by using LISREL software, it is observed that the relation between organizational trust, organizational support and organizational commitment and the relation between organizational support and organizational commitment are meaningful.

Limitations and future studies

The extent of this research is limited with the perceptions of the administrators and teachers who are employed in the secondary education schools in the provincial centre of Bolu, Turkey about organizational trust, organizational support and organizational commitment. This research is conducted in the secondary education schools which are appertained to the ministry of education and the special schools are exempted.

The failing of the extensive researches in the national and international literature which is relating to assess the relation between the organizational trust, organizational support and organizational commitment, contributes to carry out this research. The relation between the organizational trust, organizational support and organizational commitment can be framed in the larger area with the different researches which can be applied in the different socio-cultural structures which are both educational sciences and other social sciences oriented and the differences can be assessed. Thereby it can be significantly supplemented with the educational literature and an emphasis can be made on the necessity and priority of the subject in the other fields.

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Full Length Research Paper

Does capital structure influence payout? A study on KSE -30 Index

Abdul Jabbar Kasim[1*] and Muhammad Ajaz Rasheed[2]

[1]Department of Commercial & Professional Studies, Institute of Business Management, Karachi.
[2]Department of Economics, Institute of Business Management, Karachi.

The paper aims to provide an insight into underlying factors which a given mix of owners' funds and outside funds have on the payout of KSE 30 Index. Capital structure comprises equity and borrowed funds (debt) that listed companies need to carry out their business operations. We have applied panel data methodology on twenty-one KSE-30 companies for the period of 2001-2011. Our results show that high proportion of owners' capital in capital structure of the firm and Return on Equity results in higher payout. Companies, depending on where they stand on the growth curve, likely use funds firstly for opportunities of capital investment required for growth and thereafter if sufficient funds permit make decision for a payout. As a result, payout can only emerge if out of the residual leftover there is a sufficient cash-flow to distribute as dividend.

Key words: Capital Structure, Gearing, Tax shield, Debt financing, Equity Financing, Dividend payout, Investment, Long-term finance, Internal funds, KSE-30

INTRODUCTION

This paper gives an insight as to whether capital structure has influence over dividend payment for the companies that fall within the purview of KSE-30 index. In other words does capital structure of the company play any role in the payout by a company? The firms, by and large, depend on the combination of equity and debt financing to run operations. The paper seeks to draw conclusion: Of any influence of capital structure on payout of KSE-30 index companies.

We begin with the conjecture that shareholders invest and retain their investment in firms and while they do so their objective is to get a reward on their investment through dividend payment. If they do not get any dividend on their investment or the dividend given by the company is poor compared to comparable investment opportunities they look for other investments avenues. Firms therefore need to reward shareholders if they seek to have shareholders investment in their firm, in other words equity financing.

On the other hand, firms need outside capital (debt) also to finance their business expansion and other capital requirement needs. Firms seek outside capital as in most regimes it gives a tax-shield. Interest payments are tax deductible as such leveraging gives this advantage. So as a business decision the firm can lever to the extent that it does not run risk that might hit its ability in meeting its debt obligation.

A firm capital structure need to be calibrated: a highly

*Corresponding author. E-mail: Jabbar.kasim@iobm.edu.pk; aijaz.rasheed@iobm.edu.pk

leveraged firm may find it difficult to pay its obligations in recession. As borrowings mostly require fix payment, periodically, on count of interest payment, on the amount of borrowing, downturn in the business may bring a heavy toll (for highly leveraged firms) and as such a firm might have to stretch beyond capacity. Firms may likely seek outside funds for example when borrowing rates are attractive and when they are in high tax corporate tax bracket to secure a tax-shield. This helps improve the liquidity position of the firm, reducing cash outflow on account of tax payment.

It therefore follows that each firm needs to set a capital structure, perhaps an optimal structure, so as not to lose on tax advantages and in the process also not over- lever to the extent of defaulting on its fixed commitments. Hence financial managers should plan to get maximum out of the capital resources that need sustainability and result in market capitalization growth.

Capital structure of cross-section of corporate depicts that firms cannot be only equity financed (a rare feat). As such firms have to look also for outside funds to propel growth, and support its operational activities. Firms with higher component of equity in the capital structure cannot be oblivious of the right of shareholders to receive dividends. Though dividends are not contractual obliga- tion like payment on debts in order to retain the interest and hence investment of the shareholders, mangers have to provide a return to shareholders. This is crucial while deciding on retention vs payout.   As such right mix of debt and equity is tactical decision and an important part of financial planning.

Market capitalization of the firms is low that have poor record on payout. Gradually shareholders lose interest in continuing investment with such firm.   This can also impact their entity rating, and eventually cast doubt on the managerial ability to increase shareholders' value. Similarly a firm that fails to keep its owners happy may not be the first choice of lenders.

For examples if firm goes for bond financing, the instrument rating might be greatly impacted due to past performance with regard to past commitment (payment of debt and payment of dividends). Hence the firm may not get the desired funds, or may get it at a comparatively high cost. Thus payment of dividend is a critical factor in all decisions by the firm.

"Once a company starts paying a cash dividend, it is a precedent," says Chichester (2012). And declaring a dividend can put a company on the "treadmill" of wanting to increase the dividend year after year. "Once you start, it is painful to stop," *The Power of Paying Dividends Capital Markets | March 07, 2012 | CFO.com | US.*

Firms of big size can borrow at good rates compared to those that are smaller. This is for the reasons that lenders, particularly bankers, are comfortable on the asset size of the company that serves as security against borrowing. In this respect smaller companies may be constrained to raise debt.

On the equity side firms need to make a critical decision when to pay dividends, a regular low payout, an infrequent high payout or any other form of dividend payout, to retain and keep the interest of equity holders alive. Firms may not pay dividends if they find good opportunities to invest their earnings for further expansion of business or even to acquire some other businesses. Mangers have to work out priorities, so as to reward shareholders and keep the growth momentum.

Free cash-flow also influences payouts; a firm with large cash-flow and limited investment opportunities may pay higher dividends or may take decision of buy-back of shares. Hence cash-flow has more influence on payout than only profitability.

Debt covenants on borrowing do restrict and influence payment of dividends according to the studies by Smith and Warner (1979) and Kalay (1982). Although cash-flow may permit a firm to pay dividends, conditions related to borrowing need compliance. This is the case in Pakistan for bank borrowings and TFCs (similar to bonds, internationally), whereby cash availability may restrict payout owing to restrictive covenants.

Market expectations of improved dividends may run high in future for firms retaining earnings and passing over payouts at present.   This decision is based on opportunities not necessarily on the composition of debt and equity. As earnings are determined after payment of borrowing cost, in all fairness net earnings are for shareholders. If dividends are deferred, shareholders give a sacrifice. They in turn expect more in the form of improved dividends not for their sacrifice but for expected improved earnings, while managers capitalize on growth and investment opportunities.

Shareholders might not prefer regular dividend payout if there is visible gap between tax on payout and capital gains. Usually investors prefer lower tax on capital gains as opposed to higher tax on dividend payment. As such firms have to see the clientele effect while deciding on policy of payout. Corporate taxes have also impact on dividend payout as countries tax regime differs. Studies have shown that countries provide tax concession due to nature of their ownership and places where they establish businesses.

In regimes where shareholders have more protection there is high probability of firms paying dividends as opposed to regime where protection of shareholders appears frail and insider ownership dominates the firm capital structure.

Our study is confined to impact of internal factors on the performance of the companies. As such we have excluded, in our study, the impact of GDP, interest rates, currency parity and other macro-economic variables.

In the light of the above discussion we postulate that capital structure influences payout. In this realm we have undertaken a study of KSE-30 to find if the postulate stands true for companies under study. The study is constructed thus: section 2 provides the literature review

of the selected studies. In section 3, we present data, their source and construction. The methodology discussed in section 4. Section 5 presents the detailed empirical results. The last section 6, underlines the limitation of the paper.

LITERATURE REVIEW

While stating that dividend payout kind of remains a puzzle, Black (1976) is of the view that a high portion of companies earnings are paid in the form of dividends. Studies have shown that firm capital structure impacts dividends and cost of borrowing does influence dividend payout. Jalillv and Harris (1984)'s studies reveal interdependence between financing decisions, mobilization of outside funds (categorized as current liabilities and long-term sources of funds) liquidity level, and additional issue of equity and dividend payout.

Mix of debt and equity impacts the cost of capital and hence value of a firm, according to Pagano (1993), Boyd and Smith (1998) and Hovakimian et al.(2001). As a corollary of this, firms need to strategize on the omix owners funds and outside funds while they build up their capital structure.

Aivazian et al. (2003) have found out that firms in the emerging markets and in the USA portray same dividend trend. However, emerging market firms rely more on external financing. Big firms in Korean corporate sector rely on debt financing as Gul and Kealey (1999)'s study of 411 giant firms reveals. Further their conclusion is that Korean Corporate sector growth options of firms depict sort of negative relation vis a vis payout and reliance on outside funds is negatively related to leverage and dividend. As such their conclusion reveals that Korean corporate sector behaves differently from those in the U. S., in matter of dividend payments.

Other studies by Li and Zhao (2008), Amidu (2007) and Al-Kuwari (2010) reveal that leverage is negatively related to dividends. Zhang (2007)'s study of S&P 500 study depicts that family firms have lower payout than non-family firms. Firms change, in consonance with stock price, their capital structure as study of Welch (2004) reveals and not countering mechanical impact of stock returns on capital profile, by issuing new securities.

Debt policy and the relation between agency-principal problems have been tested by Kim and Sorensen (1986). They conclude and provide insight that firms having concentration of ownership go for more leverage. Conversely firms with spread ownership have low leverage.

Marsh (1982)'s study reveals that smaller firm choose short-term financing while it is opposite in the case of large firms. Further his study depicts that cost of issuing debt and equity is negatively related to firm's size. According to Mahadwartha (2003), not all Indonesian quoted companies are in a position to keep a consistency

in their payouts. Studies have shown that firms with more equity in their capital structure pay more dividends.

In the matter of capital structure there are marked differences between developing and developed countries. Study by Atkin and Glen (1992) depicts that G7 countries' firms substantially rely more on internally generated funds. While in developing countries, there is mix of debt and equity, from an important part of the capital structure of the firms. Firms that are geared comparatively give more payout as others studies show positive relationship between payout and debt.

Azhagaiah and Priya (2008)'s study shows that shareholder's wealth is a factor of increase in sales, a healthy bottom line, capital decisions; both the structure and investment. Increase in shareholder value comes through payouts and improvement in market capitalization. Pandey (2005) expresses that the company's major objective is to create shareholders' wealth.

According to Grullon et al. (2002)'s study, firms increase dividends when they anticipate less desirable investment options. On the other hand, Lie (2000)'s findings reveal that firms increase dividends when their cash coffers are fuller than those compared to other firms in the same sector.

Mizuno (2007) concurs, that firms need to give a payout else they have to justify investments in suitable projects that bring higher returns than expected by the firm shareholders. Ramamurti and Vernon (1991)'s study finds quite a significant distinction in debt and equity composition of listed companies. Owners' funds are higher in comparison to outside funds in case of Brazil (75% equity) and Malaysia, but low in India and Pakistan (with around 30% equity). Studies have shown that there is significant relationship between debt and payout.

Future earnings and dividends and impact on cost of capital, according to Foong et al. (2007), are dependent upon firm's investment. East Asian firms pay less dividends, according to Faccio et al. (2001); compared to Western Europe firms, that have better shareholders' protection.

Managers focus and carve dividend policy on the basis of stock prices, as Baker and Wurgler (2004)'s study shows that managers prefer no dividends when investors are for non-dividend paying stock. On the other hand dividends are paid when investors have more confidence in the company's performance. In case where the shareholding pattern shows more of shareholders preferring capital gains as opposed to dividends, the action of no dividends augurs well.

Graham and Harvey (2001)'s paper suggests that dividend payouts and a given composition of debt and equity are correlated. Kasim and Rasheed (2014)'s study shows sales, liquidity and profitability influence dividends payment in the power and cement sector (listed companies in Pakistan). The power sector has a positive relationship with efficiency and profitability and payout. The study concludes that payout decision by a company

is not based only on capital structure but also revenue, cash-flows and net profit influence decision for a payout.

In the study of six countries (USA,UK, Canada, Germany, France, Japan) Denis and Osobov (2008) found that size, profitability, and firm maturity influence the propensity to pay dividends. This corroborates with Kasim and Rasheed (2014)'s study.

Higher equity/ownership in a firm by insider, institutions and foreigners has positive relationship with the dividend policy on KSE-100 index (Hamid ullah, 2012). The thrust of this study is in the context of agency theory. According to findings ownership structure plays important role in corporate dividend policy resulting in minimizing the agency cost related to the agency issue. Reflecting managerial share ownership has negative relationship with payout.

Studies have shown that big firms that demonstrate stable business and steady cash flow tend to pay high dividends. Li and Lie (2006)'s, Denis and Obsbove (2008)'s, DeAngelo et al. (2006)'s, Al-Kuwari (2010)'s studies corroborate that steady cash flows results in higher payout. Companies in the growth stage do use more cash-flow to support their expansion and as such there is a negative relationship between growth and dividends. This is also conclusion of the study by Anil and Kapoor (2008) and Lia et al. (2010).

There is a significant positive impact on market value of KSE -30 index due to payout (Arsalan 2014). This study examines variables like earning per share, profitability ratio, return on equity, retention ratio and price earnings ratio.

Profit Margin and Return on Equity have positive significant relationship (Qaier et.al 2011) on KSE -30 index, due to good governance practices of firms.

Research also indicates a positive correlation between debt and dividends. Tong and Green (2005) in their study of a cross-section of big Chinese (listed companies) have concluded that there exists a significant positive correlation between current debt financing and past dividends.

Data and variables used

We have taken companies that are part of KSE 30 index as on June 2013. KSE-30 Index comprises firms from a cross section of the economy. Hence firms will differ in their capital structure and payout. The selection of the companies is not based only on asset size and capital structure but predominately on the free float of their share, and as such firms getting into the list of KSE-30 index need to demonstrate a sizeable activity in their share transaction at the Karachi Stock Exchange.

KSE-30 Index: Serves as a yardstick against which the market prices of firms can be compared over a period of time. As a result KSE-30 index underlines a mechanism by which investors can gauge equity market behavior and outlook. In the matter of eligibility, the listed company must have an operational track record of at least one financial year; should also have minimum free-float shares of 5% of the paid-up capital and securities are traded for 75% of the total KSE trading days. The index is re-composed on semi-annual basis.

All the data used in this research is taken from the publication *"Financial Statements Analysis of Companies (Non-Financial) Listed in Karachi Stock Exchange"* published by State Bank of Pakistan (SBP) for the period of 2006-2011. An earlier version of this publication, reported the data for the period of 2001-2005. The publication contains analysis of financial statements of non-financial institutions. Further, we have excluded financial and insurance companies from the KSE-30 companies due to the fact that SBP publication does not provide data on these companies. We have consistently relied on this single source for the purpose of consistency of data and definition. Although the data was available in Annual Reports of the respective companies, we consider data published by State Bank of Pakistan (SBP) for the period of 2001-2011 as more appropriate as part of our research. Our sample consists of 21 companies and covering the period 2001-2011. Below is the description of the variables used in this report.

Dividend per share

Dividend per share is calculated as dividend paid for a given financial year divided by shares outstanding.

Capital Structure

Capital structure describes how a corporation finances its assets. The composition of debt is arrived by dividing Total Debt by Total Assets and composition of Equity by dividing Total Equity by Total Assets.

Asset turnover (Efficiency)

Efficiency is measure as the asset turnover of a firm, how much a firm uses its total assets in generating sales revenue or sales as a percentage of total assets.

Profitability

Profitability refers to net profit after tax as a percentage of total sales/revenue.

Return on equity

It is measured to ascertain the return on owners' fund. ROE is obtained by dividing net profit after taxes with the total equity. We have taken net income before tax as well

as net income after tax as a percentage of shareholders' equity.

KSE 30 Index comprises listed companies from various sectors, a case of heterogeneity; the results therefore should be read with this in mind. Certain companies require substantial funds to keep up with their expansion plans and as such need to plough back their earnings. Whilst other in the index comparatively do not require such magnitude of funds and have more free-cash availability. However the inventors' interest in KSE 30 Index is higher compared to other listed companies on the Karachi Stock Exchange. Their turnover of shares is vibrant and important factor, to retain place in the index. In the process, KSE-30 turnover bench mark and market capitalization are attained (Tables 1 and 2).

METHODOLOGY

We postulate that capital structure influences the payouts in KSE-30 index. The composition of companies in KSE-30 index represents cross-section nature of data. The data gathered for research comes from the publication of State Bank of Pakistan (SBP) for the period of 2001-2011 represent time-series properties (Table 1); therefore, we applied panel data analysis. Panel data models examine individual (company-specific) effects, time effects, or both in order to deal with heterogeneity or individual effect that may or may not be observed. We focus on panel regression models. In particular, we are interested in examining the impact of equity financing, profitability, asset turnover, etc. on dividend per share (Table 2). While using the assumption that all co-efficients are constant across time and individual companies, we assume that there is neither significant company nor significant temporal effects. The panel regression model is used in the following form:

$$Div\_share_{it} = \alpha_{1i} + \alpha_2\,Eq\_finance_{it} + \alpha_3\,Profitability_{it}$$
$$+\ \alpha_4\,Efficiency_{it} + \alpha_5\,Z_{it}$$
$$+\ \varepsilon_{it} \quad _____(1)$$

In the above formulation i stands for the ith cross-sectional individual (i.e. company) and t for the tth time period. The dependent variable is the dividend per share. Our hypothesis is the dividend per share is a function of equity finance, key company-specific variables like profitability, efficiency and Z_{it} other company specific variables, while ε_{it} is a stochastic error term. If individual company's effect α_{1i} (cross-sectional or time specific effect) does not exist, ordinary least square (OLS) produces efficient and consistent parameter estimates. OLS consists of five core assumptions (Greene, 2008), i.e. linearity, exogeniety, homoscedasticity, observations on the independent variable should be fixed over repeated sampling and full rank assumption. If company's effect is not constant in longitudinal data, heterogeneity (company specific characteristics like (i.e. company size, etc...) may influence assumptions of exogeniety and homoscedasticity. The violation of assumptions produces biased estimators. Hence, the OLS estimator is no longer best unbiased linear estimator. Then panel data models provide a way to deal with these problems. The Fixed Effect model (FE), also referred to as the "Least-Squares Dummy Variable (LSDV) model" estimates the intercept as coefficient of dummy variables. This model allows intercept to vary for each cross-section and thus accounts for the individual effect. FE estimation controls for company-specific heterogeneity by eliminating (demeaning) all time-constant information for each company i from the data. It is termed the within estimator, since it depends on the variation within the individual (company). It does not matter if some individual

(company) hase.g. very high y values and very high x values because it is only the within variation that will show up as explanatory power. If the assumption that unobserved heterogeneity is uncorrelated with the variables in the model a Random Effects (RE) estimation is used to assess the effects of the explanatory variables in the model. If the unobserved heterogeneity is correlated with the explanatory variables then the random effects model cannot be estimated consistently (Hsiao, 1986; Mundlak, 1978).

The orthogonality test for the RE and the independent variables is also examined. For this reason, a Hausman test is used in order to test for inconsistency in the RE estimate. The general idea of the Hausman test is the following: If two estimators are consistent under a given set of assumptions, their estimates should not differ significantly. Let us call this set of assumptions A. Under a different set of assumptions, say B, this may not be true. If, in this case, only one of the two estimators provides consistent estimates, then the estimates from both estimators should differ significantly. Hausman showed that the standard error of these differences is a simple function of the variance-covariance matrices of each estimator. In our case, A equals a panel model, in which unobserved heterogeneity is uncorrelated with the independent variables in the model. In this situation, both RE and FE estimates are consistent, with RE estimates being more efficient than FE estimates. B pertains to a model with correlated unobserved heterogeneity, in which RE estimation provides biased results, while FE estimation is still consistent. If there are no other statistical problems the FE model can be estimated consistently although the estimated parameters are conditional on the time effects in the selected sample of data (Hsiao, 1986).

EMPIRICAL RESULTS AND DISCUSSION

Our analysis starts with examination of panel unit root tests for the variables considered in the model formulation. A graphical examination suggested that a constant term were to be included in the model formulation with the number of lags consider as zero, because data were collected for smaller time periods. Further, the data were unbalanced panel; the appropriate unit root test was Fisher-type test. The results of the tests applied to the variables involved are presented in Table 3. We can conclude from this table that neither all panels are stationary nor contain unit root. The period T of each company in this study is only 10 years (yearly observation); this is considerably short for many econometric studies, so it is not appropriate to get conclusive results for unit root tests (Baltagi, 2008). The unit root test is generally available for large N and large T.

We have applied Panel Data Heteroscedasticity Wald Test using STATA. The null hypothesis Ho: Panel Homoscedasticity, and the alternate hypothesis Ha: Panel Heteroscedastic. The P-Value, 0.0071 (see Appendix 1) significantly rejects the null hypothesis of Panel Homoscedasticity.

Since our data contain unobserved heteroscedasticity, we should use fixed effect or random effect model of panel data analysis.

Table 4 shows the results of four different variants of equation (1) above. The first variant of equation (1) does not have any Z variables (company characteristic). This shows the dependent variables is dividend per share, and

Table 1. Average value over the period 2001-2011.

Company	Dividend per Share	Equity financing	Profitability	Asset turnover	Return on equity before tax	Return on equity after tax
			Average value over the period 2001-2011			
Attock Refinery Ltd.	3.56	25.56	1.02	125.-8	19.57	8.55
D.G. Khan Cement Co. Ltd.	0.65	52.11	11.65	22.38	9.94	8.9
Dawood Hercules Chemicals Ltd.	5.86	72.28	50.84	20.42	25.47	19.74
Engro Corporation Ltd.	7.41	41.40	18.28	44.69	40.16	29.54
Fatima Fertilizer Co. Ltd.	0.50	34.23	39.40	0.06	8.13	7.2
Fauji Cement Co. Ltd.	0.09	34.82	15.55	23.45	31.07	50.33
Fauji Fertilizer Bin Qasim Ltd.	2.57	27.58	18.91	19.78	49.7	42.98
Fauji Fertilizer Co. Ltd.	11.55	42.90	16.98	56.61	85.65	54.83
Kot Addu Power Co. Ltd.	5.97	42.66	14.26	12.49	38.75	29.57
Lucky Cement Ltd.	3.92	59.33	15.22	28.99	19.64	17.54
Maple Leaf Cement Factory Ltd.	0.14	37.62	10.54	28	16.67	16.06
Millat Tractors Ltd.	24.56	43.40	7.24	93.18	49.03	32.87
National Refinery Ltd.	11.45	34.68	3.13	136.86	44.58	27.22
Nishat Chunian Power Ltd.	2.00	17.91	7.92	0.41	19.12	16.55
Nishat Mills Ltd.	1.80	55.42	8.89	37.61	11.48	9.45
Oil & Gas Development Co. Ltd.	7.10	74.40	43.08	16.66	61.46	43.22
Pakistan Oilfields Ltd.	18.73	70.53	38.93	34.18	47.11	34.98
Pakistan Petroleum Ltd.	9.29	75.34	36.57	15.49	64.93	40.15
Pakistan State Oil Co. Ltd.	17.18	28.15	1.89	250.17	50.62	34.62
Pakistan Telecommunication Co. Ltd.	1.88	63.32	23.16	26.2	26.94	19.02
The Hub Power Co. Ltd.	4.02	46.40	18.00	17.22	18.4	18.41

the independent variables used in this variant are equity financing, profitability and asset turnover (efficiency), labeled as FE1. The second variant includes return on equity before tax (roe) labeled as FE2. The third variant includes return on equity after tax (roe_at) labeled as FE3. The fourth variant is roe_at and its square (roe_at^2). All these four variants are also estimated as random effects model.

The first line shows co-efficient, second line standard error and third line is p-value. For detailed results please see appendix 2.

To decide between fixed or random effects we run a Hausman test where the null hypothesis is that the preferred model is random effects vs. the alternative fixed effects (Green, 2008, chapter 9). The null hypothesis is that the preferred model is a random effects model and the alternative is the fixed effects model is preferred. We have applied Hausman test with sigmamore option, Hausman test base on both (co)variance matrices on disturbance variance estimate from efficient estimator. The result is shown in Table 5. Under the current specification, our initial hypothesis that

the company-level effects are adequately modeled by a random-effects model is significantly rejected. We may conclude that Fixed-effects model is consistent and efficient.

Further, we proceed with the estimation of FE with Driscoll-Kraay standard errors calculated using the formula by the Driscoll-Kraay (1998), which corrects the variance-covariance matrix for the presence of serial[1] as well as spatial

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[1] Due to insufficient number of observations serial correlations and cross-sectional dependence in panel data models were not tested.

Table 2. Standard deviation over the period 2001-2011.

Company	Dividend per Share	Equity financing	Profitability	Asset turnover	Return on equity before tax	Return on equity after tax
Attock Refinery Ltd.	3.21	8.73	1.11	143.15	14.16	9.66
D.G. Khan Cement Co. Ltd.	0.76	8.38	10.90	25.53	8.58	7.79
Dawood Hercules Chemicals Ltd.	4.01	9.03	52.47	26.83	20.25	15.54
Engro Corporation Ltd. (Engro Chemical P	1.37	12.81	22.04	52.57	25.47	21.78
Fatima Fertilizer Co. Ltd.	0.87	2.93	0.00	0.11	13.11	11.8
Fauji Cement Co. Ltd.	0.30	22.05	8.80	26.9	38.96	78.83
Fauji Fertilizer Bin Qasim Ltd.	3.20	6.56	13.07	23.98	35.11	27.76
Fauji Fertilizer Co. Ltd.	3.35	11.17	4.37	68.12	35.8	20.91
Kot Addu Power Co. Ltd.	1.23	14.02	8.62	30.43	2.89	6.83
Lucky Cement Ltd.	6.48	18.67	5.73	34.08	10.77	9.23
Maple Leaf Cement Factory Ltd.	0.45	10.80	6.62	31.9	12.42	12.99
Millat Tractors Ltd.	19.89	7.33	2.15	108.52	20.62	11.37
National Refinery Ltd.	7.38	7.26	0.96	157.55	14.06	8.22
Nishat Chunian Power Ltd.	0.00	2.59	0.00	0.58	26.79	23.19
Nishat Mills Ltd.	0.84	15.45	7.87	43.62	4.53	5.09
Oil & Gas Development Co. Ltd. (OGDC)	2.08	3.44	3.25	29.96	11.25	7.97
Pakistan Oilfields Ltd.	6.72	6.57	6.36	39.7	13.85	9.02
Pakistan Petroleum Ltd.	4.31	2.43	6.92	38.81	11.31	6
Pakistan State Oil Co. Ltd.	8.78	9.90	0.39	285.99	15.02	10.05
Pakistan Telecommunication Co. Ltd.	1.55	11.40	9.92	29.8	13.63	8.02
The Hub Power Co. Ltd.	1.71	16.98	14.63	19.01	9.21	9.18

correlation (Camarero et al., 2010). Appendix 3 shows the adjusted result for fixed-effects model.

Equity as a percentage of total assets (equity financing) is statistically significant at 5% significance level and directly related to dividend per share in all four variants of the fixed-effects models. The random effects model also gives the same results. A one-percentage increase in equity financing results in a corresponding increase in dividend per share by rupee 0.09-0.11. This shows that the companies having larger share of equity in their total assets have the propensity to pay dividend more. This is what we have hypothe-sized above.

Firms with comparatively higher portion of equity in the capital structure have likelihood of paying more dividends. This is owing to the fact (ceteris paribus) that their lower financing cost will leave them with more free cash for payout. But this may not stand true if high equity funds are not efficient in their overall operations and suffer to generate funds to make a payout.

Studies by Li and Zhao (2008), Amidu (2007) and Al-Kuwari 2010 reveal that leverage is negatively related to dividends. According to Agrawal and Jayaraman (1994) dividend yields

and payout ratios are comparatively higher in all-equity firms, as opposed to companies having more composition of debt in the capital structure.

Profitability of the firm and a better ROE do not automatically justify payout. This is due to the fact profits are retained for supporting growth through internally generated funds; as such this may leave little or nothing for distribution.

Companies may resort to the residual dividend policy and therefore choose to rely on internally generated funds to finance any need for new projects or similar capital expenditure. As a result, payout can only emerge if out of the residual

Table 3. Fisher-type unit-root test, based on augmented Dickey-Fuller tests.

	Inverse chi-squared(40)	Inverse normal	Inverse logit t(99)	Modified inv. chi-squared
Div_share	56.0698	-0.0338	-0.3049	1.7967
	0.0472	0.4865	0.3805	0.0362
Eq_Finance	59.7177	-1.3765	-1.6204	2.2045
	0.0232	0.0843	0.0542	0.0137
Profitability	99.7257	-4.1546	-4.9046	7.0804
	0.0000	0.0000	0.0000	0.0000
Asset turnover	159.8842	-2.1367	-7.7290	13.4035
	0.0000	0.0163	0.0000	0.0000
Roe	114.8099	-4.4818	-5.2947	8.3640
	0.0000	0.0000	0.0000	0.0000
roe_at	133.5790	-5.3914	-7.1910	10.4625
	0.0000	0.0000	0.0000	0.0000

Ho: All panels contain unit roots; Ha: At least one panel is stationary.

Table 4. The results of four different variants of equation 1.

	Fixed-effects Models				Random-effects Models			
Variable	FE	FE1	FE2	FE3	RE	RE1	RE2	RE3
eq_finance	0.0720	0.1147	0.1016	0.1068	0.0585	0.1038	0.0905	0.0994
	[0.0387]	[0.0384]	[0.0404]	[0.0399]	[0.0356]	[0.0344]	[0.037]	[0.0359]
	(0.0643)	(0.0032)	(0.0129)	(0.0082)	(0.0997)	(0.0026)	(0.0146)	(0.0056)
profitability	1.1318	-6.1913	-1.8146	-5.8048	0.3586	-8.2247	-3.4764	-9.0225
	[2.992]	[3.248]	[3.2356]	[3.5749]	[2.9627]	[3.1411]	[3.2462]	[3.4693]
	(0.7057)	(0.0583)	(0.5756)	(0.1062)	(0.9037)	(0.0088)	(0.2842)	(0.0093)
asset_turn	-0.0094	-0.0079	-0.0097	-0.0094	-0.0050	-0.0032	-0.0044	-0.0037
	[0.0049]	[0.0047]	[0.0049]	[0.0048]	[0.0049]	[0.0046]	[0.0049]	[0.0048]
	(0.0561)	(0.0919)	(0.0477)	(0.0519)	(0.3153)	(0.4933)	(0.3705)	(0.4369)
Roe		0.1244				0.1449		
		[0.0255]				[0.0237]		
		(0.0000)				(0.0000)		
roe_at			0.0513	0.1721			0.0633	0.2365
			[0.0228]	[0.0538]			[0.0231]	[0.0504]
			(0.0258)	(0.0016)			(0.0063)	(0)
roe_at2				-0.0006				-0.0008
				[0.0002]				[0.0002]
				(0.0144)				(0.0001)
_cons	4.0476	-1.2633	1.7480	-0.3650	4.3904	-1.6102	1.7905	-1.3348
	[1.9504]	[2.1723]	[2.1829]	[2.3154]	[2.0973]	[2.1455]	[2.2351]	[2.2753]
	(0.0394)	(0.5616)	(0.4244)	(0.8749)	(0.0363)	(0.4529)	(0.4231)	(0.5574)

Table 5. Hausman test results.

Models	Chi^2	P-value
FE1 and RE1	11.18	0.0246
FE2 and RE2	16.68	0.0022
FE3 and RE3	15.44	0.0039

leftover there is a sufficient cash-flow to give a payout. Companies calibrate debt and equity proportions before deciding on payout. As a corollary, firms decide on dividends only if there is enough cash-flow available after attaining expansion and capital expenditure need of the firm. The need to support growth from internally generate

funds will take precedence over payout.

Firms having a good ROE may not show good payout track record. This again reflects on The Pecking Order theory which underlines that equity is a less preferred means of raising new capital. When the decision is regarding utilization of funds for growth is concern-ed, companies will prefer internal financing, debt and then issuing new equity. As such with good ROE, firms resort to internal financing and defer payouts in order to avoid cost of new debt. Firms relatively and compara-tively with lower profitability may give a payout as there might be no expansion project and need for plough back and therefore firms can use such free cash-flow for payout.

Firms usually prefer a stable payout as compared to volatile payout. This may be due to clientele theory postulated. Shareholders many a times prefer stable and regular dividends as opposed to volatile payouts. As such an increase in equity will not result in increased payout because firms based on their clientele need to maintain a fixed rupee amount or fixed percentage of profit as a payout. Raghunathan and Dass (1999)'s study shows that top-100 companies in India with over-whelmingly equity base (high net-worth companies) have a stable payout policy. Payout trends as some studies show are industry specific. A study by Michel (1979) and Baker (1988) depicts what they call industry classification and dividend policy. Rozeff (1982) concludes in a study that payout is not industry specific; his study excluded regulated companies like utilities.

All equity firms', according to Agrawal and Jayaraman (1994), dividend yields and payout ratios are compara-tively higher as opposed to companies having more composition of debt in the capital structure.

Bhat and Pandey (1994) are of the view that firms do not necessarily have targeted dividend ratio as their survey finds that management of the firms believes dividend changes are due to increased level of earnings by firm. Also Mohanty (1999)'s paper shows that Indian companies' payout reflects that companies do maintain constant payout but have fluctuating payout ratio as a result of level of profits.

Profitability (the percentage of sales realized as net income after taxes) in all the variants of the model is statistically insignificant. Also when we added more explanatory variables its impact on dividend per share alters their signs. It seems that managers do not consider this as an important indicator when paying dividend. Payout depends not only on the profitability but also on the need to redeploy profitability for growth of firm and also firm requires free-cash-flow to make a payout. Managers are also aware of signaling impact while they decide to pay higher payouts.

Asset turnover (gross sales as a percentage of total assets) in all the variants of the model is statistically significant at varying range of significance (5-10%). A higher asset turnover (efficiency) does not result in higher payout. Kasim and Rasheed (2014)'s study indicates that

Cement and in Power sector payout is influenced by sales, liquidity and profitability.

Firms are very considerate when increasing payout. As this signals to the market that firm growth is discernible and hence the promise of better payout. Koch and Shenoy (1999)'s study demonstrate that there is considerable interaction of capital structure and firm's dividend policy that lead to provide significant signaling as regard to future free cash-flow of the firm.

A linear relationship of Return on Equity has direct impact on dividend per share in all four variants of the model. Higher return on equity whether taken as before tax or after tax has increased the dividend per share. When the firms have free cash-flow they are likely to reward the shareholder in the form of dividend payout. Hence ROE coupled with adequate cash-flow, with no investment opportunity for deployment of cash-flow should naturally result in payout.

According to Michaely and Swaminathan (2002)'s study, firms increase dividends when they anticipate less desirable investment options. On the other hand Lie (2000)'s findings reveal that firms increase dividends when their cash coffers are fuller than those compared to other firms in the same sector. As such dividend is influenced by free cash-flow of the firm. Profitability has positive impact on cash-flow. In the study of six countries (USA, UK, Canada, Germany, France, Japan) Denis and Osobov (2008) found that size, profitability, and firm maturity, influence the propensity to pay dividends. This is also supported by the studies in case of UK by Benito and Young (2001). Von et al (2008) report similar findings for firms with European Union.

A non-linear relationship (quadratic term) of return on equity is also statistically significant at 5% level of significance. This indicates the increase in return on equity does not have a linear impact on dividend per share at every level. However, the impact on dividend per share diminishes as "return on equity" increases.

Conclusion and limitations

Our results show that KSE-30 index firms that have significant portion of financing through equity and those generating effective Return on Equity have high propensity for payout. KSE-30 Index firms, being in the limelight maintain dividend payouts to gain investors' confidence and in the process improve over their market capitlization. Hence they focus on effective utlilization of resources in order to sustain a payout. Companies depending on their growth curve may resort to the residual dividend policy and therefore choose to rely on internally generated funds to finance capital expansion or new projects. As a result, payout can be the residue after meeting the capital need for growth and expansion.

Firms that have surplus operating cash-flow, with no opportunity for use of cash-flow, decide to distribute in the shape of payout. They also consider buy-back of

shares, when they have free cash-flow. The buyback of shares results in relatively lower equity and thus earning per share improves and hence as a result also the market capitalization.

Studies have indicated that free-cash flow also impact firm's ability for a payout. We have not meausred the impact of free-cash flow on payout, due to the reason that State Bank of Pakistan has changed its definition of cash-flow components from the year 2009 and onwards. Our study covers period 2001-2011, as such this change in the components of cash-flow was not taken.

This paper provides an independent study of Pakistan Market (Pakistan is developing economy). We have no found any significant studies in line with the conclusion drawn in this paper. Our study is an extension of work done on impact of capital structure on payout. We have selected KSE-30 index, it underlines a mechanism by which investors can gauge equity market behaviour and outlook; in turn finding out as to how these companies strategize on capital structure, and use their asset efficiently, earn profit, and able to make payouts. Based on SBP as source of data we deemed appropriate to include: Asset turnover (efficiency), profitability, Return on equity and dividend per share as variables.

Conflict of Interests

The authors have not declared any conflict of interests.

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Appendix

Appendix 1

. lmhwaldxt div_share eq_finance profitability asset_turn, id(cid) it(year)


```
===============================================================================
* Ordinary Least Squares (OLS) Regression
===============================================================================
  div_share = eq_finance + profitability + asset_turn
-------------------------------------------------------------------------------

  Sample Size        =          198   |  Cross Sections Number  =          21
  Wald Test          =       6.1902   |  P-Value > Chi2(3)      =      0.1027
  F-Test             =       2.0634   |  P-Value > F(3 , 194)   =      0.1064
  (Buse 1973) R2     =       0.0309   |  Raw Moments R2         =      0.4116
  (Buse 1973) R2 Adj =       0.0159   |  Raw Moments R2 Adj     =      0.4025
  Root MSE (Sigma)   =       8.9466   |  Log Likelihood Function =   -712.8025
-------------------------------------------------------------------------------
- R2h= 0.0309   R2h Adj= 0.0159  F-Test =    2.06 P-Value > F(3 , 194) 0.1064
- R2v= 0.0309   R2v Adj= 0.0159  F-Test =    2.06 P-Value > F(3 , 194) 0.1064
```

div_share	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
eq_finance	.0433393	.0371995	1.17	0.245	-.0300281	.1167067
profitability	.6837319	3.646353	0.19	0.851	-6.507852	7.875315
asset_turn	.0139046	.0061139	2.27	0.024	.0018463	.025963
_cons	4.261869	1.816477	2.35	0.020	.679289	7.844448


```
===============================================================================
*** Panel Data Heteroscedasticity Wald Test
===============================================================================
  Ho: Panel Homoscedasticity - Ha: Panel Heteroscedasticity

- Wald Test:        LogE2 = X          =    7.2382   P-Value > Chi2(1)  0.0071
-------------------------------------------------------------------------------
```

Appendix 2

```
Fixed-effects (within) regression          Number of obs      =        200
Group variable: cid                        Number of groups   =         21

R-sq:  within  = 0.0954                     Obs per group: min =          1
       between = 0.1446                                    avg =        9.5
       overall = 0.1127                                    max =         11

                                            F(5,174)           =       3.67
corr(u_i, Xb)  = 0.0437                     Prob > F           =     0.0035
```

div_share	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
eq_finance	.106844	.0399193	2.68	0.008	.0280556	.1856325
profitability	-5.804808	3.574895	-1.62	0.106	-12.86055	1.250932
asset_turn	-.0093697	.0047872	-1.96	0.052	-.0188181	.0000788
roe_at	.1720532	.0537936	3.20	0.002	.0658812	.2782252
roe_at2	-.0005567	.0002253	-2.47	0.014	-.0010014	-.000112
_cons	-.365015	2.315443	-0.16	0.875	-4.934985	4.204955
sigma_u	6.1801608					
sigma_e	5.9726076					
rho	.5170737	(fraction of variance due to u_i)				

```
F test that all u_i=0:    F(20, 174) =      8.44          Prob > F = 0.0000
```

Appendix 3

```
Regression with Driscoll-Kraay standard errors   Number of obs     =        200
Method: Fixed-effects regression                 Number of groups  =         21
Group variable (i): cid                          F(  5,    10)     =       4.84
maximum lag: 2                                   Prob > F          =     0.0165
                                                 within R-squared  =     0.0954
```

div_share	Drisc/Kraay Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
eq_finance	.106844	.032146	3.32	0.008	.0352183	.1784698
profitability	-5.804808	1.28724	-4.51	0.001	-8.672957	-2.936658
asset_turn	-.0093697	.0038631	-2.43	0.036	-.0179773	-.000762
roe_at	.1720532	.04791	3.59	0.005	.0653031	.2788033
roe_at2	-.0005567	.0001585	-3.51	0.006	-.0009098	-.0002036
_cons	-.365015	1.915665	-0.19	0.853	-4.633383	3.903353

Full Length Research Paper

Developing an instrument to assess work-family pressures and resources needed by women managers in South Africa

Leopold Petrus Vermeulen[1]* and Olubukunola Akinnusi Sonubi[2]

[1]Department of Human Resource Management, University of Pretoria. South Africa.
[2]Department of Human Resource Management, College of Technology, Swaziland.

In the last decade, there has been a sharp increase in the employment of working mothers in the South African labour market. Work-family scholars argue that organisations must develop supporting policies and benefits to shield working mothers against work-family pressures. This article focuses on the development of the Work-Family Pressure and Support Questionnaire (W-FPSQ) as a measure to assess the pressures that working mothers experience and to identify the resources they need to balance their work and family life. A sequential mixed method design was adopted to gather the data needed to develop the questionnaire. Exploratory factor analysis and correlation designs were used to explore the internal structure of the questionnaire, as well as its validity and reliability. A total of 205 mothers occupying management and professional positions were involved in the validation of the questionnaire. A six-factor measurement model was established with good to excellent factor scores; it has very satisfactory Cronbach alpha coefficients. The individual scales were labelled, Work-family pressure, Personal development, Management support, Organisational flexibility, Time for family interaction, and Child care support. The W-FPSQ provides researchers and practitioners with a tool to evaluate working mothers' experiences in balancing work and family responsibilities, and to examine the extent to which organisations are perceived as supportive of work and family. Furthermore, the W-FPSQ can be used to generate information that management needs to develop and implement work- and family-supportive policies to help working mothers to balance work and family demands.

Key words: Women managers, job demands, job resources, work-family pressures, work and family support, South Africa.

INTRODUCTION

The increasing entry of women into the South African labour market since the inception of democracy in the country in 1994 has been described as "feminisation" of the South African labour market (Casale, 2004). This feminisation of the labour market is driven by a number of

political, social and economic forces that draw women into the world of work (Whitehead and Kotze, 2003). Women's share in the broad labour force increased from 41.8% in 1994 to 48.8% in 2005 (Van der Westhuizen et al., 2006). By the last quarter of 2013, the economically

active population in South Africa was almost evenly distributed across gender lines: working women comprised 50.84% of the 35 022 thousand employees in the 15 to 64 year age group and working men 49.16% (Statistics South Africa, 2014). Although much of this increase in women's labour participation has been in the lower paying categories, increasing numbers of women are also joining management and embarking on professional occupations (Statistics South Africa, 2014:31).

Although this feminisation of the labour market is a welcome development in South Africa, the phenomenon has exacerbated and highlighted a range of serious social and psychological problems that arise when working women struggle to balance their work and home responsibilities. The ability of working women to succeed in their homes and in economic pursuits depends, among other things, on their ability to balance work and family expectations and to sustain their psycho-social well-being (Jaga et al., 2013; Mathew and Panchanatham, 2011).

LITERATURE REVIEW

Balancing work and family roles is often a key personal and family issue for working mothers. Wortman et al. (1991) reported that over 75% of married female professionals that studied in the United States mentioned experiencing conflict between work and family responsibilities daily. These professional working women also stated that their attempt to balance work and family life often resulted in role conflict and role stress. Voydanoff and Donnelly (1989) conceptualised role stress as a person's appraisal of the level of conflict between roles and of the degree of strain experienced from attempting to meet multiple role demands. Researchers in South Africa (Brink and De la Rey, 2001; Mclellan and Uys, 2009; Van Aarde and Mostert, 2008) confirm that the conflicts women experience between their traditional roles as housewives, mothers and homemakers and their professional roles as managers and leaders can be a major source of role strain and stress in both the workplace and at home. Stress and work-family conflict are intertwined; and this kind of conflict has been documented as both cause and outcome of job stress. It can have adverse effects on a person's well-being, leading to feelings of burnout, anxiety and exhaustion, insomnia and even poor self-esteem and depression (Allen et al., 2000; Barling et al., 2005; Jaga et al., 2013; Mathew and Panchanatham, 2011). Understanding the relationship between work-family conflict and employees' well-being is therefore important in order to discover how working mothers can be supported to cope with work demands and family demands.

Work-to-home interaction and employees' well-being

Much of the debate concerning stress induced by work and family demands has focused on the multiple roles a working woman must adopt in order to carry out her responsibilities in respect of her work and family (Baxter and Alexander, 2008; Franks et al., 2006; Mclellan and Uys, 2009; Schaufeli and Bakker, 2004; Van Aarde and Mostert, 2008). Galinsky et al. (1993) show that a substantial proportion (40%) of employed parents in their sample experienced problems or conflict in balancing work and family demands, often referred to as work-to-family conflict, negative work-to-family spill-over, work-to-family strain or work-to-home interference.

Greenhaus and Beutell (1985:77) define work-to-family conflict as "a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible so that participation in one role [home] is made more difficult by participation in another role [work]". According to these authors, work-to-family conflict can take three forms: first, conflict due to an inability to satisfy family and professional role expecta-tions in the time available (time-based conflict); second, conflict due to the sum of efforts which the person must provide in the job field and in the family field (strain-based conflict); and, third, conflict due to the incompatibility of behaviours which the person must adopt in both spheres (behaviour-based conflict).

Geurts et al. (2003) based their definition of work-to-home interference on Meijman and Mulder's (1998) Effort-Recovery model, defining work-to-home interference as an interactive process in which a worker's function in one domain (such as the home) is influenced (negatively or positively) by load reactions that have built up in the other domain (for instance, at work). Negative work-to-home interference is defined as a situation in which negative load effects build up at work and hamper functioning at home, and it is considered to be a source of stress. According to this view, work-to-home inter-ference is an independent variable related to ill health.

In other studies, work-to-home interference has been treated as a dependent variable. From this perspective, negative work-to-home interference is often considered as an outcome of stress or a stress reaction (in other words, strain) caused by work-related stressors, particularly quantitative workload (work pressure, overload and time demands) (Baxter and Alexander, 2008; Geurts et al., 2003).

Resources that mitigate negative work-to-home interference and job stress

Considerable knowledge has been gathered on the antecedents of positive and negative work-to-home interference. The results of several empirical studies

indicate that particular job characteristics are associated with negative work-to-home interference, and that job demands and a lack of social support in the workplace and job resources could endanger the work-home balance and foster negative work-to-home interference (Bakker and Geurts, 2004; Frone, 2003; Geurts and Demerouti, 2003; Geurts et al., 2003; Kelly et al., 2011; Mathew and Panchanatham, 2011; Oldfield and Mostert, 2007). Research in South Africa by Van Aarde and Mostert (2008:8) indicates that negative work-to-home interference was best predicted by job demands (including pressure, overload and time demands) and a lack of job resources (including autonomy, supervisors' support, instrumental support and role clarity). The best predictors for positive work-to-home interference were autonomy, supervisors' support and colleagues' support. These findings are consistent with the results of prior research (Bakker and Geurts, 2004; Frone, 2003; Oldfield and Mostert, 2007). It was also found that job resources, especially autonomy and social support, have a negative relationship with negative work-to-home inter-ference (Kossek et al., 2011). The practical implications of these findings are that working women may experience positive interactions between their work and family life if they receive sufficient resources.

Resources are defined as "those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions or energies" (Hobfoll, 1989:516), and as "structural or psychological assets that may be used to facilitate performance, reduce demands, or generate additional resources" (Voydanoff, 2005:823).

A number of work-family scholars have paid attention to the role of various resources in helping working women to meet multiple role demands successfully, coping with job stress and preventing emotional exhaustion (Bakker et al., 2005; Koekemoer and Mostert, 2006; Kelly et al., 2011; Mathew and Panchanatham, 2011; Schaufeli and Salanova, 2007; Valcour, 2007; Van Aarde and Mostert, 2008). The findings of these researchers suggest that the provision of relevant physi-cal, psychological, social and organisational resources is an important variable in "shielding" working mothers against negative work-to-home interference and mitigating the effects of stress. In their rigorous research and assessment of job demands and job resources, they identified the following as important resources: social support from colleagues, supervisors' support, work autonomy, performance feedback, opportunities for development and growth, greater job challenges associated with job complexity, career opportunities, work flexibility and control over work time, support with child care and financial incentives and job security.

South African qualitative and quantitative research literature also offers considerable evidence that there are different situational and organisational resources which can potentially buffer negative work-family spill-over and mitigate the effects of job stress. Several authors have provided valuable information on the variables related to work-family interaction, including Coetzer (2006), De Klerk et al. (2013), Franks et al. (2006), Jaga et al. (2013), Koekemoer and Mostert (2006), Mclellan and Uys (2009), Mostert (2009), Oldfield and Mostert (2007), Van Aarde and Mostert (2008), and Van den Berg and Van Zyl (2008).

The purpose of the current study was to add to the knowledge and understanding of the resources that buffer work-family pressures experienced by working mothers. In particular this research endeavours to develop a valid and reliable measuring instrument to survey the pressures experienced by married and single mothers in management and professional occupations, and the resources available to them.

METHODOLOGY

Research design

This research was conducted using a social science approach and applying both inductive and deductive reasoning. The research design incorporated both qualitative and quantitative information gathering methods. A mixed methods approach was adopted in which a qualitative approach was sequentially followed by a quantitative approach (Figure 1). The choice of a mixed method design, which involves collecting, analysing, and integrating quantitative and qualitative data in a single or multiphase study, reflects a pragmatic epistemology (Guba and Lincoln, 1994). The associational design was employed to determine the inter-correlation between the items of a preliminary questionnaire and the contribution of each item to its related factor or behavioural domain, as suggested by Morgan and Griego (1998).

Research procedure

The chosen procedures were aligned to the research design, and were applied in three steps. In the first step, clear and exact parameters of what was to be measured were established through a comprehensive literature study and an analysis of data generated by means of 17 interviews. One-on-one semi-structured interviews were conducted with a purposive sample of ten single mothers and seven married career mothers. Each interview with each mother lasted between 40 and 60 minutes. The aim of these interviews was to gather qualitative information regarding the pressures and stressors that single and married working mothers' experience, and to collect qualitative data about the systems and resources working mothers believe will help them to cope with high job and family demands. Open-ended questions were employed in each interview to explore and probe a number of broad topics, such as the women's daily work experiences, work and family demands, work and family relationships, work-family interactions, coping mechanisms, perceived support and the type of social and work support required.

The data obtained from the literature and interviews were integrated to propose a theoretical framework of the constructs that conceptualise the women's work and family demands and to define the resources needed to mitigate these demands. The concepts identified were categorised into the following nine related themes or domains: (1) work demands and family responsibilities, (2) time
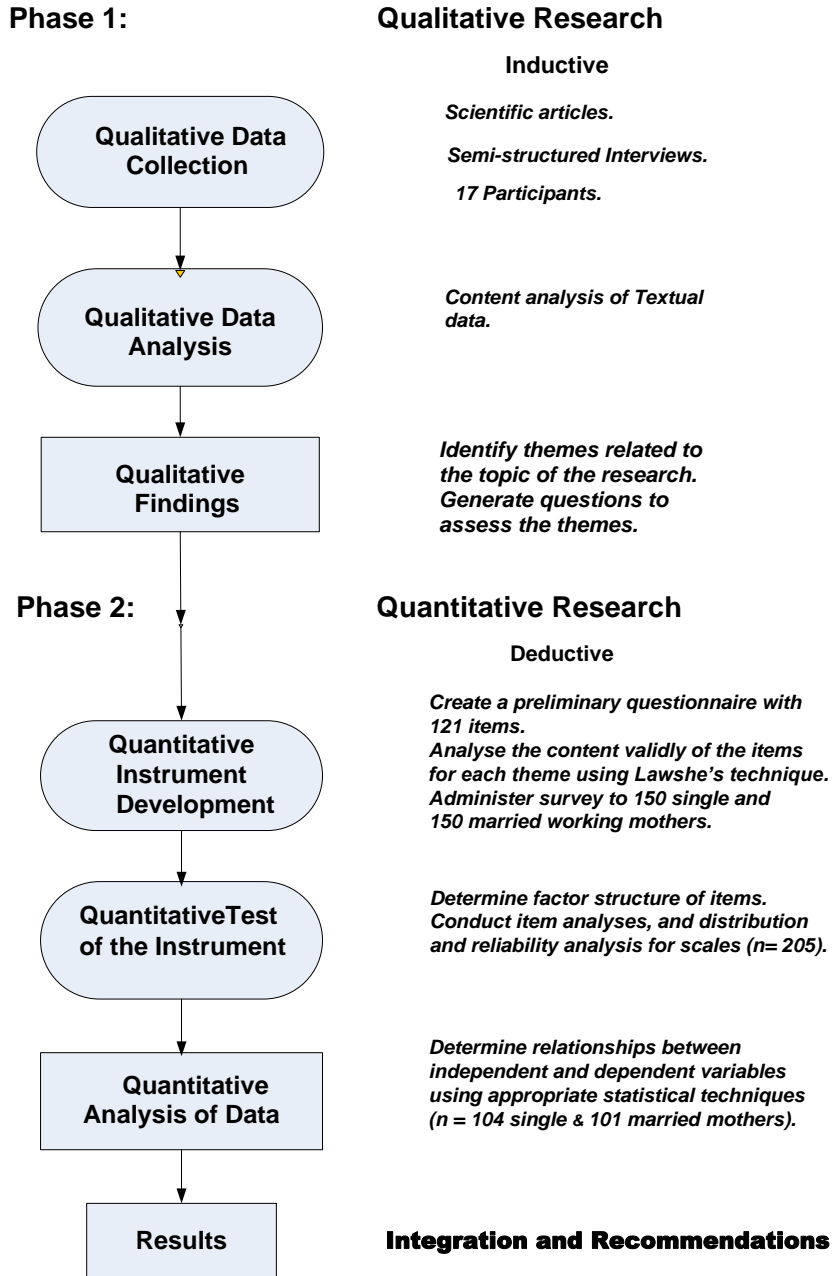
Phase 1:   **Qualitative Research**

Inductive

Scientific articles.

Semi-structured Interviews.

17 Participants.

**Qualitative Data
Collection**

**Qualitative Data
Analysis**

*Content analysis of Textual
data.*

**Qualitative
Findings**

*Identify themes related to
the topic of the research.
Generate questions to
assess the themes.*

Phase 2:   **Quantitative Research**

Deductive

*Create a preliminary questionnaire with
121 items.
Analyse the content validly of the items
for each theme using Lawshe's technique.
Administer survey to 150 single and
150 married working mothers.*

**Quantitative
Instrument
Development**

**QuantitativeTest
of the Instrument**

*Determine factor structure of items.
Conduct item analyses, and distribution
and reliability analysis for scales (n= 205).*

**Quantitative
Analysis of Data**

*Determine relationships between
independent and dependent variables
using appropriate statistical techniques
(n = 104 single & 101 married mothers).*

Results   **Integration and Recommendations**

Figure 1. Mixed methods sequential explorative design. Source: Adapted from the mixed sequential dominant status design (Leech and Onwuegbuzie, 2009).

pressure, (3) financial pressure, (4) feelings of isolation, (5) child care arrangements, (6) the need to improve oneself, (7) the presence of mentors, (8) organisational support and (9) personal support. In developing a draft questionnaire, 121 items for the measurement of the behaviour related to the nine domains were formulated.

The second step included the collection of data from a content evaluation panel of 30 who served to verify the relevance and clarity of the measurement items, based on their work experience and expertise in the social and management sciences. The main purpose of this step was to test and revise the items of the draft questionnaire to enable the researchers to make changes where

necessary in order to develop a preliminary questionnaire, as suggested by DeVellis (2003). To assess the relevance and content validity of each item, a three-point rating scale developed by Lawshe (1975) was used by the members of the panel to determine the extent of overlap between items in the questionnaire and the construct domains. Lawshe's content validity ratio was then calculated for each item in the questionnaire. Items were eliminated if their content validity ratio failed to meet the statistical value of 0.34 suggested by Lawshe (1975). Of the 121 items, 96 met the criterion and were retained.

In the third and final step, quantitative data were collected from a non-probability convenience and purposive sample of 300 working

mothers. The preliminary questionnaire and a cover letter were distributed electronically by means of e-mail to 150 single and 150 married working mothers. The e-mail addresses were predominantly generated by means of the snowballing technique and with the help of female interest groups. The cover letter declared the purpose of the research, its educational utility and relevance, and indicated that participation was voluntary. The respondents were assured of the researchers' intention to safeguard the data and protect the confidentiality of the respondents. The data set from 205 respondents was harnessed as the main source of information to assess the factor structure and reliability of the preliminary questionnaire that resulted from the analysis and interpretation of the first two sets of data.

Research participants

Following the guidelines proposed by Onwuegbuzie and Collins (2005), different sample sizes were used, each corresponding with the adequate sample size for the specified purpose of the mixed method phases. In the first wave of data collection, semi-structured interviews were conducted with ten single and seven married working mothers. The ages of the sample of interviewees ranged from 24 to 51 years, with a mean age of 33.9 years (SD=7.98) for the single mothers and a mean age of 34.57 years (SD=6.68) for the married mothers. Most of them (16 mothers, that is, 91.4%) were employed full-time; only one of the single mothers worked part-time. All these interviewees were in management positions, with 58.8% in middle management and 41.2% in senior management.

The 30 members of the content evaluation panel consisted of 27 women (90%) and three men (10%). Their ages ranged from 25 to 58 years, with a mean age of 35.3 years (SD=7.12). Most of the panel members (17, that is, 56.7%) were aged between 30 and 40 years. All the members of the panel were academically trained. Nine (30%) of the panel members held a first degree, ten (33.3%) held an Honours degree, seven (23.3%) held a Master's degree, and four (13.3%) held a doctorate. Of these members, 22 (73.3%) saw themselves as part of middle management and eight (26.7%) saw themselves as part of senior management.

Of the 300 self-administered questionnaires sent out electronically, 205 were returned. This represented a 68.33% return rate of usable questionnaires. This return rate is marginally higher than the average return rate on mail-administered surveys (Sheehan, 2001). The final sample included 104 single and 101 married working mothers. The number of single mothers included 76 unmarried mothers and 28 divorced mothers; this constituted 50.7% of the respondents. The married mothers made up 49.3% of the sample. The ages of the respondents ranged from 25 to 44 years. The mean age was 34.5 years (SD= 3.92). The bulk of the sample (147 respondents) fell into the age group from 31 to 38, while the younger and the older groups constituted about 15% and 14% respectively. The data show that the respondents had a 17-year range of work experience, with a mean of 5.4 years (SD=3.20). Of the respondents, 162 (79%) were permanently employed, while 39 (19%) were employed part-time.

The participants were fairly evenly divided between respondents from managerial and professional echelons, with 102 (49.7%) in management and 99 (48.3%) in professional positions. The participants were well educated: of the respondents, three (1.5%) held a certificate and five (2.4%) had a diploma. The rest had been awarded a first degree (18.5%), an Honours degree (36.2%) or a Master's degree (38.5%). Six (2.9%) held doctorates. All the respondents had children, ranging from one to six children per family unit. The average was two children, with a standard deviation of one. The average mean age of the youngest child in the sample was 6.87 years (SD= 3.74). The children's ages ranged from one to 18 years and the data show that 85 (41.5%) were between one and five years old, and 89 (43.4%) were between six and ten years old. In other words, 85% of the respondents had children aged between one and ten years. Only 31 (15.1%) had children over the age of ten years. Thus, most of the respondents' children were of primary school age, a childhood phase at which children need much attention in and out of school.

Although South Africa is a country with a diverse population with people with many different cultures and languages, it was decided not to ask the participants to classify themselves in terms of ethnicity. In post-apartheid South Africa, a person's ethnicity or race remains a sensitive topic, and the researchers did not want to offend any of the potential participants in the targeted sample. Moreover, the underlying assumption is that women of all races are more alike than different in their experiences of the family-work divide.

Measuring instrument

For this study, a preliminary questionnaire was developed to collect information on mothers' biographical details, the various problems and pressures that they face and the resources available to mitigate work and family demands. The draft questionnaire used in the development of the Work-Family Pressure and Support Questionnaire (W-FPSQ) consisted of two sections. The first section contained 15 questions on the respondents' personal information and captured the respondents' demographic information. These questions related, amongst other things, to a respondent's title, age, marital status, job classification and work arrangement. The second section included 96 statements that epitomise the nine themes or domains identified in the qualitative research phase and which met Lawshe's (1975) content validity criterion. The statements were formatted according to a Likert-type scale with item anchors ranging from 1 ("Strongly disagree") to 7 ("Strongly agree").

Statistical analysis

The main statistical analyses for the study were conducted using the Windows Statistical Programme for the Social Sciences (SPSS), Version 20.

Exploratory factor analysis was used to explore the internal structure and validity of the W-FPSQ, in line with the recommendations of Henson and Roberts (2006). To assess compliance with the distribution requirements, Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy were used. In order to determine the number of significant item factors, Kaiser's criterion, Cattell's scree plot and Horn's parallel analysis were used, as suggested by Tabachnick and Fidell (2007). According to Hayton et al. (2004), Horn's (1965) parallel analysis provides the most accurate estimate of the number of true factors in a complex dataset.

The internal consistency of the W-FPSQ was assessed by calculating the Cronbach alpha coefficient for each factor. The mean inter-item correlation between the items of each factor was also calculated to examine the homogeneity and unidimensionality of the factors that were retained, as recommended by Clark and Watson (1995). The items of the W-FPSQ were also subjected to an item discrimination analysis to provide evidence that the items produced a statistically acceptable dispersion of scores. As suggested by Gregory (2004), the item-discrimination index was computed by comparing the item mean scores of the highest 25% and lowest 25% of responses for each item after factor analysis.

Student's t-test for independent groups was conducted to establish the differences between the item mean score of the highest and lowest quartiles for each item in the scales of the W-FPSQ. Frequencies and distributive statistics were also used to describe the characteristics of the sample and to analyse the distribution (mean, standard deviations, skewness and kurtosis) of the responses.

RESULTS

Exploratory factor analysis

The exploratory factor analysis was carried out by means of principal axis factoring, which allows researchers to identify the lowest number of factors that can account for the common variance in a set of variables (Garson, 2008). To estimate the internal consistency of the factor solution, the squared multiple correlations were calculated. Squared multiple correlations are "the squared multiple correlations of factor scores predicted from scores on the observed variables" (Tabachnick and Fidell, 2007:649). This index gives an indication of "the certainty with which factor axes are fixed in the variable space" (Tabachnick and Fidell, 2007:649). The factor scores of the respondents were calculated by means of the regression approach, as suggested by Tabachnick and Fidell (2007).

In the first round of exploratory factor analysis, the 96 items of the preliminary questionnaire were inter-correlated and rotated to form a simple structure by means of the varimax rotation. Owing to its size (96 X 96), the inter-correlation matrix is not included here. Based on Kaiser's criterion (Eigenvalues larger than unity), 16 factors were postulated that explained 75.30% of the variance in the factor space of the data. Next, the items included in the 16 factors were scrutinised to reduce the overall number of items. Then all items with factor loadings lower than 0.45, or which cross-loaded high on more than one factor, and items which seemed to be too similar in content were omitted, as recommended by Tabachnick and Fidell (2007). Factors with three or fewer items were also omitted.

In total, 54 items were retained, and the responses of the 205 respondents on these items were subjected to a second round of principal axis factoring, with varimax rotation. This was done to refine the factor structure of the instrument (Treiblmaier and Filzmoser, 2009). The Kaiser-Meyer-Olkin (KMO) test for measuring sampling adequacy and Bartlett's test of sphericity displayed satisfactory results. The calculated Kaiser-Meyer-Olkin value of 0.93 was greater than the required 0.7 criterion, and Bartlett's test of sphericity [χ^2 (1431) = 10718.09, p<0.01] confirmed that the properties of the inter-correlation matrix of the 54 items' scores were suitable for factor analysis. Based on Kaiser's criterion, eight factors with Eigenvalues greater than one were extract-

ed. The eight rotated factors explained 69.63% of the total variance in the data.

An inspection of the scree plot, however, indicated that only seven factors had been determined. The results of a Horn's parallel analysis (Figure 2) confirmed that there are actually seven significant constructs, rather than eight. Parallel analysis indicated a break in the scree plot between roots seven and eight. The curve of the Eigenvalues of the random data set (the broken line) intersects the curve of the Eigenvalues for the real data (the solid line) at root seven (Hayton et al., 2004).

Only one item, with a factor loading of 0.48, was associated with Factor 7, and the factor loadings of all the other items were less than 0.40. According to Tabachnick and Fidell (2007:646), the interpretation of factors defined by only one or two variables is risky "in even the most exploratory of factor analyses". Factors 7 and 8 were therefore disregarded for the purposes of this study, leaving six rotated factors. The six rotated factors that were retained explained 65.29% of the total variance of the data.

The results of the principal axis factor analysis for the 54 items that were retained are summarised in Table 1. The factor loadings, corrected item-total correlations for each item, and the Eigenvalue, percentage variance after rotation and squared multiple correlation for each factor are reported. According to the results depicted in Table 1, the factor scores of the factor solution ranged from 0.49 to 0.88 (Factor 1), 0.51 to 0.84 (Factor 2), 0.67 to 0.89 (Factor 3), 0.48 to 0.76 (Factor 4), 0.48 to 0.75 (Factor 5), and 0.47 to 0.70 (Factor 6). Comrey and Lee (1992) suggest that loadings in excess of 0.71 are considered excellent, 0.63 very good, 0.55 good, 0.45 fair and 0.32 poor. In terms of these guidelines, it can be concluded that the items of the questionnaire are adequate for measuring the factors they are related to – "[t]he greater the loading, the more the variable is a pure measure of the factor" (Tabachnick and Fidell, 2007:649). The squared multiple correlations of 0.68 to 0.93 between the item scores and the factor scores indicate that the factor solution is internally consistent and that all the factors are well defined by the relevant items. Squared multiple correlation values of 0.7 and higher imply that the observed variables (item scores) account for substantial variance in the factor scores (Tabachnick and Fidell, 2007).

The corrected item-total correlation of each item on the six factors was satisfactory and complies with the criteria suggested by DeVellis (2003) and Field (2005). As Table 1 shows, the items of each factor correlate significantly (with r ranges from 0.45 to 0.90) with the total score of the relevant factor, indicating that the items are related to the constructs they signify. DeVellis (2003) sees an item with an item-correlation of more than 0.20 as generally sufficiently acceptable to be included. By contrast, Field (2005) argues that the correlation between an item and
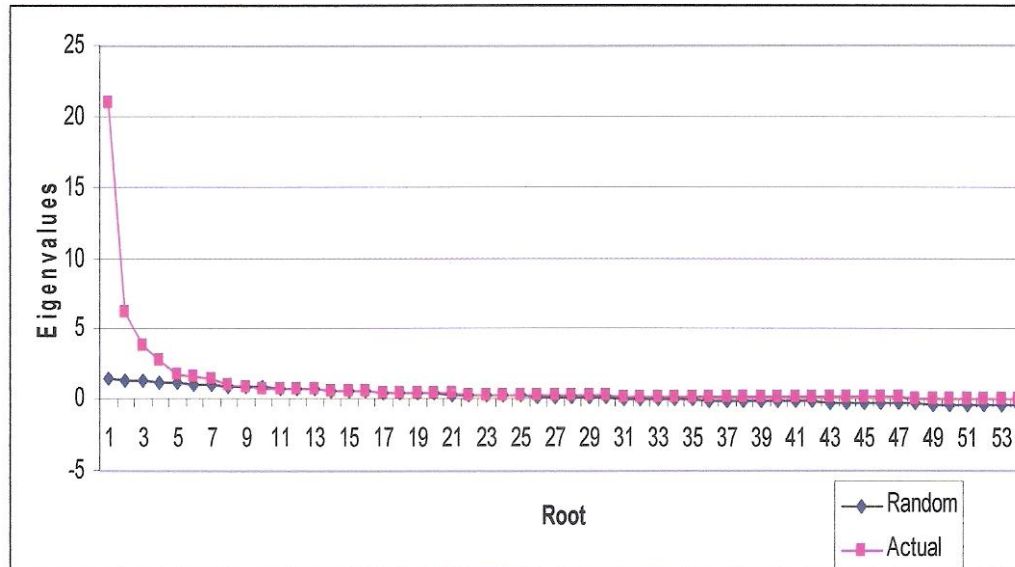
Figure 2. Scree plot of the actual and random data.

the total score on the factor should be at least 0.3 or more before an item can be considered as a variable for inclusion in a scale. In this study, the values of the corrected item-total correlation in the six factors were all above 0.3. Furthermore, removing any of the items did not increase the internal consistency of a factor.

The 54 items of the six factors were subjected to an item analysis to establish whether the items are able to discriminate between high and low scoring groups. For this purpose, the item-discrimination index was computed for each item included in the six factors, using the t-test for independent groups, as suggested by Gregory (2004). The results of the t-test show that all the items had acceptable item-discrimination index values. The results indicate that every one of the items on each factor was able to discriminate significantly (p< 0.01) between high- and low-scoring groups in the sample. The descriptive statistics and item-discrimination index values of the 54 items are reported in Appendix 1.

The results of the descriptive statistics of the samples scores on the factors and mean inter-item correlation and the Cronbach alpha coefficients for the six factors are set out in Table 2.

According to Table 2, the Cronbach alpha coefficients for the six factors of the questionnaire were highly satisfactory. Compared to the guideline of an alpha equal to or higher than 0.70 recommended by Nunnally and Bernstein (1994), the alpha coefficient for the six factors all yielded acceptable values (Factor 1=0.95, Factor 2=0.93, Factor 3=0.94, Factor 4=0.90, Factor 5=0.93, and Factor 6=0.91). The results also indicated that the mean inter-item correlations of the six factors were higher than the range of 0.15 to 0.50 suggested by Clark and Watson (1995). The average inter-item correlations

for the six factors all yielded exceptionally high values (Factor 1=0.72, Factor 2=0.71, Factor 3=0.82, Factor 4=0.68, Factor 5=0.77, and Factor 6=0.76). The high mean inter-item correlations are probably the result of the fact that the items were previously all scrutinised and endorsed by an evaluation panel. The application of Lawshe's methodology in this study definitely enhanced the specificity of the target constructs. According to Clark and Watson (1995), a much higher average inter-item correlation can be expected when one is measuring a narrow or well-defined construct. The scores of the mean inter-item correlations on the six factors appear to satisfy the requirements of homogeneity and unidimensionality, so each item can be considered to be representative of the specific factor that it is assessing.

Based on the results reported above, all the items of the six factors were retained as separate scales to measure work-family pressure and to identify the resources needed to mitigate the work-family pressure and to support working mothers in coping with stress. For the purposes of this study, the questionnaire was named the Work-Family Pressure and Support Questionnaire (W-FPSQ). The results of the analyses of the data indicate that the psychometric properties of the W-FPSQ meet the minimum requirements and that the questionnaire is sufficiently reliable and valid to capture the present sample of working mothers' perceptions of the pressures and support they experienced.

DISCUSSION

There rapid increase in the employment of working mothers in the South African labour market in the last

Table 1. Rotated pattern matrix for the six-factor model.

Item no	Factor and relevant items	Factor loading	Corrected item-total correlation
Factor 1 : Work-family pressure			
15	I get so involved with my job that I feel a conflict of loyalty between my home and work responsibilities.	0.88	0.83
82	I feel I have to rush to get everything done each day.	0.85	0.85
25	I would love to move to a better home, but do not have sufficient funds to do so.	0.84	0.82
10	I often have too much to do in too little time.	0.81	0.78
51	My identity is based solely on being a parent.	0.78	0.76
80	I am overwhelmed with the workload I face each day.	0.77	0.79
81	The hours I work make it difficult to look after my child/children.	0.73	0.69
71	Work demands affect my relationship with my child/children negatively.	0.71	0.73
93	I worry about my child/children when I am at work.	0.65	0.69
12	I am in serious debt.	0.64	0.71
49	I feel socially isolated.	0.61	0.72
31	I often feel undervalued.	0.60	0.71
43	People at work think my family responsibilities interfere with my work.	0.55	0.66
40	There are conflicting job tasks and family demands in the role I play.	0.51	0.45
20	I feel emotionally drained when I get home from work.	0.49	0.59
Factor 2: Personal development			
67	There are opportunities for personal development in my job.	0.84	0.80
66	There is potential for career advancement in my job.	0.83	0.79
57	I feel that in my job I can develop or grow personally.	0.73	0.71
22	My work input is adequately remunerated.	0.69	0.74
21	My job improves the quality of my life.	0.67	0.73
56	My organisation tries to make my job as interesting as possible.	0.65	0.70
59	I have some influence over what happens to me at work.	0.64	0.74
68	My organisation is willing to help me when I need a special favour.	0.61	0.65
39	My fringe benefits are good.	0.55	0.67
77	My job leaves me enough time to spend with my family and friends.	0.50	0.61
47	I usually leave work on time.	0.50	0.69
Factor 3: Management support			
79	My manager encourages me to review my strategies for managing my life while pursuing my career goals.	0.89	0.88
58	My manager serves a role model for achieving balance between personal and professional life.	0.88	0.90
50	My manager gives me constructive feedback skilfully.	0.85	0.86
65	I get adequate feedback about my own performance.	0.80	0.82
70	My manager is a good listener.	0.78	0.79
60	My manager encourages me to discuss positive/negative feelings that I may have about my ability to succeed.	0.77	0.76
44	My manager is not intimidating; s/he is easy to approach at any time.	0.67	0.70
Factor 4: Organisational flexibility			
89	There is great flexibility in my organisation.	0.76	0.69
62	There is an option to work from home in my organisation.	0.69	0.70
63	A flexible work schedule is made available in my organisation.	0.66	0.73
24	My organisation takes an interest in mothers' personal lives.	0.62	0.71
86	I am in a job with a schedule flexible enough to let me meet my family responsibilities.	0.51	0.66
17	My organisation provides information on additional sources of support.	0.49	0.69

Table 1. Contd.

6	My organisation consults with mothers when making decisions about their workload.	0.48	0.62
35	Help is available from my organisation when I have a problem.	0.48	0.63
Factor 5: Time for family interaction			
3	I am able to "switch off" at home.	0.75	0.79
4	I have time to do things with the family.	0.71	0.75
2	I balance my work and family time.	0.68	0.75
9	I have enough time for myself.	0.55	0.81
18	Family demands have a favourable influence on my work.	0.52	0.78
38	I spend enough time with my family.	0.52	0.71
23	My time off matches my family members' schedules.	0.48	0.79
Factor 6: Child care support			
42	I am comfortable with the arrangements for my children while I am working.	0.70	0.80
28	I can usually get a babysitter if I want to go out in the evening.	0.70	0.76
27	Making arrangements for my children while I work does not involve lots of effort.	0.66	0.72
69	It is easy to find someone to look after my child/children when I cannot be with him/her/them.	0.57	0.81
72	I do not feel guilty about leaving my child/children when I go out to work.	0.49	0.70
52	If my child/children fall ill, there is someone who can stay home and look after him/her/them.	0.47	0.75

Factor 1: Work-family pressure: Number of items = 15; Percentage variance after rotation = 17.2; Eigenvalue = 21.01; Squared multiple correlation = 0.93. Factor 2: Personal development: Number of items = 11; Percentage variance after rotation = 12.53; Eigenvalue = 6.17; Squared multiple correlation = 0.90. Factor 3: Management support: Number of items = 7; Percentage variance after rotation = 11.596; Eigenvalue = 3.869; Squared multiple correlation = 0 .93. Factor 4: Organisational flexibility: Number of items = 8; Percentage variance after rotation = 8.95; Eigenvalue = 2.85; Squared multiple correlation = 0.83. Factor 5: Time for family interaction: Number of items = 7; Percentage variance after rotation = 8.86; Eigenvalue = 1.84; Squared multiple correlation = 0 .76. Factor 6: Child care support: Number of items = 6; Percentage variance after rotation = 6.10; Eigenvalue = 1.61; Squared multiple correlation = 0.67.
Source: calculated from survey data.

Table 2. Descriptive statistics and reliability of the factors.

Factor*	1	2	3	4	5	6
Mean	56.86	58.48	37.97	30.99	30.18	27.38
SD	27.54	15.65	11.50	14.02	13.18	10.90
Skewness	-0.10	-1.43	-1.56	0.19	-0.31	-0.43
Skewness error	0.17	0.17	0.17	0.17	0.17	0.17
Kurtosis	-1.58	1.33	1.12	-1.27	-1.38	-1.13
Kurtosis error	0.34	0.34	0.34	0.34	0.34	0.34
r (Mean)	0.72	0.71	0.82	0.68	0.77	0.76
Alpha	0.95	0.93	0.94	0.90	0.93	0.91

Source: Calculated from survey data. *Factor names; 1 Work-family pressure; 2 Personal development; 3 Management support; 4 Organisational flexibility; 5 Time for family interaction; 6 Child care support.

decade (Statistics South Africa, 2014; Van der Westhuizen et al., 2006) implies that organisations need to develop supportive policies and benefits to shield working mothers against negative work-family interactions. The objective of this study was therefore to develop a valid and reliable measuring instrument to survey the work-family pressures that mothers in professional occupations and management positions in South Africa experience, and to identify resources that can mitigate these stressors.

A questionnaire named the Work-Family Pressure and Support Questionnaire (W-FPSQ) was constructed to survey the experiences of single and married working mothers in managerial and professional positions work-

family pressure and the resources they need to cope with work-family pressure and stress. A total of 96 items was initially included in the W-FPSQ. After two applications of exploratory factor analysis, 54 of these items yielded a six-factor solution (Table 1). The six factors showed adequate factorial validity, unidimensionality and reliability. The magnitudes of the factor scores of the items in each of the six factors were all larger than 0.47, with factor scores ranging from 0.47 to 0.89. The mean inter-item correlations ranged from 0.68 to 0.81, and the alpha coefficients from 0.90 to 0.95. These results provide sufficient evidence of the psychometric adequacy of the W-FPSQ.

After studying the contents of the significant items defining each factor, they were named according to their substantive content or core. The following descriptive labels were assigned by the authors to each factor or scale: Work-family pressure, Personal development, Management support, Organisational flexibility, Time for family interaction and Child care support.

The first scale, Work-family pressure, focuses primarily on pressures associated with conflicts in balancing work and family demands. The elements of this scale include issues related to length of work hours, time pressures, workload, role overload and role conflict, and an inability to satisfy family and/or professional role expectations. This scale also includes items related to pressures associated with financial constraints, and feelings of social isolation, low self-esteem and emotional exhaustion. This factor measures the presence of time-, strain- and behaviour-based conflict and pressures experienced by working mothers. A meta-analysis by Allen et al. (2000) has shown that work-to-home pressure is particularly strongly associated with stress-related outcomes, including burnout, work-related stress and depressive complaints. Extensive conflict between work and family roles may thus impair a person's psychological well-being (Greenhaus and Parasuraman, 2002).

The content of the remaining five factors was related to resources that may be of value in supporting working mothers to deal with high job and family demands. These scales exemplify organisational efforts to support employee needs to balance work and family responsibilities and to create a family-supportive work environment (Allen, 2001; Wei et al., 2013). Each of these scales is discussed below.

Personal development refers to the opportunities that working mothers have for personal development, growth and career advancement in their jobs. This scale also includes items relating to autonomy, stimulating work, adequate remuneration and enough time to spend with family and friends. This scale measures both the intrinsic and extrinsic resources that provide support to employees at an organisational, work, social and individual level.

Management support includes items related to mana-

ger and supervisor behaviour that provides social and interpersonal support to employees in the form of both work and psychosocial assistance. The elements of this factor include managers' encouragement of working mothers to pursue their career goals, giving adequate and constructive feedback on performance, and recognition of working mothers' need to achieve a balance between their personal and professional lives. Other characteristics of management support denoted by this factor were listening, encouraging, and being approachable and open-minded.

The organisational flexibility scale refers to the role of the organisation in creating and providing a flexible work environment. This includes flexible work schedules, allowing workers to work from home, involving or consulting mothers in decisions about workload, providing information on additional sources of support and taking an interest in mothers' personal lives. The organisation is also willing to help when workers have a problem. This scale measures resources that provide support to employees at the work and family levels.

Time for family interaction is related to work-family interaction and refers to working mothers' experiences of the availability of time for family interaction and building family relations. The items of this factor are associated with employees' ability to "switch off" at home, to balance work and family time, time to do things with the family and have enough time for themselves, and time on hand to match family members' schedules. It also includes the viewpoint that positive family relations have a favourable influence on their work. This scale is related to personal and social support.

The last scale, Child care support, defines working mothers' perceptions of child care arrangements and social support with child care. The variables of this factor include working mothers' satisfaction with arrangements made for their children while working, the availability of a helper or baby sitter when mothers were absent or when their children were ill, and the ease with which working mothers can arrange for someone to look after their children.

The W-FPSQ shows promise for evaluating the perceived negative aspects of work-to-family spill-over and the resources available to support single and married mothers in balancing work and family responsebilities. The last five scales of the W-FPSQ cover a broad range of potential social, work and organisational interventions and actions that can provide supporting resources for working mothers to cope with negative work-to-home interference. The 39 items of the last five scales refer to a mix of resources that are interrelated and congruent with a range of supportive practises and benefits available to employees at different levels, namely at the personal level, the social level, the work and task level, the organisational level and family level.

Various researchers identified a number of supportive

Table 3. Supportive factors and related practices

Support factors	Description	Supportive practices and systems
Personal development	Personal development, growth and career advancement.	Opportunities to develop competencies and skills. Stimulation of personal growth, learning and development. Performance feedback and opportunities for development. (Schaufeli and Salanova, 2007; Llorens et al., 2007).
Management support	Management/supervisor behaviour that provides work-, social- and psychosocial support.	Leaders' appreciation and support. Supervisor's support and co-workers' support. On-the-job social support network. High quality relationship with supervisor. Mentoring. (Allen, 2001; Bakker et al., 2005; Kossek et al., 2011).
Organisational flexibility	Creating and providing a flexible work environment.	Job autonomy. Flexible work schedules. Flexible work time. Flexible work location. Voluntary shifts. Part-time work and job sharing. Personal control over work time. (Bakker et al., 2005; Kelly et al., 2011; Valcour, 2007).
Time for family interaction	Time for family interaction and building family relations. Time to do things with the family and have enough time for themselves/me-time.	Possibility to interrupt or reduce work to attend to family needs and emergencies. Opportunity for families to maintain relationships. Family interaction plan. (Eaton, 2003; Kelly et al., 2011; Whitehead and Kotze, 2003; Wood et al., 2003).
Child care support	Child care arrangements and social support with child care.	Availability of organised child care facilities (crèches, nurseries and pre-school facilities). Help of family, friends and domestic workers with child care. Out-of-hours childcare. Flexible carer's leave and paid maternity and paternity leave. (Franks et al., 2006; Mclellan and Uys, 2009).

practices that are closely aligned with the content and nature of the five support factors. The relevance and psychodynamics of these supportive practices in mitigating work-family pressures have also been described and discussed by these researchers such as Allen (2001), Bakker et al. (2005), Eaton (2003), Franks et al. (2006), Kelly et al. (2011), Kossek et al. (2011), Llorens et al. (2007), Mclellan and Uys (2009), Schaufeli and Salanova (2007), Valcour (2007), Whitehead and Kotze (2003) and Wood et al. (2003).

In Table 3, the association and communality between the support factors extracted in the present study and various supportive practices cited in the literature are pooled and summarized.

The data in Table 3 underscore the argument that the support practices that various organisations provide are interrelated and congruent with both work and family supportive resources. In the current study, personal development and management support signify "work supportive resources"; and time for family interaction and child care support are related to "family supportive resources". Organisational flexibility seems to bridge both the work and family supportive resources. Overall, the results of these studies demonstrate the capability of the items and related factors of the W-FPSQ to provide a representative sample of the behaviour domains under scrutiny, and provide additional evidence for the content and face validity of the instrument.

Limitations and suggestions for further research

There are some limitations to the study reported in this article and there are a number of implications for future research.

Firstly, although the findings obtained in this study indicate that the psychometric properties of the W-FPSQ are statistically robust, further study is required to examine the factor structure, reliability, and validity of the scales more fully. Because the analyses conducted in this research were exploratory, additional research is needed to confirm the factor structure of the W-FPSQ using confirmatory factor analysis.

Secondly, the sample sizes used in the study were smaller than those normally used in scale development research (Comrey and Lee, 1992). The present findings need to be replicated with larger samples of participants to confirm the results of the present study and to support the generalisation of the findings to larger populations of South African working mothers. However, it should be noted that, according to Tabachnick and Fidell (2007) a sample of 205 respondents is adequate for an exploratory factor analysis and for most multivariate statistical analyses. Therefore, the W-FPSQ has a great deal of utility in spite of the small sample sizes used so far.

Thirdly, several of the participants endorsed response options at the higher or lower end of the Likert scale used for the W-FPSQ. Consequently, the scores on the six scales were all non-normally distributed. Although assumptions on distribution do not apply to factor analysis (Tabachnick and Fidell, 2007), this finding requires the use of non-parametric statistical techniques to analyse the current data set.

Fourthly, further research needs to be conducted among a broader spectrum of cultural participants, and should include working mothers from diverse ethnic groups. It should also allow for other techniques of data collection that do not require computer or internet access.

Fifthly, it fell beyond the scope of this study to compare this instrument for measuring work-family pressure and stress with other questionnaires related to the work-family interaction. It is suggested that the W-FPSQ be compared with such measures, including their focus and applications, in a future study.

The W-FPSQ shows promise for evaluating the perceived negative aspects of work-to-family spill-over and the supportive resources available to working mothers. These scales offer the potential to

1. pro-actively identify specific strengths and weaknesses in organisations to provide effective supportive resources to working mothers;
2. identify the presence or a lack of specific resources that are important to support women in balancing work and family life;

3. get feedback from couples on the efficiency of support systems and relevance of the resources provided by management; and
4. provide a starting point for communication between management and working mothers to identify work- and family-supportive resources that will benefit both parties.

This study contributes to knowledge regarding work-family interaction and provides a tool that researchers and practitioners can use to describe and evaluate working mothers' experiences of balancing work and family responsibilities, and to examine the extent to which organisations are perceived as supporting work and family, and a balance between them. Depending on the research question to be answered, the six scales of the W-FPSQ can be used as dependent variables, or as independent variables. Finally, the W-FPSQ can be used by human resource professionals and managers in South African organisations as a diagnostic tool to develop and implement work and family-supportive policies and programmes that will be part of the organisations' human resources strategy and culture.

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Appendix 1. The Mean, Std Dev and item-discrimination of the items of the W-FPSQ.

Scales and items	Mean	Std Dev	Lowest quartile	Highest quartile	Mean difference	T-value[*]
Work-family pressure	**n= 205**		**n= 52/52**			
Q 10.	3.65	2.46	1.25	6.14	-4.89	-31.49
Q 12.	3.52	2.23	1.33	5.52	-4.19	-20.18
Q 15.	3.82	2.54	1.23	6.33	-5.10	-36.87
Q 20.	4.39	2.39	1.98	6.08	-4.10	-14.53
Q 25.	3.76	2.36	1.39	6.08	-4.69	-30.69
Q 31.	3.62	2.53	1.17	6.29	-5.12	-22.92
Q 40.	2.70	2.23	1.12	3.92	-2.81	-7.59
Q 43.	3.37	2.31	1.39	5.46	-4.08	-16.64
Q 49	3.70	2.32	1.40	6.00	-4.60	-21.74
Q 51.	3.85	2.36	1.52	6.06	-4.54	-23.16
Q 71.	4.07	2.53	1.42	6.11	-4.70	-18.76
Q 80.	3.97	2.51	1.23	6.27	-5.04	-29.48
Q 81.	4.37	2.46	1.98	6.42	-4.44	-18.70
Q 82.	3.94	2.48	1.44	6.42	-4.98	-37.21
Q 93	4.14	2.49	1.83	6.27	-4.44	-18.10
Number of items:		**15**				
Mean inter-item correlation:		**0.72**				
Cronbach's coefficient alpha:		**0.95**				

Scales and items	Mean	Std Dev	Lowest Quartile	Highest Quartile	Mean difference	T-value[*]
Personal development	**n= 205**		**n= 56/61**			
Q 21.	5.38	1.63	3.80	6.43	-2.62	-10.17
Q 22.	1.63	1.81	3.75	6.75	-3.00	-10.27
Q 39.	5.65	2.08	2.82	6.52	-3.70	-14.96
Q 47.	5.03	1.95	3.14	6.36	-3.22	-11.38
Q 56.	4.93	1.89	3.00	6.41	-3.41	-14.75
Q 57.	5.00	1.55	4.11	6.57	-2.47	-9.46
Q 59.	5.78	1.93	3.32	6.44	-3.12	-10.40
Q 66.	5.31	1.68	4.05	6.70	-2.65	-8.59
Q 67.	5.86	1.75	3.79	6.62	-2.84	-9.36
Q 68.	5.68	1.82	3.77	6.43	-2.66	-8.58
Q 77.	4.46	2.35	2.00	6.44	-4.44	-19.47
Number of items:		**11**				
Mean inter-item correlation:		**0.71**				
Cronbach's coefficient alpha:		**0.93**				

Scales and items	Mean	Std Dev	Lowest Quartile	Highest Quartile	Mean difference	T-value[*]
Management support	**n= 205**		**n=53/54**			
Q 44.	4.93	2.15	2.53	6.54	-4.01	-14.07
Q 50.	5.38	1.89	2.87	6.57	-3.71	-12.49
Q 58.	5.60	1.84	3.15	6.80	-3.65	-13.36
Q 60.	5.43	1.81	3.38	6.67	-3.29	-12.33
Q 65.	5.61	1.88	3.40	6.74	-3.34	-10.75

Appendix 1. Contd.

Q 70.	5.57	1.77	3.24	6.74	-3.50	-13.69
Q 79.	5.46	1.94	2.68	6.61	-3.93	-15.22
Number of items:	**7**					
Mean inter-item correlation:	**0.82**					
Cronbach's coefficient alpha:	**0.94**					

Scales and items	Mean	Std Dev	Lowest Quartile	Highest Quartile	Mean difference	T-value[*]
Organizational flexibility	**n= 205**		**(n= 57/53)**			
Q 6.	3.02	2.35	1.28	5.47	-4.19	-14.80
Q 17.	3.45	2.42	1.44	5.98	-4.54	-23.27
Q 24.	3.71	2.37	1.46	6.19	-4.73	-25.74
Q 35.	4.89	1.98	2.84	6.60	-3.76	-16.01
Q 62.	3.52	2.38	1.56	6.34	-4.78	-23.96
Q 63	3.93	2.20	2.04	6.53	-4.49	-25.80
Q 86.	4.40	2.29	2.14	6.26	-4.12	-18.67
Q 89.	4.07	2.38	1.81	6.59	-4.78	-24.78
Number of items:	**8**					
Mean inter-item correlation:	**0.68**					
Cronbach's coefficient alpha:	**0.90**					

Scales and items	Mean	Std Dev	Lowest Quartile	Highest Quartile	Mean difference	T-value[*]
Time for Family interaction	**n=205**		**n=52/68**			
Q 2.	3.99	2.29	1.62	6.22	-4.61	-31.57
Q 3.	4.45	2.21	1.62	6.28	-4.66	-41.46
Q 4.	4.59	2.16	2.06	6.32	-4.27	-21.53
Q 9.	4.09	2.43	1.33	6.35	-5.03	-51.61
Q 18.	3.95	2.25	1.67	6.16	-4.49	-24.96
Q 23.	4.34	2.16	1.87	6.29	-4.43	-27.30
Q 38.	4.78	2.32	2.04	6.47	-4.43	-19.30
Number of items:	**7**					
Mean inter-item correlation:	**0.77**					
Cronbach's coefficient alpha:	**0.93**					

Scales and items	Mean	Std Dev	Lowest Quartile	Highest Quartile	Mean difference	T-value[*]
Child care arrangements	**n=205**		**n=55/69**			
Q 27	5.05	2.16	2.20	6.62	-4.42	-22.35
Q 28.	4.74	2.01	2.46	6.29	-3.84	-16.61
Q 42.	4.74	2.09	2.24	6.42	-4.18	-19.25
Q 52.	4.28	2.36	2.18	6.48	-4.30	-20.07
Q 69.	4.50	2.12	2.00	6.44	-4.43	-22.46
Q 72.	4.07	2.32	1.95	6.33	-4.39	-23.18
Number of items:	**6**					
Mean inter-item correlation:	**0.76**					
Cronbach's coefficient alpha:	**0.91**					

T-values *   p < 0.001. Source: calculated from survey data.

Full Length Research Paper

The effect of privatisation on political and managerial accountability

Patience Obeng Ahwireng

University of Professional Studies, P.O Box 8356 C7 Tema, Accra, Ghana.

The study seeks to assess the effect of privatisation on political and managerial accountability, considering the cases of Intercity State Transport Company and GAFCO. A sample data were collected from both managerial staff and some junior employees through interviews and questionnaire. Paired sample test was used to analyse the data of the questionnaire and content analysis for the interviews. The results indicated that privatisation decreases political accountability and increases managerial accountability. It was recommended that privatisation transaction should encourage a wide share ownership; widely disposed ownership makes the companies less vulnerable to cash traps. Also shareholders should invest in companies introducing training programmes for staff to improve their skills. The shareholders should be interested in the efficiency, effectiveness and maximum performance of the companies.

Key words: Accountability, privatization, effects.

INTRODUCTION

Privatization accelerated in the 1990s. In Europe, this was sparked by the liberalisation of markets at the European Union level and budgetary constraints faced by governments (Parker, 1999). Privatisation particularly gained momentum in the late 1980s and spread to a wide range of developing economies. The success stories of privatisation in Europe and other parts of the world made countries in Africa, particularly Ghana, to have a second look at its state- owned enterprises. Ghana's State Owned Enterprises (SOEs) came to prominence shortly after independence in 1957. This was because they were viewed as crucial and necessary instruments in the drive towards industrialization. By the mid-eighties, the Government of Ghana was thus engaged in all sectors of the economy (Kubi, 2001).

Contrary to expectations, however, most SOEs were not able to accomplish the purpose for which they were established. They were characterized by poor management and low performance, over stretched bureaucracies, conflicting and poorly defined social and

commercial objectives, poor incentives, abuse of monopoly power, corruption and political interference, and indebtedness (Sakyi, 2009). To arrest the situation, government after government set up probes or commissions and committees of inquiry to investigate the causes for the poor performance of these enterprises and to recommend remedial measures for their improvement. One of the prescriptions for the Economic Recovery Programme was that, the state had no business in doing business and should therefore reduce the size of its activities by privatizing some of the SOEs as to avoid the waste of resources and to channel resources to more fruitful and productive ventures (Boachie-Danquah, 1990). This presupposes that completely privatised enterprises have no business with the government. Thus their accountability should be towards management instead of government. This is the case with privatised enterprises.

Privatising public enterprises will lead to improved accountability and performance (Sakyi, 2009). Some privatized enterprises in Ghana have or are at the verge of folding up as a result of poor financial and managerial controls. What accounts for this? It is in this direction that the study seeks to assess the accountability processes before and after privatisation in both Intercity STC Coaches Limited and Ghana Agro Food Company Limited (GAFCO).

The objective of the study is to: Identify the structures of accountability before and after privatisation in GAFCO and Intercity STC and to assess the effects of privatisation on political and managerial accountability in privatised enterprises. The research questions are; what structures of accountability existed in these companies before privatization? Has there been a change in these structures after privatization? What are the effects of privatisation on political and managerial accountability?

The study therefore hypothesizes that:

HI: Privatisation increases managerial accountability.
H2: Privatisation decreases political accountability.

RELATED LITERATURE

Accountability will be defined as 'setting goals, providing and reporting on results that are the visible consequences for getting things right or wrong, including rewards or sanctions as appropriate" (Funnell and Cooper, 1998). Central to the discussion on accountability has been a distinction between 'managerial' and political/public forms of accountability. The latter is assumed to apply particularly to governments who are accountable to their electors for the authority granted to them whereas the former applies to managers being made accountable for the responsibilities delegated to

to them by their owners. In the case of government it is assumed that the direct control of the electorate is limited on the other hand in the context of managerial form of accountability, it is assumed that the person who delegates responsibility can and have power to exert pressure over the performance of the later (Ahrens, 1996).

Political accountability is implied to be more open-ended and less detailed whilst managerial accountability is more closed and defined. This distinction is important since it, in effect, recognises that there are limitations on the controlling power of the principal'. Adopting and accepting political forms of accountability is an acknow-ledgment of limited power over the 'agents': political forms of accountability are relevant in the management of public enterprises. This is because governments will formally be called to account to the electorate for their activities and allow them to decide, through the ballot box, on continuation or cessation of office. On the other hand, managerial accountability is intentionally more proactive with an underlying desire to ensure 'agent' behaviour is in compliant both in the long and short term. This is recognised not to be possible with governments but to the private sector (Broadbent and Laughlin, 2001).

There can be different levels of both political and managerial forms of accountability. Stewart's ladder of accountability provides a useful illustration of these different levels. The rungs of his ladder start with accounting for probity and legality which reports that funds have been used in an appropriate manner. 'Appropriate', in this sense, is related to legally accep-table pursuits defined by the principal. The next level is process accountability which accounts for details of the actions processes followed by the agent. The next two levels are performance accountability and programme accountability which together is intended to provide an account of the total work performance of the agent in terms of specific goals set by the principal. These three rungs are normally associated with Broadbent and Laughlin (2001) control and legitimating in government accountability process: the private initiative in the U.K managerial form of accountability (Stewart 1984 as cited in Broadbent and Laughlin, 2001).

According to Coleman (1990), the different level of accountability in Stewart's ladder is not needed since there is a high level of trust that the agent will comply with what the principal requires.

Similarly, Wouters et al. (2010) stated that managerial accountability increases in privatised enterprises as compared to the public. They added that managerial accountability may be put in practice in a variety of ways and through a variety of channels and through a variety of means (mechanism). One of such channel is legal accountability; the implementation of this channel of accountability is that, the actions of the agent being

called to account fall within the scope of an applicable law, and that the said agent may face consequences as a result of the application of such law. Disciplinary accountability is the second channel of managerial accountability and it consists of the internal administrative procedures of the organization through which the actions of employee can be judged and sanctioned. Furthermore, the staff regulations define disciplinary proceedings and penalties. The third on the list is mediatory accountability which constitutes an alternative accountability channel which is not characterised by a judgement scheme, but rather by a dialogue between the organization and the public. This channel aims at analysing the reasons of a possible dysfunction and to reach an agreeable and constructive solution for each party involved. Mediatory accountability processes are typically embodied by an ad hoc person/ institution called an ombudsman.

Stewarts (1984) and Wouter et al. (2010) all talked about mechanisms of accountability. They gave legal, performance, process and structure of an organization whistle blowing etc as mechanisms for ensuring accountability.

Romzek and Dubnick (1997) also propose four perspective mechanism of public accountability; legal, political, hierarchical and professional. They explained legal accountability as on obligatory relationship with the individual or group that imposes legal sanctions or contractual responsibility. Legal requirements produce this accountability relationship, and it is driven by external organizations, mainly from the legislatives and the courts. They also explained hierarchical accountability as holding public servants accountable to hierarchical supervisors, directives, organizational standard operating procedures and rules. These relationships are restricted within an organization and the degree of control is high. Professional accountability relationships emphasize "the exercise of discretion on the part of the employee in a manner that is consistent with internalized standards of performance, typically those of one's profession or peer work group. In this accountability relationship, public administrators are held accountable to peer professional culture and norms. Political accountability mechanism refers to political responsiveness. A public agency has to be accountable to external groups' expectations. In particular, the citizenry is the basis of legitimacy and they delegate their power to public officials to design and implement public policies according to citizens' preferences and expectations. Steffek and Kristina (2008) seem to agree on legal, hierarchical, professional public electoral as mechanisms of ensuring political accountability.

The distinction of political and managerial accountability discussed above are essential to the study in that it will be to use as indicators to test the hypotheses stated earlier.

Theoretical position of the study

Babbie (2004) defined theory as a set of interrelated statements intended to explain some aspect of social life. So in examining the concept of privatisation and accountability the property rights theory and the agency theory are reviewed here as forming the theoretical foundations of privatization and accountability. The Property rights theories, articulated by Alchian (1977) and Demsetz et al. (1988) suggest an explanation for privatization. In their view, the shareholder is the residual claimant to profits in publicly traded firms, whereas under state ownership, property rights are ill defined. Although the state is the residual claimant to any profits in a state-owned firm, the minister (as the state's representative) has no financial interest in the returns stemming from his actions (or inaction). Moreover, there is unlikely to be a personal gain to the minister. Among the activities in the minister's portfolio of responsibilities, monitoring State-Owned Enterprises is likely to be relatively invisible to the electorate. So long as there is no personal gain and some personal cost in designing or managing an effective governance system, state representatives will neither work hard at monitoring managers nor design governance systems to enhance efficiency. To exacerbate this problem, managers of State-Owned Enterprises are insulated from the threat of takeover and bankruptcy common to privately owned firms.

Property rights theories predict that privatization will enhance incentives tied to firm financial performance by replacing disinterested ministers with shareholders who will design an effective governance system out of self-interest. To the degree that privatization limits effective corporate governance; such theories predict fewer incentives in privatized firms relative to established publicly traded firms not subject to these constraints. In particular, the corporate governance literature suggests that the strength of incentives will depend on how privatization affects ownership concentration, the ease of transfer of ownership, and the level of financial freedom granted to management.

The property right theory asserts that managers strive towards cost minimization if their rewards are directly linked to economic performance. In other words, if workers and managers expect big bonuses when their company posts impressive profits, then they would strive to minimize costs in order to get hold of the fat bonuses. This profit maximization drive results in maximization also of the value of property rights. They argue that private ownership is more likely to achieve this since there is a direct link between ownership and management control, and thus there is someone in charge, unlike the situation with public enterprises where the incentive to do this is not very much.

The agency theory on the other hand can be viewed

from the point of principal agent theory. In the principal agent model, the principal is the owners of the capital assets over which the agent has day-to-day control and manages normally on behalf of the principal. However, the agent typically has different interest to that of the principal and may, for example want an easier life and a higher salary than is consistent with maximizing the welfare of the principal via the return which the principal receives from his (or her) investment in the capital assets that the agent is managing nominally on the principal's behalf. In order to control the agent, it is in the interests of the principal to incur monitoring cost of obtaining and processing information about the performance of the agent and the extent of his (or her) conformity with the principal's own objectives. In addition, it may also be in the interests of the agent to incur bonding cost to convince the principal that the agent is worthy of his or her hire. The outcome of the principal agent relationship will not, however, be the maximization of the principal's welfare since not only the cost of monitoring and bonding be significantly positive, but also, particularly in the presence of a strong divergence of interest between the agent and the principal, the monitoring and bonding processes may themselves prove to be imperfect forms of controlling the actions of the agent. The result of the principal-agent relationship will then be not the positive monitoring and bonding costs but also a remaining residual loss, resulting from a "divergence between the agent's decisions and those which would maximize the welfare of the principal (Jensen and Meckling 1976).

Increased accountability means that the principal should incur additional expenditure on monitoring and bonding cost in order to obtain and process more information about the activities of the agent in managing the asset of the principal. In the public enterprise because the state (principal) has no direct interest in the enterprise, this monitoring and bonding cost is normally not taken seriously. But in the private sector because the principal are the stakeholders (owners of the enterprise) they have direct interest in the business and are prepared to pay monitoring and bonding cost to ensure that the agent is held accountable. So accountability according to the principal-agent model is increased in the private sector than the public sector.

These theories are useful to these studies because the Property Right Theories gives an explanation and justification for privatising State Own Enterprises, whereas the Agency Theory also explains why account-tability is effective in the private enterprises. With private enterprise, shareholders are prepared to pay bonding and monitoring cost to ensure that managers are accountable for their actions. But in the State Own Enterprise there is not such commitment. These theories will be useful for my study because it will be used as a yardstick to measure whether the government was right

in privatising these companies and if they have achieved their aim in privatising them. The Agency Theory will also be used to compare accountability mechanisms before and after privatisation. If really accountability is improved when enterprises are privatised.

METHOD

The study uses two firms (Intercity State Transport Coaches Limited (STC) and Ghana Agro Food Company) as the case study to explore whether privatization has, indeed, improved or worsened these companies. In this study the population consisted of members of managerial ranks and staff ranks of Intercity STC and GAFCO in Accra and Tema respectively. In all, 200 management and non-management employees were targeted for the study. According to Sekaran (2000), the ideal sample size for this population size should consist of approximately 108 respondents. Of the 200 employees targeted in both enterprises, only 77 filled and returned their questionnaires, 48 from Intercity STC and 29 from GAFCO. The response rate for the study was a little over seventy-one per cent (71.29%).

Questionnaires were used for the survey while interviewer guides were used for the key informant interviews. A tape recorder was also used in recording the interviews.

The study uses both qualitative and quantitative analyses. The quantitative analysis is useful in determining to what extent privatisation affects public accountability. This study collected data through a survey. The target samples covered were staff of both Intercity STC and GAFCO, questionnaires were sent to these organizations.

According to Babbie (2004) sampling is to select a set of elements from a population in such a way that descriptions of those elements accurately portray the total population from which the elements are selected. Those who constituted the sample population of this study were management and non-management ranks from Intercity STC in Accra and Ghana Agro Food Company in Tema.

A stratified sampling method was adopted for questionnaire administration. This means management and non-management employee of different ages and performing different professional roles within the enterprises were targeted. The list of employees in the two organizations was requested for this method. Intercity STC had 550 employees and that of GAFCO was also 450 making 1000 employees in all. The 1000 employees with their names which constitute the population of the study were divided into 100 sub population (strata). After dividing the population into strata, the researcher drew a random sample from each sub population (strata). The researcher began with a random start of 2 (two) and every tenth person thereafter was selected. Ten employees were selected from each stratum until the sample size of 200.

A stratified sampling was considered useful for this study because accountability is an issue for all members in the organisation. Since individual members of the organisation interact at cross level of the organisation and are made up of different professional groups, age groups and gender groups, it was important to reach out to all of them.

In addition to the above, the purposive technique was used for the selection of the officers for interview. This is because the questions asked were technical and needed people with in depth knowledge on accountability in their organization.

Eight interviews were conducted with top management from the two enterprises. The questionnaire contained questions on account-ability before and after privatisation. The questions were meant to

be answered by both management and non-management of the two case studies. Section A asked questions on the structure and levels of accountability before and after privatisation, section B also enlisted from respondents the mechanisms of privatisation before and after privatisation. Section C also posed questions on institutions that the enterprises are accountable to.

The Statistical Package for the Social Science (SPSS) was used for all statistical calculation. This assisted in describing the data more succinctly and to make inferences about the characteristics of population on the basis of data from sample.

The Paired sample t-test is a statistical technique that is used to compare two population means in the case of two samples that are correlated. Paired sample t-test is used in 'before-after' studies, or when the samples are matched pairs, or the case is a control study (Aspelmeier and Pierce, 2009). In this study, the researcher was interested in assessing accountability mechanisms and structures before and after privatisation. Paired sample t- test was selected to know the effect of privatisation on political and managerial accountability. The following steps were followed in conducting the test:

1. Set up hypothesis: We set up two hypotheses. The first is null hypothesis, which assumes that the mean of two paired samples are equal. The second hypothesis will be an alternative hypothesis, which assumes that the means of two paired samples are not equal.
2. Select the level of significance: After making the hypothesis, we choose the level of significance. In most of the cases, significance level is 5%, used by most social science researchers.
3. Test statistics is given as calculated parameter: To calculate the parameter, the following formula was used:

$$t = \frac{D}{\sqrt{\dfrac{s^2}{n}}} \approx t_{n-1}$$

Degree of freedom under the null hypothesis

Where D bar is the mean difference between two samples, s² is the sample variance, n is the sample size and t is a paired sample t-test with n-1 degrees of freedom.

By using t-distribution table to compare, the value for t, to the tn−1 distribution, will give the p-value for the paired t-test.
4. Testing of hypothesis or decision making: After calculating the parameter, the researcher compared the calculated value with the table value. If the calculated value is greater than the table value, then we will reject the null hypothesis for the paired sample t-test. If the calculated value is less than the table value, then the null hypothesis is accepted and concludes there is no significant mean difference between the two paired samples. A convenient way of comparing is the use of p-value. In this regard, if the p-value is less than the alpha level in this case 0.05 is used, we reject the null hypothesis otherwise accept the null hypothesis. Having taken decision in the above, it is concluded in non-statistical term.

RESULTS

Interviews

Eight managers, four each from GAFCO and Intercity STC were interviewed. At intercity STC the government went into a public private partnership (PPP) with Social Security and National Insurance Trust (SSNIT). According to all four of the respondents (100%) the struc-

ture of accountability before the involvement of the private partners was direct from bottom to top of the organizational structure. All four respondents (100%) also asserted that the accountability mechanism before privatization was weak. According to the director of finance and administration, because the employees had worked together for at least ten years or more, accountability in the company suffered through personal trust and friendship neglecting documented proofs. This situation therefore made the accountability structure less effective and almost non-functional. Also, the director of operations was firm that there was no proper supervision of work, ruining the accountability mechanisms in the organization. This was affirmed by the Head of engineering, who showed much concern on the procurement procedures in the organization. Although the company's policy was to adhere to the Ghana Public Procurement Act, 2003 (ACT 663), he believed there was less compliance, which was a breach to the company's accountability mechanisms. All respondents (100%) admitted there had been drastic changes to the structure and accountability mechanisms after privatization. The re-structuring had made the process more complex but effective.

Likewise in GAFCO, the government went into a Public Private Partnership with Industrie Bau Nord (I.B.N) and SNNIT. All (100%) respondents were clear in their assertion that there had been a complete overhaul of the accountability structures and mechanisms in the company. A majority of the respondents (100%) expressed complete satisfaction of the new accountability mechanisms and absolute dissatisfaction in the old structure and its mechanisms.

Hypotheses testing

The purpose of this section is to evaluate the hypotheses stated earlier in chapter one and, four. The hypotheses are:

Ho1: Privatisation does not increase managerial accountability.
H1: Privatisation increases managerial accountability.

Table 1 shows a Paired Samples Statistics between managerial Accountability before Privatization (mean = 9.06, N = 77, SD = 3.16) and managerial Accountability after Privatization (mean = 12.3, N = 77, STD = 4.703)

The result is significant (77) = -7.53, p = 0.000. We reject the null hypotheses in favour of the alternative; therefore the result is statically significant. That is managerial accountability before and after privatization are not the same. Using the mean score of accountability before privatization (mean = 9.06) and mean score of

Table 1. Paired samples statistics between managerial accountability before privatization and managerial accountability after privatization.

		Mean	N	Std. deviation	Std. Error mean
Pair 1	Managerial accountability before	9.06	77	3.164	0.361
	Managerial accountability after	12.34	77	4.703	0.536

Source: field data 2011.

Table 2. Paired samples test between managerial accountability before privatization and managerial accountability after privatization.

	Paired differences					t	df	Sig. (2-tailed)
	Mean	Std. deviation	Std. Error Mean	95% C I for difference				
				Lower	Upper			
Pair 1 Managerial Accountability Before - Managerial Accountability After privatization	-3.273	3.81	0.435	-4.35	-2.407	-7.53	76	0.000

Source: Field data 2011

accountability after privatization (mean=12.34) we have found strong evidence that privatisation increases managerial accountability since the average score after accountability is greater than average before (Table 2).

Ho2: Privatisation does not decrease political accountability.
 H2: Privatisation decreases political accountability.

Table 3 shows a Paired Samples Statistics between Political Accountability before Privatization (mean = 12.84, N = 77, SD = 4.92) and Political Accountability after Privatization (mean = 8.53, N = 77, STD = 3.13).
   A paired samples t-test was again carried out between score on political accountability before and after privatization and political accountability before and after privatization (Table 4). The test reveals that there was a highly statistical difference between score political accountability before and after privatization t (77)) = 8.99, p < 0.05. The mean score on Political Accountability before Privatization (mean = 12.84, N = 77, SD = 5.01) was higher than the mean scores on Political Accountability after Privatization (mean = 8.53 N = 77, STD = 3.13). Hence, we can conclude with a high level of confidence that privatization policy has a significant effect on political accountability, and that Privatization decreases political accountability.
   The result of the hypothesis is consistent with (Mo (2000) and Hodge and Coghil 2007) in their study where they all concluded that privatisation decreases political accountability and increases managerial accountability.

DISCUSSION

The results from the key informant interviews from the two cases studied revealed that the mechanism for accountability before privatisation was consistent with simple/ministerial traditional form of accountability. According to Hughes (1994) in public enterprise, the public servants ensured that ministerial policies are carried out in an effective and efficient manner when using public resources. In other words, in the ministerial model, it relies on the availability and application of the necessary resources for the exercise of power. This is seen in all the accountability mechanisms in both enterprises before privatisation. The aim of these mechanisms was not to lead to high productivity but to satisfy the public and keep government and its officials in power.
   On the other hand, accountability mechanism after privatisation is broadly consistent with the complex model of accountability found in the United Kingdom by Scott (2000). According to Scott, with the complex accountability model the privatised state is accountable to a number of actors and power is dispersed. The result from the key informant interviews is therefore consistent with the findings of Scott (2000).
   The interviews also revealed that, the poor accountability mechanisms and ineffective compliance affected customer care. After privatization however, interviewees at intercity STC revealed that frontline employees have been trained to relate well with customers. This supports Hood (1995)'s argument that consumer sovereignty is better served under privatised enterprises.

Table 3. Paired samples statistics.

		Mean	N	Std. deviation	Std. Error mean
Pair 1	Political Accountability Before Privatization	12.84	62	4.92	0.563
	Political Accountability After Privatization	8.53	62	3.13	0.356

Source: Field data 2011 .

Table 4. Paired samples test.

	Paired differences					T	df	Sig. (2-tailed)
	Mean	Std. deviation	Std. Error Mean	95% C.I for difference				
				Lower	Upper			
Political Accountability Before Privatization - Political Accountability After Privatization	4.312	4.206	.2064	3.36	5.27	8.99	76	.000

Source: Field data 2011

Furthermore, publishing financial statement was not a priority of both companies since none of the interviewees mentioned it. However at GAFCO, observation showed that it had once been published in their newsletter. This situation also supported Habermas (1996), who stated that the publishing of financial statement and auditing may be done on the request of stakeholders.

Another observation that was made was the consistent mentioning of regulatory institutions as a mechanism of ensuring accountability in both case studies. In both case studies, we saw licence revocation, licence suspension, warning letters and persuasions, and closure of factories by regulatory institutions to ensure compliance. These are consistent with Ayres and Braithwaite (1992)'s studies on regulatory enforcement.

Survey

Again the findings from the research survey are not substantially different from the literature. Despite some few differences, most of the issues raised are very much similar to those found in the literature.

According to Luke (2010), Wouters (2010) and Hodge and Coghil (2007) privatisation brings about clearly defined reporting lines and improved supervision. The responses from the respondents on the question on reporting systems showed that when organizations are privatised, there are clearly defined lines of authority and reporting systems as well as improved supervision as indicated in the literature.

On the issue of consultation with shareholders in deci-

sion making, the study showed that consultation with shareholders is better achieved when organisations are privatised. This makes the shareholders monitor and control both management and non- management ranks (agent) as stated in the Agency Theory. The response also confirms Borren (1995)'s accountability model which states that when enterprises are privatised, stake holders are able to monitor and supervise management to ensure that their interests are protected.

Lastly, under the structure of accountability, the respondents revealed that consumers are able to seek redress to their problems in privatised enterprises through the use of Complaint Unit as compared to the public. This is similar to Cook and Kirkpatrick (1995)'s studies. They also argued that privatised enterprises have Complaint Unit where employees and customers can report wrong doings or problems. However in Mo (2000) he revealed that the complaint unit and suggestions box used by the public to address their problems are not adhered to in the private enterprise as compared to the public.

Also, all the mechanisms of accountability identified by respondents during the research process had been noted in other literature on the issue of privatised enterprises operating within the laws of the state. The study showed that whilst before privatisation the enterprises operated according to the laws of the land, after privatisation the enterprises operated according to the rules and regulations of the enterprise instead of the laws of the state. This confirms Habermas (1996) claims that privatised enterprises are normally bound by organizational rules and regulations rather than the state laws. He

argued that the state laws cannot obligate private enterprises to publish their financial statements. He reiterated that it can only be done on the request of shareholders. He said that the state (government) can only enforce compliance to state laws only if it is the majority shareholder in the privatised enterprises.

Again, in responding to the issue on transparency, the study revealed that when it comes to access to information and auditing it is better served under the public enterprises than the private. This is similar to Kettle (1993)'s studies on privatisation and accountability. He argued that privatisation has impacted negatively on accountability in terms of transparency and public criticisms. However, Bishop Kay and Mayer (1994) had a different view. They think privatisation increases transparency. Even though the findings are similar to kettle, it is different from Bishop Kay and Mayer's view.

Furthermore, Therkildsen (2001) argued that performance targets can be used as a mechanism for accountability. He stated that performance targets are used as measuring scale to judge if accountability exists in an organization, since when management set targets there is a need to communicate it to non- management rank so they can work together as a team. This makes them accountable to each other. According to Therkildsen setting performance targets are practiced by private enterprises rather than the public. The response from the respondents confirms this.

Also, respondents agreed that regulatory institutions are mechanisms for ensuring accountability in privatised enterprise. This confirms the study of Hodge and Coghil (2007) and Ayres and Braithwaite (1992). In their discussions they stated that if all mechanisms fail to hold privatised enterprises accountable, the only mechanism that can be use is regulatory enforcement by regulatory bodies.

Additionally, whistle blowing schemes were also identified as a mechanism for ensuring accountability. The study revealed that the private sector has procedures through which employees can report wrong doings without being victimised as compared to the public.

This is consistent with Wouters et al. (2010)'s arguments which stated that for accountability to be sustained there must be whistle blowing schemes in which employees have the right and sometimes the obligation, to report cases of misconduct of which they may become aware of.

Lastly, findings from the survey also revealed that privatised enterprises are accountable to a number of stake holders that is owners, suppliers, customers, the public, etc.

From the findings of the interviews and questionnaires, it can be established that the theories chosen for the study are very much in line with the study; The Property Right Theory by Alchian (1977), Demsetz (1988) and Agency Theory by Meckling (1976). As stated earlier, according to the Property Rights Theory, shareholders are residual claimant to profit in public traded firms, whereas under state ownership, Property Rights are ill defined. Although the state is the residual claimant to any profits in a state-owned firm, the minister (as the state representative) has no financial interest in the returns stemming from his actions (or in actions). The theory also predicts that privatisation will enhance incentives tied to the firms, financial performance by replacing disinterested ministers with shareholders who will design an effective governance system out of self-interest. The findings show that because shareholders know they have an interest in the company, the number of mechanisms has been increased to ensure accountability which will be translated into high production and increase the profit of shareholders. Again, after privatisation the disinterested ministers heading the various State-Owned Enterprises were replaced with the shareholders.

The Agency Theory by Meckling (1976) was reviewed from the point of the Principal and Agent Theory, where the principal is the owner and the agent is the one who manages the day-to-day control of the enterprise on behalf of the principal. The principal also incurs monitoring and bonding cost so as to ensure they are accountable. From the study, it can be seen that owners of the company have put in place measures and mechanisms to ensure that managers operate according to laid down procedures. All the mechanisms have been put in place to control management and non-management ranks (agents). The theories are therefore consistent with study.

Conclusion

This chapter discussed the findings of the individual interviews, the survey and also tested the hypotheses. From the individual interviews, it was realized that accountability mechanism before privatisation was narrow and directed towards government and its institutions. But after privatisation the mechanisms were widened and the enterprise became accountable to a number of people or actors. The hypotheses also confirmed the literature that political accountability decreases as state owned enterprises are privatised and managerial accountability increases.

The study focused on two privatised enterprises in the Accra and Tema Metropolis both in the Greater Accra Region of Ghana. The researcher sought to find answers to the following questions on the structure and levels of accountability before and after privatisation; mechanisms of accountability dimensions and the effect of privatisation on political and managerial accountability. Results from the study indicate that; privatisation has reduced

government's direct control over privatised enterprises.

The study also revealed that privatised enterprises are accountable to a larger number of stake holders i.e. shareholders, supplier, customers and the public. The hypothesis tested also revealed that privatisation has an impact on both political and managerial accountability. Privatisation reduces political accountability and increases managerial accountability. The Agency Theory and Property Right Theory were used as the basis of the analysis. And the findings were seen to be consistent with the theories selected for the study that is the Property Right Theory and the Agency Theory.

It has extensively been acknowledged in the literature that privatisation brings about improved accountability and performance (Hodge and Coghil 2007; Luke 2010, Wouters et al 2010). As a result of this, most ailing State Own Enterprises were privatised to improve on their accountability leading to improved performance. The study of these two privatised enterprises, that is Intercity STC and GAFCO have revealed privatisation indeed leads to improved accountability but not performance.

Findings from the study also showed a reduction in the role of government in privatised enterprise. The hypotheses tested showed a decrease in political accountability after privatisation and an increase in managerial accountability. There is a need for further research on challenges of privatised enterprises. These studies should also come up with reasons why privatised enterprises are collapsing despite improved accountability mechanisms. Also, there is a need for further research on GAFCO and Intercity STC to find out why they are not performing even after privatisation.

Conflict of Interests

The author has not declared any conflict of interest.

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