

# Mediating effect of work stress on the influence of time pressure, work–family conflict and role ambiguity on audit quality reduction behavior

Amiruddin Amir

*Universitas Hasanuddin, Makassar, Indonesia*

## Abstract

**Purpose** – This study aims to determine the direct and mediating effects of time pressure, work–family conflict, role ambiguity, work stress and audit quality reduction behavior.

**Design/methodology/approach** – The sample selection in this research is done by purposive sampling method based on the criteria specified by the researcher. In addition, random sample selection does not necessarily produce a sample that can represent auditors at all levels and types of Kantor Akuntan Publik (KAP). This research uses quantitative analysis with approach of structural equation modeling (SEM) method to analyze direct and indirect effect. The main method for data analysis is SEM.

**Findings** – Based on the results of the research note that time pressure, work–family conflict and role ambiguity each have a significant effect on work stress. In testing the direct effect on audit quality reduction behavior, only time pressure influential significant, while work–family conflict and role ambiguity not significant. However, in the test of indirect influence/influence of mediation, there is a significant influence on all tests that time pressure, work–family conflict and role ambiguity each have a significant effect on audit quality reduction behavior through work stress.

**Originality/value** – The originality of this paper is in SEM used by involving new variable which is work–family conflict. The research location is public accounting offices (KAP) in Indonesia.

**Keywords** Work stress, Role ambiguity, Time pressure, Work–family conflict

**Paper type** Research paper

## 1. Introduction

Quality of audit is a warranty, as the quality will be used to compare actual condition with expected condition. So that an audit report produced by auditor has high quality, the auditor must perform their work professionally and independently, comply with auditing standard, obtain competent and sufficient evidence and perform complete stages of audit procedure (Francis and Yu, 2009). High-quality audit is audit which can improve the quality of information to be reliable.

Auditing is inseparable from behavior issue, e.g. possibility of an auditor to perform dysfunctional behavior, thus reducing the quality of an audit. Quality reduction in audit means deliberate reduction of quality in auditing by auditor (Coram and Woodliff, 2003). Malone and Roberts (1996) state that audit quality reduction behavior is an action taken by auditor when performing audit program which leads to reduced effectiveness of audit evidence which should be collected.

Work stress is often associated with audit profession. There have been many studies on the work stress of auditors, but they only discuss the effects on performance (Chen *et al.*, 2006), job



satisfaction (Chen and Silverthorne 2008), turnover intention (Hsieh and Wang, 2012) and turnover of audit (Dalton *et al.*, 1997). Previous studies on the effect of work stress on audit quality reduction behavior were performed by Robinson and Bennett (1995), Boyd *et al.* (2009) and Noor (2011), who find that work stress leads to auditor's dysfunctional behavior.

Golparvar *et al.* (2012) find that work stress at low level has negative effect on audit quality reduction behavior, while work stress at high level has positive effect on audit quality reduction behavior. In another study, work stress causes job dissatisfaction and reduces work performance (Hayes and Weathington, 2007; Chen and Silverthorne, 2008), leading to auditor's dysfunctional behavior (Paino *et al.*, 2012). On the other hand, work stress is sometimes deliberately created to challenge someone to improve their work performance (Moore, 2000). Auditor who has stress at certain level may show better work performance in organization (Spector *et al.*, 1988; Chen *et al.*, 2006; Virtanen *et al.*, 2009).

The results of research studies on reduction of quality of edit by previous researchers are varied, so there should be further research. The present study is different from previous studies which research factor causing (antecedent) auditor's work stress, e.g. time pressure, role conflict and role ambiguity, while the present study adds work-family conflict and *locus* of control which simultaneously affect reduction of quality of audit. Role ambiguity occurs because of lack of information or information which is not relayed. Role ambiguity is also caused by heavy work demands and uncertain supervision by superior which forces employee to guess and predict their own actions (Bamber *et al.*, 1989).

Research studies on role stress in Kantor Akuntan Publik (KAP) show similar evidence but they are still contradictory, e.g. role conflict and role ambiguity have negative correlations with work satisfaction but positive correlations with turnover intention (Gregson, 1992). Moreover, role conflict has positive relation with work stress (Roberts *et al.*, 1997) and positive and significant relation with audit quality reduction behavior (Noor, 2011). Someone who has role ambiguity tends to have reduced physical and psychological health. It leads to stress at work and turnover intention, as well as audit quality reduction behavior because the individual works ineffectively and does not concentrate at work (Jaffe *et al.*, 2000; Fisher, 2001; Viator, 2001 and Jones *et al.*, 2010). Moreover, high role ambiguity may reduce one's confidence in their ability to work effectively (Fisher, 2001; Viator, 2001). However, a study by Aftab *et al.* (2016) finds that role ambiguity does not have any positive relation with turnover intention and Mohd Nor (2011) states that role ambiguity does not have any significant relation with audit quality reduction behavior.

The results of research studies on reduction of quality of edit by previous researchers are still varied, so there should be further research. The present study is different from previous studies which research factor causing (antecedent) auditor's work stress, e.g. time pressure, role conflict and role ambiguity, while the present study added work-family conflict which was expected to also effect turnover intention as variables which simultaneously affected audit quality reduction behavior. Audit quality reduction behavior in KAP has been the focus of many studies for a long period and in many countries, e.g. Australia (Coram and Woodliff, 2003), France (Herrbach, 2001), New Zealand (Lanaras *et al.*, 1991; Gundry and Liyanarachchi, 2007), the USA (Alderman and Deitrick, 1982; Donnely *et al.*, 2004; Kelley and Margheim, 1990; Malone and Roberts, 1996) and the UK (Willett and Page, 1996). All research studies show relatively high number in which auditors were involved in audit quality reduction behavior and prove that auditors tend to compromise effectiveness of audit and do not completely perform audit program. For example, Coram and Woodliff (2003), Kelley and Margheim (1990), and Otley and Pierce (1996) find that over 50 per cent of auditors perform at least one practice of audit quality reduction throughout their careers.

Work–family conflict is the role demands of work and family which cannot align in several things. According to Greenhouse and Beutell (1985), work – family conflict is the amount of emerging pressure in performing one role so one has difficulty in fulfilling other role(s). This conflict will cause stress on an employee at work, so that the problem will eventually cause the employee to want to change job, as found by Netemeyer *et al.* (1996) and Boles *et al.* (1997). The finding mentions that work–family conflict has positive effect on turnover intention (Pasewark and Viator, 2006; Blomme *et al.*, 2010). Similarly, higher conflict between work and family faced by an individual may affect their performance or, in auditing, may cause audit quality reduction behavior (Williams and Anderson, 1991; Lestari, 2015).

Based on the background above, the purpose of this study is to investigate the relationships between time pressure, workplace–family conflict, and role ambiguity and work stress, with audit quality reduction behavior as a mediating variable. It means that the paper investigated the direct effects of time pressure, workplace–family conflict and role ambiguity on audit quality reduction behavior and time pressure, workplace–family conflict, role ambiguity and audit quality reduction behavior on work stress.

The originality of this paper is in SEM model used by involving mediation variable namely audit quality reduction behavior.

Several previous studies have investigated the partial relationship between each variable, such as:

- Time pressure (X1) and work stress (Z) by Odio *et al.* (2013); Herrington and Capella (1995); Moeller and Yan (2013); Baehler and Bryson (2008) and Thornton (1996);
- workplace–family conflict (X2) and work stress (Z) by Huffman *et al.* (2013); Kremer (2016); Ahmad *et al.* (2011) and Howard *et al.* (2004);
- Role ambiguity (X3) and work stress (Z) by Conley and Woosley (2000); Siegall (2000); Elloy and Smith (2003) and Conner and Douglas (2005);
- Time pressure (X1) and audit quality reduction behavior (Z) by Svanberg and Öhman (2013); Brown *et al.* (2016); Salehi *et al.* (2017); Yuen *et al.* (2013) and Lee (2012);
- workplace–family conflict (X2) and audit quality reduction behavior (Z) by Zgarni *et al.* (2016); Karim and Zijl (2013); Khan *et al.* (2016) and Koyuncu *et al.* (2012);
- Role ambiguity (X3) and audit quality reduction behavior (Z) by Zgarni *et al.* (2016); Alfraih (2016); Peurseem (2005) and Alfraih (2016); and
- Work stress (Z) and audit quality reduction behavior (Z) by Carmona *et al.* (2015); Brown *et al.* (2016); Yuen *et al.* (2013) and Larson (2004).

No previous study investigates comprehensively the relationship between time pressure, workplace–family conflict, and role ambiguity, and work stress, with the audit quality reduction behavior as a mediating variable, especially in public accounting offices (KAP) in Indonesia.

The research results are expected to have theoretical and practical contributions. Theoretically, the research result is expected to contribute some insight on behavioral accounting literatures, especially in auditing related with factors causing auditor's work stress and audit quality reduction behavior and it's also expected to be used as a reference for future studies. Practically, the research result is expected to benefit public accounting offices (KAP) in evaluating policies to create conducive work environment and create an organizational culture or climate which harmonizes professional expectations and demands

to reduce the stress faced by auditors in working and to mitigate the possibility of auditor performing audit quality reduction. Moreover, there are increased demands of users of financial statements on auditors' professionalism to get quality audit reports.

## 2. Literature review

### 2.1 Work–family conflict

Work and family are two interrelated things and very important for everyone. It is very difficult to combine them, especially if an individual has family of their own. Therefore, conflict will emerge when someone has to choose between two roles (roles in family and at work) so the individual must play multiple roles. In other words, conflict is relation between two parties or more when individual senses incompatibility between the existing condition and the expected condition. Generally, people think conflict should be avoided, but according to Fisher *et al.* (2001), conflict is useful in life and is a part of human existence. However, others state that conflict may inhibit teamwork, thus causing unethical behaviors to achieve objectives.

Work–family conflict is a conflict which happens because of role imbalance between responsibilities at home and at work (Greenhaus and Beutell, 1985; Boles, *et al.*, 1997). The assumption is there are two demands at the same level but cannot be performed equally and potentially causes incompatibility of function and discomfort in both positions (Pasewark and Viator, 2006). This will cause work stress. Work–family conflict seems to affect several professions (Parasuraman and Simmers, 2001). Moreover, a profession which directly interacts with many clients easily causes conflict, and there is positive relation with turnover intention (Connor, 1999). Similarly, public accountant has contacts with many clients and is more vulnerable to the conflict (Pasewark and Viator, 2006). Work–family conflict impacts high turnover intention in some public accounting offices (KAP).

Companies are expected to pay more attention to their employees' wellbeing by increasing their satisfaction so that the employees behave appropriately for the interests of the companies in the long term. Therefore, companies should prevent work–family conflict in their employees. The impacts of work–family conflict in employee are work stress, turnover intention and maybe audit quality reduction behavior. They occur to cover inability to solve the problem, i.e. inability to balance family and work roles, thus creating internal conflict.

Lu *et al.* (2008) reveal that work–family conflict has positive and significant effect on organizational commitment, while Zhao's (2012) study shows that individual which has conflict between work and family will have ambiguity and it will cause reduced organizational commitment. Similarly, discomfort or work pressure will have positive effect.

### 2.2 Role conflict and role ambiguity

Role conflict emerges because of two simultaneous different orders (Wolfe and Snoke, 1962). Moreover, role conflict happens if someone has opposing roles as an employee or a member of an organization which must obey all norms and regulations in effect and be loyal to organization, and as a professional member which must obey ethical codes and professional performance standard (Siegel and Marconi, 1989). Employees in KAP have standard work structure. If there is disturbance in coordination of workflow and information on task progress, role conflict will occur. In other words, role conflict is related to two opposing demands (Rizzo *et al.*, 1970).

Role ambiguity happens when an employee receives inadequate information, unclear policy and direction, uncertain authority, task and relation with others to perform their work (Bamber *et al.*, 1989; Jackson and Schuler, 1985; Senatra, 1980). Furthermore, role ambiguity

includes workflow coordination, violation in chain of command, job description and adequacy of communication flow. Therefore, role ambiguity refers to time pressure in task because of lack of clarity or not understanding one's proper role in organization (DeZoort and Lord, 1997).

Role ambiguity may happen in public accounting offices (KAP) if they have changes in structures and personnel regulations which cause problems such as demand and pressure for better work (Ameen *et al.*, 1995). The role ambiguity can be eliminated by predicting the result of response of a behavior and by clarity of behavioral requirements which may help guide behaviors (Rizzo *et al.*, 1970).

Role conflict and role ambiguity have potential impacts. It may be caused by high pressure related to work, causing work stress and, even further, may increase turnover intention and audit quality reduction behavior (Fisher, 2001; Viator, 2001). In other words, role conflict affects performance or audit quality reduction behavior.

Role conflict and role ambiguity as stress triggers are well documented in previous studies. These elements are found and affect work result and works related to an attitude (Rebelle and Michaels, 1990; Belias *et al.*, 2015). For some decades, many studies reveal that accounting profession may be associated with role conflict and role ambiguity among public accountants (Senatra, 1980; Bamber *et al.*, 1989; Rebele and Michaels, 1990; Fisher, 2001; Sweeney and Summers, 2002).

In terms of work stress, Fogarty (1996) and find that role conflict and role ambiguity have positive and significant relations with work stress. In other words, an individual or auditor understands that high role conflict will make them have high work stress, so conducive environment is required for auditors to work in accordance with their capacity.

Senatra (1980) states that the implications of role conflict and role ambiguity in KAP may cause serious problems such as low quality of auditor's performance. The result of Senatra's (1980) study on role stress is role ambiguity has negative effect on job satisfaction, while role conflict does not affect job satisfaction. It is because role conflict is an intrinsic part of auditing, so role conflict is necessary to motivate auditor in working.

Rebele and Michaels (1990), as well as Fisher (2001), perform similar studies as Senatra (1980) on the regulation between role stress and auditor's jobs satisfaction and performance. The analysis result is role conflict has no significant relation with auditor's performance but role conflict and role ambiguity have positive and significant relations with auditor's work stress. Meanwhile, according to both conflicts, i.e. role conflict and role ambiguity, have negative relations with job satisfaction.

### *2.3 Audit quality reduction behavior*

Audit quality reduction behavior is defined as actions taken by auditor during auditing task which reduce the effectiveness of the collected audit evidence (Malone and Roberts, 1996). Moreover, Herrbach (2001) defines audit quality reduction behavior as a bad consequence of audit procedure which reduces the level of evidence collected for audit, so the collected evidence is not reliable, incorrect or insufficient quantitatively or qualitatively.

Audit quality reduction behavior happens when auditor incorrectly performs audit procedure required to finish their tasks. Audit quality reduction behavior is a serious problem because this behavior will not only give negative effect on individual auditor, but also threatens the validity of audit opinion, affecting overall company performance and economic decision of audit report user. Although quality reduction behavior does not only lead KAP to release unqualified opinion, if audit work isn't performed correctly, audit risk will increase (Coram and Woodliff, 2003), meaning the probability of company to release incorrect opinion is higher. It is because auditor may reach conclusion which is considered

sufficient, but on the other hand, there is not enough evidence collected during audit engagement.

Audit quality reduction may reduce public trust on accounting profession and reduce the credibility of public accountants for their audit results. Therefore, there should be prevention or effort to minimize audit quality reduction by coordinating and motivating public accountants as their role is massive in the business world.

#### *2.4 Stress theory*

Stress is psychologically defined as something experienced by an individual when facing demand, obstacle and/or opportunity which has significant but uncertain result (Greenhaus and Parasuraman, 1987). Moreover, recognizing symptoms in stress response and identifying stress are very important to reduce and avoid excessive stress. Based on this definition, stress consists of two main elements; stress source and implication of stress. Previous studies on stress usually use three different definitions of stress which are as stimulus, response or relation between stimulus and response (Weick, 1983; Beehr and Franz, 1987; Jex *et al.*, 1992). Stimulus is external power or environmental situation which requires physical or psychological response from individual (Greenhaus and Parasuraman, 1987; Jex *et al.*, 1992). Stimulus is also called causative factor of stress. A response (strain) is called effect of forces on individual (Jex *et al.*, 1992) or stress symptom (Greenhaus and Parasuraman, 1987). In other words, response is implication of external or environmental event on individual.

The researchers who use this stress definition refer to interaction between environmental condition or event and individual response to the condition. Some research studies use the output of response as the definition of stress (Greenhaus and Parasuraman, 1987). Stress has the potential to encourage or disrupt work, depending on its level. Excessive stress level may have negative impact on auditor's work quality. Some factors influencing stress are work environment factors related to work condition, such as work conflict, time pressure, and role stress. Another factor which effects work stress is individual characteristic which is related with personality type and personal experience of an auditor (Newstrom and Davis, 1993).

#### *2.5 Conceptual framework and hypothesis building*

The present study uses the modified work stress model by Parker and Decotiis (1983) to examine the effect of stress on audit quality reduction behavior. Moreover, the present study focuses on the behavior of individual auditor and several variables which cause stress. The present research study three fields, i.e. work characteristic, characteristic of KAP and characteristic of individual explain the behaviors among auditors. Some intra-organization stresses identified by Cooper and Marshall (1976) are organized into two groups as work characteristic or characteristic of company.

High time pressure in KAP may affect auditor's behaviors (Otley and Pierce, 1996). Similarly, reveal that time pressure is a pressure on the deadline of audit which has been set to finish the audit on time, so the time pressure will reduce the efficiency and effectiveness of audit, which may increase auditor's level of work stress (Lau and Buckland, 2001). In other words, there is a positive relation between time pressure and work stress, and audit quality reduction behavior. Based on the description, the following hypotheses were formulated:

- H1.* High time pressure will increase auditor's work stress.
- H2.* High time pressure will increase audit quality reduction behavior.

Someone professional in their job sometimes has difficulty in balancing work and family demands, leading to internal stress and reducing work satisfaction. Moreover, individual facing conflict between work and family will have confusion and it will cause audit quality reduction behavior. The higher the experienced conflict, the higher the work stress and audit quality reduction behavior. Based on the description, the following hypotheses were formulated:

*H3.* High workplace–family conflict will increase auditor’s work stress.

*H4.* High workplace–family conflict will increase audit quality reduction behavior.

Someone who has role ambiguity tends to have reduced physical and psychological health, as well as anxiety, and they will work less effectively than other individuals. The result of the study by Viator (2001) shows that role ambiguity has negative correlation with work achievement, or in other words, it has positive correlation with auditor quality reduction. Moreover, role ambiguity is also related with job stress.

*H5.* High role ambiguity will increase auditor’s work stress.

*H6.* High role ambiguity will increase audit quality reduction behavior.

High work stress experienced by auditor may affect the auditor’s work achievement (Choo *et al.*, 1995; Fisher, 2001; McDaniel, 1990; Rebele and Michaels, 1990). McDaniel (1990) reveals that auditor’s performance will lower significantly if there is pressure which causes the auditor to have work stress.

Auditor is said to have high work stress if the work effectively and efficiently, i.e. finishing audit procedure correctly and collecting sufficient evidence and finishing on time (McDaniel, 1990). However, if auditor does not performed audit procedure effectively and efficiently or there is negligence, it will affect audit quality. There is possibility that auditor performs audit quality reduction related with promotion to be performed by the head of KAP.

*H7.* High work stress will increase audit quality reduction behavior.

### 3. Methodology

The population in this study was all auditors working in KAP (public accounting firms) in Indonesia. The Public Accounting Firms consisted of *The Big-Four*, affiliated KAP (outside of *Big-Four*) and nonaffiliated KAP. The analysis units in this study were auditors at all levels of hierarchy of KAP organizations, i.e. junior auditor/staff, senior auditor, manager audit and audit partner and those involved in implementing audit program on corporate financial statement audit performed by the KAP, who had minimum audit experience of two years. The criteria were used because generally auditors who have at least two years of work experience in KAP are given responsibility to perform audit program.

The sample selection in this study was performed by purposive sampling method because it was based on the criteria set by the researcher. Furthermore, random sample selection did not necessarily produce samples which represented auditors at all levels and types of KAP. The present study used the 2016 directory of members of Indonesian Public Accountant Institute. Sample selection was determination of the size of the research samples. The determination of the number of samples was based on the size of the samples required by data analysis using structural equation model (SEM). According to Ghozali (2008), the number of samples required for maximum likelihood estimation by SEM ranges

from 200 to 400. Meanwhile, according to [Hair et al. \(2009\)](#), the number of samples required in a study using SEM analysis is at five times the number of indicator variables. In the present study, there were 49 indicators, so the minimum number of samples required was 245 (5 times 49) to meet the requirements of the guidelines.

The data in the present study were collected by survey through questionnaire coordinators for employees or auditors working in large affiliated KAP (including Big-Four KAP) and nonaffiliated KAP. The reason for using large KAP was auditors working in large KAP had high stress level (Rabele and Michaels, 1990). Moreover, there are many differences between large KAP and small KAP, including the number of clients, work environment, compensation, competition level and work stress ([Wheeler et al., 1987](#)).

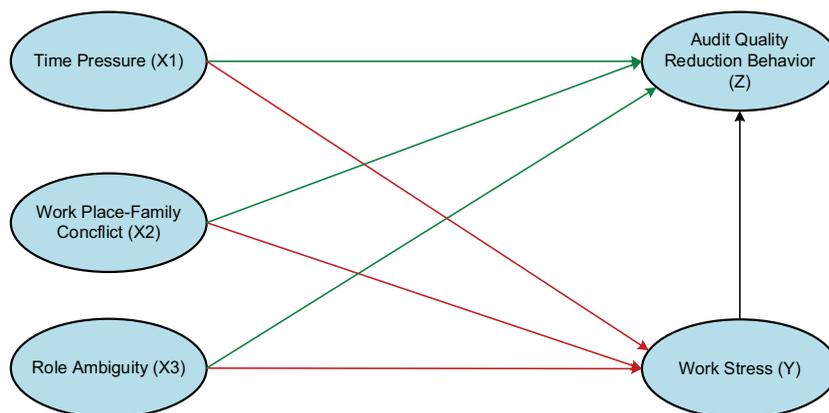
The study used quantitative analysis with SEM to analyze direct and indirect effects. The main method of data analysis was SEM. SEM was selected because this statistical analysis is a multivariate technique which combines aspects of multiple regression and factor analysis to estimate a series of interdependent relations simultaneously ([Hair et al., 2009](#)) ([Figure 1](#)).

#### 4. Result and discussion

##### 4.1 Measurement model

[Table I](#) presents the average values and the loading factor of each indicator of each study variable.

Based on [Table II](#), the result of measurement model showed that all indicators significantly measured the research variables. The test result also showed that in time pressure (X1), the strongest measurement indicator was limited time in finishing task (X1.1) with loading factor value of 0.681 and mean of 3.97. In role ambiguity (X2), the strongest measurement indicator was Scope of and Responsibility over unclear job (X2.1) with loading factor value of 0.604 and mean of 2.26. In workplace-family conflict (X3), the strongest measurement indicator was work demand which disturbs family life (X3.1) with loading factor value of 0.612 and mean of 3.36. In Work Stress (Z), the strongest measurement indicator was depression because of workload (Y2) with loading factor value of 0.658 and mean of 2.32. In the dependent variable which was Audit quality reduction behavior (Z), the strongest measurement indicator was making shallow review of client's document (Z4) with loading factor value of 0.524 and mean of 1.85.



**Figure 1.**  
Conceptual framework model

| Variable                             | Indicator   | Mean | Loading factor | p-value |
|--------------------------------------|---|------|----------------|---------|
| Time pressure (X1)                   | Limited time to finish task (X1.1)  | 3.97 | 0.681          | <0.001  |
|                                      | Work reduction to reach time target (X1.2)                                      | 2.45 | 0.648          | <0.001  |
|                                      | Shift time for different clients (X1.3)   | 2.32 | 0.664          | <0.001  |
|                                      | Requesting additional time to finish work (X1.4)                                | 2.84 | 0.525          | <0.001  |
|                                      | Not reporting actual time use (X1.5)  | 2.49 | 0.397          | <0.001  |
| Role ambiguity (X2)                  | Scope of and responsibility over unclear job (X2.1)                             | 2.26 | 0.604          | <0.001  |
|                                      | Not knowing opportunity for promotion which may be received (X2.2)              | 2.09 | 0.497          | <0.001  |
|                                      | Not performing task with effective quality (X2.3)                               | 2.41 | 0.560          | <0.001  |
|                                      | Incompleteness of information required to finish work (X2.4)                    | 2.27 | 0.548          | <0.001  |
|                                      | Not knowing how supervisor assesses performance (X2.5)                          | 2.09 | 0.657          | <0.001  |
|                                      | Time to finish work not clearly determined (X2.6)                               | 2.48 | 0.498          | <0.001  |
|                                      | Work demand which disturbs family life (X3.1)                                   | 2.36 | 0.612          | <0.001  |
| Workplace–family conflict (X3)       | Long working time making it difficult to fulfill family obligations (X3.2)      | 2.40 | 0.592          | <0.001  |
|                                      | Too many work demands making it impossible to perform activities at home (X3.3) | 2.63 | 0.579          | <0.001  |
|                                      | Fatigue in handling work (X3.4)   | 2.57 | 0.562          | <0.001  |
|                                      | Change in Family activity because of work (X3.5)                                | 2.87 | 0.378          | <0.001  |
|                                      | Family demand conflicts with work activities (X3.6)                             | 2.41 | 0.523          | <0.001  |
|                                      | Delaying activity at work because of family demand (X3.7)                       | 2.52 | 0.606          | <0.001  |
|                                      | Family problem and conflict with ability in performing task (work) (X3.8)       | 2.32 | 0.512          | <0.001  |
|                                      | Inability to handle work (Y)  | 2.08 | 0.629          | <0.001  |
| Work stress (Z)                      | Depression because of workload (Y2)   | 2.32 | 0.658          | <0.001  |
|                                      | Difficulty controlling emotion (Z)  | 2.34 | 0.624          | <0.001  |
|                                      | Inability to concentrate on work (Y4)   | 2.18 | 0.497          | <0.001  |
|                                      | Great pressure at workplace (Y5)  | 2.38 | 0.481          | <0.001  |
|                                      | Premature stop of rarely performed audit program (Z1)                           | 2.16 | 0.365          | <0.001  |
| Audit quality reduction behavior (Z) | Reducing the amount of work performed (Z2)                                      | 2.46 | 0.454          | <0.001  |
|                                      | Failure to study an accounting principle of technical problem (Z3)              | 2.07 | 0.449          | <0.001  |
|                                      | Making shallow review of client's document (Z4)                                 | 1.85 | 0.524          | <0.001  |
|                                      | Accepting client's weak explanation (Z5)  | 2.51 | 0.462          | <0.001  |
|                                      | Examining part of sample item (Z6)  | 2.22 | 0.407          | <0.001  |
|                                      | Changing or replacing audit procedure (Z7)                                      | 2.33 | 0.387          | <0.001  |
|                                      | Overreliance on client's working result (Z8)                                    | 2.93 | 0.266          | 0.001   |
|                                      | Reducing audit evidence documentation (Z9)                                      | 2.61 | 0.393          | <0.001  |
|                                      | Not investigating doubtful item further (Z10)                                   | 1.98 | 0.491          | <0.001  |

**Table I.**  
Loading factor value  
and average  
indicator

#### 4.2 Analysis result: structural equation modeling: testing assumptions

The assumption which should be met before SEM analysis was assumption of normality. There was no outlier and linearity. Multivariate normality assumption was tested by AMOS 6 software. The result of normality test is critical ratio value 16.859 on critical value for 5 per cent Z-count which is 1.96. Because CR absolute value for multivariate is 16.859 > 1.96, multivariate normality assumption was not met. However, based on central limit argument, if the sample is bigger, distribution is statistically normal. With a sample of 269, the research

data was considered meeting central limit argument, so the uncritical data normality assumption could be ignored.

To determine any outlier, mahalanobis distance (Md) was reviewed. Md was evaluated using a value of 122.348. From Md to the furthest observation point, Md = 93.341. Compared with 122.348, Md < 122.348, so all observation points are not outlier. The test was performed by Curve Fit linearity assumption. The linearity test result showed that all linear models are significant for Sig < 0.05, so linearity assumption was met.

#### 4.3 Goodness of fit

The results of testing overall goodness of fit models, based on the results of the SEM analysis, to determine whether a hypothetical model is supported by empirical data, are given in Table II.

The result of overall goodness of fit test based on Figure 5.11 and Table 5.13 showed that two criteria, i.e. CMIN/DF and RMSEA, showed good models. Meanwhile, Khi Square, *p*-value, GFI, AGFI, TLI, and CFI showed marginal models. According to Arbuckle and Wothke in Solimun (2010), the best criteria used as an indication of goodness of model is *p*-value greater than 0.05, Chi Square/DF less than 2, GFI greater than 0.90, AGFI greater than 0.90, TLI greater than 0.95, CFI greater than 0.95, and RMSEA less than 0.08. In this study, CMIN/DF and RMSEA values meet cut off values. Therefore, SEM model in this study was suitable and feasible for use, so it could be interpreted for further discussion.

#### 4.4 Structural equation modeling analysis

Structural model presents the relationship between the study variables. Coefficient structural model states the magnitude of relationship between variables. There is significant effect between variables one to another variable, if the value of *p*-value of <0.05. In the SEM, there are two effects i.e. direct effect and indirect effect. The results of the analysis are summarized in Table III for a direct effect and Table III for the indirect effect. Hypothesis is supported (significant), if *p*-value < 0.05, and on other hand, hypothesis is not support (not significant), if *p*-value > 0.05.

The test results are shown in the following Figure 2.

Based on Table III and Figure 2, the test of direct effects of time pressure on work stress has inner loading coefficient value of 0.222 with *p*-value of 0.010. Because *p*-value <0.05, there was significant direct effect between time pressure on work stress. As the inner loading coefficient is positive, the relation is positive. It means the higher the time pressure, the higher the work stress.

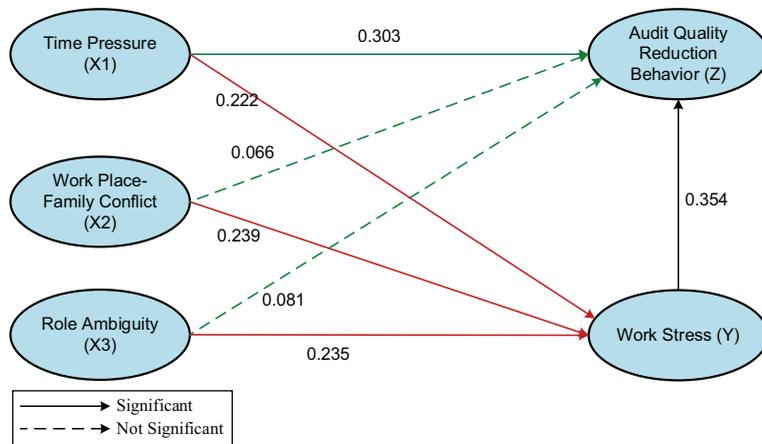
In the test of direct effect of time pressure on audit quality reduction behavior, the inner loading coefficient is 0.303, with *p*-value of 0.003. Because *p*-value <0.01, there

| Criteria        | Cut-of value | Model result | Information    |
|-----------------|--------------|--------------|----------------|
| Chi-square      | Small        | 2296.230     | Marginal model |
| <i>p</i> -value | ≥ 0.05       | 0.000        |                |
| CMIN/DF         | ≤ 2.00       | 1.566        | Good model     |
| RMSEA           | ≥ 0.90       | 0.759        | Marginal model |
| GFI             | ≥ 0.90       | 0.737        | Marginal model |
| AGFI            | ≥ 0.95       | 0.753        | Marginal model |
| TLI             | ≥ 0.95       | 0.764        | Marginal model |
| CFI             | ≤ 0.08       | 0.046        | Good model     |

**Table II.**  
Results of testing  
goodness of fit model

**Table III.**  
Direct effect results:  
SEM analysis

| Hypothesis | Relationship  | Coefficient | <i>p</i> -value | Conclusion      |
|------------|---|-------------|-----------------|-----------------|
| H1         | Time pressure (X1) → Work stress (Z)                                  | 0.222       | 0.010           | Significant     |
| H2         | Time pressure (X1) → Audit quality reduction behavior (Z)             | 0.303       | 0.003           | Significant     |
| H3         | Workplace–family Conflict (X2) → Work stress (Z)                      | 0.239       | 0.004           | Significant     |
| H4         | Workplace–family conflict (X2) → Audit quality reduction behavior (Z) | 0.066       | 0.353           | Not Significant |
| H5         | Role ambiguity (X3) → Work stress (Z)                                 | 0.235       | 0.005           | Significant     |
| H6         | Role ambiguity (X3) → Audit quality reduction behavior (Z)            | 0.081       | 0.276           | Not Significant |
| H7         | Work stress (Z) → Audit quality reduction behavior (Z)                | 0.354       | 0.003           | Significant     |



**Figure 2.**  
Structural SEM  
model result

was significant direct effect between time pressure on audit quality reduction behavior. Considering the inner loading coefficient is positive, the relation between them is positive. It means the higher the time pressure, the higher the audit quality reduction behavior.

In the test of direct effect of workplace–family conflict on work stress, the inner loading coefficient is 0.239, with *p*-value of 0.004. Because *p*-value < 0.01, there was significant direct effect between workplace–family conflict and work stress. Considering the inner loading coefficient is positive, the relation between them is positive. It means the higher the workplace–family conflict, the higher the work stress.

In the test of direct effect between workplace–family conflict and audit quality reduction behavior, the inner loading coefficient is 0.066, with *p*-value of 0.353. Because *p*-value > 0.10, there was insignificant direct effect between workplace–family conflict and audit quality reduction behavior. Therefore, higher/lower workplace–family conflict did not change the level of audit quality reduction behavior.

In the test of direct effect between role ambiguity and work stress, the inner loading coefficient is 0.235, with *p*-value of 0.005. Because *p*-value < 0.01, there was significant effect

between role ambiguity and work stress. Considering the inner loading coefficient is positive, the relation between them is positive. It means the higher the role ambiguity, the higher the work stress.

In the test of direct effect between Role ambiguity and audit quality reduction behavior, the inner loading coefficient is 0.081, with  $p$ -value of 0.276. Because  $p$ -value > 0.10, there was insignificant direct effect between role ambiguity and audit quality reduction behavior. Therefore, higher/lower role ambiguity did not change the level of audit quality reduction behavior.

In the test of direct effect between work stress and audit quality reduction behavior, the inner loading coefficient is 0.354, with  $p$ -value of 0.003. Because  $p$ -value < 0.01, there was significant effect between work stress and audit quality reduction behavior. Considering the inner loading coefficient is positive, the relation between them is positive. It means the higher the Work Stress, the higher the audit quality reduction behavior.

Beside direct effect, indirect effect (mediating effect) was also tested by Sobel test to test the effect which causes insignificant direct effect. The results of indirect effect test are shown in Table IV below.

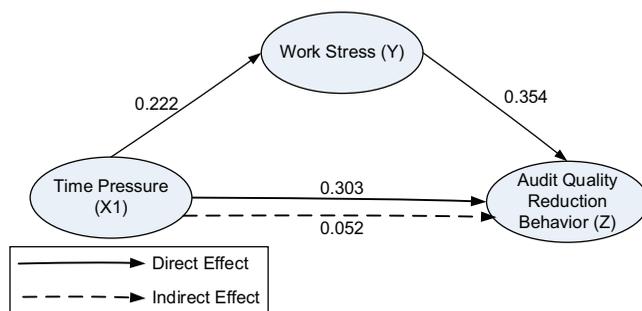
The test of indirect effect between time pressure and audit quality reduction behavior through Work Stress is shown in Figure 3.

Table IV and Figure 3 show that the indirect effect of Time Pressure (X1) on audit quality reduction behavior (Z) through work stress (Y) has coefficient value of 0.061, with  $p$ -value of 0.052. Because  $p$ -value (0.052) < 0.10, the mediating effect of work stress was significant. Therefore, there was indirect effect of time pressure on audit quality reduction behavior through work stress. It means that higher work stress led to higher effect of time pressure on audit quality reduction behavior. The test of indirect effect of workplace–family conflict on audit quality reduction behavior through work stress is shown below.

Table IV and Figure 4 show that the indirect effect of workplace–family conflict (X2) on audit quality reduction behavior (Z) through work stress (Y) has coefficient value of

| Indirect effect | Coefficient of indirect (Mediation) effect | Sig   | Information |
|-----------------|--|-------|-------------|
| X1 → Y → Z      | 0.061                                      | 0.052 | Significant |
| X2 → Y → Z      | 0.068                                      | 0.036 | Significant |
| X3 → Y → Z      | 0.060                                      | 0.040 | Significant |

**Table IV.** Structural model SEM results: indirect (mediation) effect



**Figure 3.** Indirect effect of time pressure on audit quality reduction behavior through work stress

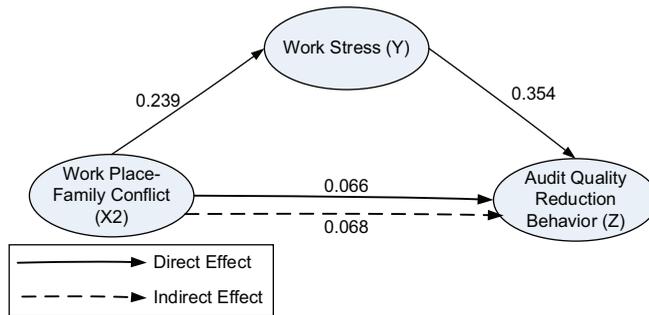
0.068, with  $p$ -value of 0.036. Because  $p$ -value (0.036) < 0.05, the mediating effect of work stress was significant. Therefore, there was indirect effect of workplace–family conflict on audit quality reduction behavior through work stress. It means that higher work stress led to higher effect of workplace–family conflict on audit quality reduction behavior. The test of indirect effect of role ambiguity on audit quality reduction behavior through work stress is shown below.

Table IV and Figure 5 show that the indirect effect of role ambiguity (X3) on audit quality reduction behavior (Z) through work stress (Y) has coefficient value of 0.068, with  $p$ -value of 0.036. Because  $p$ -value (0.036) < 0.05, the mediating effect of Work Stress is significant. Therefore, there was indirect effect of role ambiguity on audit quality reduction behavior through work stress. It means higher work stress led to higher effect of role ambiguity on audit quality reduction behavior.

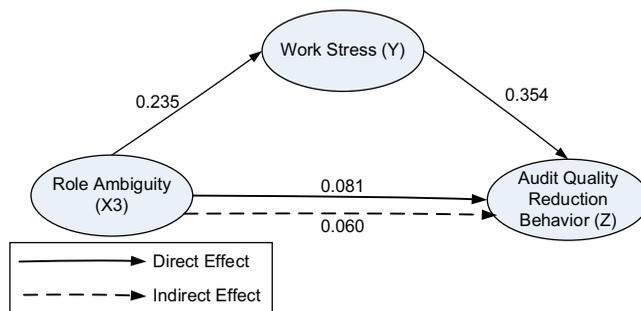
### 5. Discussion

The research found that time pressure had positive and significant effect on work stress, time pressure had positive and significant effect on turnover intention, time pressure had positive and significant effect on audit quality reduction behavior. High time pressure impacted high work stress, turnover intention and audit quality reduction behavior. These findings were in line with the concept of Otley and Pierce (1996) which states that high time pressure in KAP can affect auditor’s behavior. Moreover, Kelly *et al.* (1999) reveal that time pressure is a pressure on audit time target which has been set to finish audit on

**Figure 4.**  
Indirect effect of workplace–family conflict on audit quality reduction behavior through work stress



**Figure 5.**  
Indirect effect of role ambiguity on audit quality reduction behavior through work stress



time, so time pressure reduces the efficiency and effectiveness of audit, increasing auditor's level of work stress (Lau and Buckland, 2001).

Moreover, high stress will impact high audit quality reduction behavior as stress will reduce auditor's work performance (Choo *et al.*, 1995, 1998; Fogarty, 1996; Allen *et al.*, 1993; 2007), reduce their ability to work effectively (McDaniel, 1990), reduce auditor's ability to detect material misstatement or cause auditor to be involved in dysfunctional behavior which potentially reduces audit quality (Alderman and Deitrick, 1982; Kelley and Margheim, 1990; Otley and Pierce, 1996; Coram and Woodliff, 2003; Gundry and Liyanarachchi, 2007).

The study found that work–family conflict had positive and significant effect on work stress, work–family conflict had positive and significant effect on turnover intention, work–family conflict had positive and significant effect on audit quality reduction Behavior. High work–family conflict impacted high Work stress, turnover intention, and audit quality reduction behavior. These findings was in line with the study by Boles, *et al.* (1997) which finds that work–family conflict has indirect effect on turnover intention, the study by Blomme *et al.* (2010) which finds that work–family conflict has positive effect on work stress and turnover intention, and the study by Good *et al.* (1988) which shows that there is direct relation between work–family conflict and turnover. Moreover, Williams and Anderson (1991) and Lestari (2015) find that higher the conflict between workplace and family faced by an individual can affect their performance in audit, causing audit quality reduction behavior.

The research found that role ambiguity had positive and significant effect on work stress, role ambiguity had positive and significant effect on turnover intention, role ambiguity had positive and significant effect on audit quality reduction behavior. High role ambiguity impacted high work stress, turnover intention, and audit quality reduction behavior. These findings were in line with the theory of which states that someone who has role ambiguity tends to have reduced physical and psychological health, has anxiety and work ineffectively compared with other individuals.

This also supported another research result from Viator (2001) which states that role ambiguity has negative correlation with work performance. In other words, it has positive correlation with audit quality reduction. Moreover, role ambiguity is also associated with work stress and affects turnover intention.

Studies on role stress show that role ambiguity is related with negative work results, e.g. reduced work performance, raised work stress, and high turnover intention (Jackson and Schuler, 1985). Role theory states that individual will be dissatisfied and their performance will lower if the expected behavior is different from the individual's expectation (Kahn *et al.*, 1964 Rizzo *et al.*, 1970).

The discovery of the effect of time pressure on audit quality reduction behavior through work stress was in line with the expectancy theory which describes one's belief to perform work in accordance with their ability with expected outcome and within the set time. However, if the set time target does not fit the amount of works to be finished by the auditor, it may cause failure to reach the expected objective. In other words, the time pressure experienced by the auditor can affect their work stress, so the auditor will take action to reach the expected objectives by performing audit quality reduction behavior.

The research results found that workplace–family conflict had positive and significant effect on work stress, turnover intention through work stress, and audit quality reduction behavior through work stress. In other words, high workplace–family conflict would impact high work stress, high turnover intention preceded by high work stress, and high audit quality reduction behavior preceded by work stress experienced by auditor. These findings were in line with the research results of Boles *et al.* (1997) which show that workplace–

family conflict has indirect effect on turnover intention, and Blomme *et al.* (2010) find that workplace–family conflict has positive effect on work stress and workplace intention. Moreover, Good *et al.* (1988) reveal that there is direct relation between workplace–family conflict and turnover intention. Williams and Anderson (1991), and Lestari (2015) also find that higher the conflict level faced by an individual between workplace and family can affect employee’s performance in audit environment, and eventually cause audit quality reduction behavior. The finding of the present study was in line with role theory (Kahn *et al.*, 1964) which explains that the role conflict experienced by auditor in working can impact the work stress experienced by the auditor. Turnover intention also makes auditor perform audit quality reduction behavior.

The discovery of the effect of role ambiguity on audit quality reduction behavior through work stress supported the role theory, showing that role ambiguity was related with negative work outcomes, e.g. reduced work achievement, increased work stress and high turnover intention (Jackson and Schuler, 1985). The role theory states that individual become dissatisfied and their performance can lower if the expected behavior is inconsistent with the individual’s expectation (Kahn *et al.*, 1964 and Rizzo *et al.*, 1970). With role ambiguity faced by an auditor at work, the auditor tends to be inefficient and misdirected in performing their role as an auditor. It makes auditor’s work stress high, influencing the auditor to take actions which impact audit quality reduction.

## 6. Conclusion

Based on the research results, it was determined that time pressure, workplace–family conflict and role ambiguity had significant effects on work stress. When testing the direct effect on audit quality reduction behavior, only time pressure had significant effect while workplace–family conflict and role ambiguity were insignificant. However, when testing indirect effect, mediating effect, there were significant mediating effects in all tests, so time pressure, workplace–family conflict and role ambiguity each had significant effect on audit quality reduction behavior through work stress.

The present study did not study other antecedent factors on work stress, e.g. role-*locus* of control conflict, and other variables which were not studied, i.e. turnover intention as an effect of work stress. Future study is expected to study them more deeply.

## References

- Aftab, R.A., Khan, A.H., Adnan, A.S. and Jannah, N. (2016), “A systematic review on randomized control trials on rennin angiotensin aldosterone system inhibitors role in managing hypertension among hemodialysis patients”, *Renal Failure*, Vol. 38 No. 3, pp. 474-480.
- Ahmad, M.S., Fakh, Z. and Ahmed, J. (2011), “Working women work-life conflict”, *Business Strategy Series*, Vol. 12 No. 6, pp. 289-302, available at: <https://doi.org/10.1108/17515631111185923>
- Alderman, C.W. and Deitrick, J.W. (1982), “Auditors’ perceptions of time budget pressures and premature sign-offs: a replication and extension”, *Auditing: A Journal of Practice & Theory*, Vol. 1 No. 2, pp. 54-68.
- Alfraih, M.M. (2016), “Corporate governance mechanisms and audit delay in a joint audit regulation”, *Journal of Financial Regulation and Compliance*, Vol. 24 No. 3, pp. 292-316, available at: <https://doi.org/10.1108/JFRC-09-2015-0054>
- Allen, N.J., Meyer, P.J. and Smith, C.A. (1993), “Commitment to organizations and occupations: extension and test of a three-component conceptualization”, *Journal of Applied Psychology*, Vol. 78 No. 4.

- Ameen, N.A., Ardito, T., Kashgarian, M. and Marino, C.R. (1995), "A unique subset of rat and human intestinal villus cells express the cystic fibrosis transmembrane conductance regulator", *Gastroenterology*, Vol. 108 No. 4, pp. 1016-1023.
- Baehler, K. and Bryson, J. (2008), "Stress, Minister: government policy advisors and work stress", *International Journal of Public Sector Management*, Vol. 21 No. 3, pp. 257-270, available at: <https://doi.org/10.1108/09513550810863169>
- Bamber, E.M., Snowball, D. and Tubbs, R.M. (1989), "Audit structure and its relation to role conflict and role", *The Accounting Review*, Vol. 64 No. 2, pp. 285.
- Beehr, T.A. and Franz, T.M. (1987), "The current debate about the meaning of job stress", *Journal of Organizational Behavior Management*, Vol. 8 No. 2, pp. 5-18.
- Belias, D., Koustelios, A., Vairaktarakis, G. and Sdrolias, L. (2015), "Organizational culture and job satisfaction of Greek banking institutions", *Procedia-Social and Behavioral Sciences*, Vol. 175, pp. 314-323.
- Blomme, R.J., Van Rheede, A. and Tromp, D.M. (2010), "The use of the psychological contract to explain turnover intentions in the hospitality industry: a research study on the impact of gender on the turnover intentions of highly educated employees", *The International Journal of Human Resource Management*, Vol. 21 No. 1, pp. 144-162.
- Boles, J.S., Johnston, M.W. and Hair, J.F. Jr (1997), "Role stress, work-family conflict and emotional exhaustion: Inter-relationships and effects on some work-related consequences", *Journal of Personal Selling & Sales Management*, Vol. 17 No. 1, pp. 17-28.
- Boyd, D.J., Grossman, P.L., Lankford, H., Loeb, S. and Wyckoff, J. (2009), "Teacher preparation and student achievement", *Educational Evaluation and Policy Analysis*, Vol. 31 No. 4, pp. 416-440.
- Brown, V.L., Gissel, J.L. and Neely, D.G. (2016), "Audit quality indicators: perceptions of junior-level auditors", *Managerial Auditing Journal*, Vol. 31 Nos 8/9, pp. 949-980, available at: <https://doi.org/10.1108/MAJ-01-2016-1300>
- Carmona, P., Momparler, A. and Lassala, C. (2015), "The relationship between non-audit fees and audit quality: dealing with the endogeneity issue", *Journal of Service Theory and Practice*, Vol. 25 No. 6, pp. 777-795, available at: <https://doi.org/10.1108/JSTP-07-2014-0163>
- Chen, J.C. and Silverthorne, C. (2008), "The impact of locus of control on job stress, job performance and job satisfaction in Taiwan", *Leadership & Organization Development Journal*, Vol. 29 No. 7, pp. 572-582.
- Chen, Y., Evans, J. and Feldlaufer, M. (2006), "Horizontal and vertical transmission of viruses in the honey bee, *Apis mellifera*", *Journal of Invertebrate Pathology*, Vol. 92 No. 3, pp. 152-159.
- Choo, P.W., Donahue, J.G., Manson, J.E. and Platt, R. (1995), "The epidemiology of varicella and its complications", *Journal of Infectious Diseases*, Vol. 172 No. 3, pp. 706-712.
- Choo, D.W., Kurihara, T., Suzuki, T., Soda, K. and Esaki, N. (1998), "A cold-adapted lipase of an Alaskan psychrotroph, *Pseudomonas* sp. strain B11-1: gene cloning and enzyme purification and characterization", *Appl. Environ. Microbiol.*, Vol. 64 No. 2, pp. 486-491.
- Cooper, C.L. and Marshall, J. (1976), "Occupational sources of stress: a review of the literature relating to coronary heart disease and mental ill health", *Journal of occupational psychology*, Vol. 49 No. 1, pp. 11-28.
- Conley, S. and Woosley, S.A. (2000), "Teacher role stress, higher order needs and work outcomes", *Journal of Educational Administration*, Vol. 38 No. 2, pp. 179-201, available at: <https://doi.org/10.1108/09578230010320163>
- Connor, T. (1999). "Customer-led and market-oriented: a matter of balance", *Strategic Management Journal*, Vol. 20 No. 12, pp. 1157-1163.
- Conner, D.S. and Douglas, S.C. (2005), "Organizationally-induced work stress: the role of employee bureaucratic orientation", *Personnel Review*, Vol. 34 No. 2, pp. 210-224, available at: <https://doi.org/10.1108/00483480510579439>

- Coram, P., Ng, J. and Woodliff, D. (2003), "A survey of time budget pressure and reduced audit quality among Australian auditors", *Australian Accounting Review*, Vol. 13 No. 29, pp. 38-44.
- Dalton, C.B., Austin, C.C., Sobel, J., Hayes, P.S., Bibb, W.F., Graves, L.M., Swaminathan, B., Proctor, M.E. and Griffin, P.M. (1997), "An outbreak of gastroenteritis and fever due to *Listeria monocytogenes* in milk", *New England Journal of Medicine*, Vol. 336 No. 2, pp. 100-106.
- DeZoort, F.T. and Lord, A.T. (1997), "A review and synthesis of pressure effects in accounting", *Journal of Accounting Literature*, Vol. 16 No. 1, pp. 28-86.
- Elloy, D.F. and Smith, C.R. (2003), "Patterns of stress, work-family conflict, role conflict, role ambiguity and overload among dual-career and single-career couples: an Australian study", *Cross Cultural Management: An International Journal*, Vol. 10 No. 1, pp. 55-66, available at: <https://doi.org/10.1108/13527600310797531>
- Francis, J.R. and Yu, M.D. (2009), "Big 4 office size and audit quality", *The Accounting Review*, Vol. 84 No. 5, pp. 1521-1552.
- Ghozali, I. (2008), *Structural Equation Modeling: Metode Alternatif Dengan Partial Least Square (pls)*, Badan Penerbit Universitas Diponegoro.
- Good, M.F., Pombo, D., Quakyi, I.A., Riley, E.M., Houghten, R.A., Menon, A., Alling, D.W., Berzofsky, J.A. and Miller, L.H. (1988), "Human T-cell recognition of the circumsporozoite protein of *Plasmodium falciparum*: immunodominant T-cell domains map to the polymorphic regions of the molecule", *Proceedings of the National Academy of Sciences*, Vol. 85 No. 4, pp. 1199-1203.
- Golparvar-Fard, M., Pena-Mora, F. and Savarese, S. (2012), "Automated progress monitoring using unordered daily construction photographs and IFC-based building information models", *Journal of Computing in Civil Engineering*, Vol. 29 No. 1, p. 04014025.
- Greenhaus, J.H. and Beutell, N.J. (1985), "Sources of conflict between work and family roles", *Academy of Management Review*, Vol. 10 No. 1, pp. 76-88.
- Greenhaus, J. H. and Parasuraman, S. (1987), "A work-nonwork interactive perspective of stress and its consequences", *Journal of Organizational Behavior Management*, Vol. 8 No. 2, pp. 37-60.
- Gundry, L.C. and Liyanarachchi, G.A. (2007), "Time budget pressure, auditors' personality type, and the incidence of reduced audit quality practices", *Pacific Accounting Review*, Vol. 19 No. 2, pp. 125-152.
- Hair, J.F. (2009), *Multivariate Data Analysis*, Edisi 9, Pearson Education, New Jersey.
- Hayes, C.T. and Weathington, B.L. (2007), "Optimism, stress, life satisfaction, and job burnout in restaurant managers", *The Journal of Psychology*, Vol. 141 No. 6, pp. 565-579.
- Herrbach, O. (2001), "Audit quality, auditor behaviour and the psychological contract", *European Accounting Review*, Vol. 10 No. 4, pp. 787-802.
- Herrington, J.D. and Capella, L.M. (1995), "Shopper reactions to perceived time pressure", *International Journal of Retail and Distribution Management*, Vol. 23 No. 12, pp. 13-20, available at: <https://doi.org/10.1108/09590559510103963>
- Howard, W.G., Donofrio, H.H. and Boles, J.S. (2004), "Inter-domain work-family, family-work conflict and police work satisfaction", *Policing: An International Journal of Police Strategies and Management*, Vol. 27 No. 3, pp. 380-395, available at: <https://doi.org/10.1108/13639510410553121>
- Hsieh, M.F. and Wang, J. (2012), "Adaptive and efficient ammonia storage distribution control for a two-catalyst selective catalytic reduction system", *Journal of Dynamic Systems, Measurement, and Control*, Vol. 134 No. 1, p. 011012.
- Huffman, A., Culbertson, S.S., Henning, J.B. and Goh, A. (2013), "Work-family conflict across the lifespan", *Journal of Managerial Psychology*, Vol. 28 Nos 7/8, pp. 761-780, available at: <https://doi.org/10.1108/JMP-07-2013-0220>
- Jackson, S.E. and Schuler, R.S. (1985), "A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings", *Organizational Behavior and Human Decision Processes*, Vol. 36 No. 1, pp. 16-78.

- Jaffe, A.B., Trajtenberg, M. and Fogarty, M.S. (2000), "Knowledge spillovers and patent citations: evidence from a survey of inventors", *American Economic Review*, Vol. 90 No. 2, pp. 215-218.
- Jex, S.M. and Gudanowski, D.M. (1992), "Efficacy beliefs and work stress: an exploratory study", *Journal of Organizational Behavior*, Vol. 13 No. 5, pp. 509-517.
- Karim, A.K.M.W. and Zijl, T.V. (2013), "Efficiency and opportunism in auditor quality choice in emerging audit services markets: the case of Bangladesh", *International Journal of Accounting and Information Management*, Vol. 21 No. 3, pp. 241-256, available at: <https://doi.org/10.1108/IJAIM-08-2011-0027>
- Kelley, T. and Margheim, L. (1990), "The impact of time budget pressure, personality and leadership variables on dysfunctional audit behavior", *Auditing: A Journal of Practice and Theory*, Vol. 9 No. 2, pp. 21-42.
- Khan, A., Mihret, D.G. and Muttakin, M.B. (2016), "Corporate political connections, agency costs and audit quality", *International Journal of Accounting and Information Management*, Vol. 24 No. 4, pp. 357-374, available at: <https://doi.org/10.1108/IJAIM-05-2016-0061>
- Koyuncu, M., Burke, R.J. and Wolpin, J. (2012), "Work-family conflict, satisfactions and psychological well-being among women managers and professionals in Turkey", *Gender in Management: An International Journal*, Vol. 27 No. 3, pp. 202-213, available at: <https://doi.org/10.1108/17542411211221286>
- Kremer, I. (2016), "The relationship between school-work-family-conflict, subjective stress, and burnout", *Journal of Managerial Psychology*, Vol. 31 No. 4, pp. 805-819, available at: <https://doi.org/10.1108/JMP-01-2015-0014>
- Lanaras, T., Cook, C.M., Wood, A.P., Kelly, D.P. and Codd, G.A. (1991), "Purification of ribulose 1, 5-bisphosphate carboxylase/oxygenase and of carboxysomes from *Thiobacillus thyasiris* the putative symbiont of *Thyasira flexuosa* (Montagu)", *Archives of Microbiology*, Vol. 156 No. 5, pp. 338-343.
- Larson, L.L. (2004), "Internal auditors and job stress", *Managerial Auditing Journal*, Vol. 19 No. 9, pp. 1119-1130, available at: <https://doi.org/10.1108/02686900410562768>
- Lee, H. (2012), "Incentive contracts and time pressure on audit judgment performance", *Managerial Auditing Journal*, Vol. 27 No. 3, pp. 263-283, available at: <https://doi.org/10.1108/02686901211207492>
- Lau, C.M. and Buckland, C. (2001), "Budgeting – The role of trust and participation: a research note", *Abacus*, Vol. 37 No. 3, pp. 369-388.
- Lu, X., Zhang, H., Ni, Y., Zhang, Q. and Chen, J. (2008), "Porous nanosheet-based ZnO microspheres for the construction of direct electrochemical biosensors", *Biosensors and bioelectronics*, Vol. 24 No. 1, pp. 93-98.
- Malone, C.F. and Roberts, R.W. (1996), "Factors associated with the incidence of reduced audit quality behaviors", *Auditing*, Vol. 15 No. 2, pp. 49-64.
- Netemeyer, R.G., Boles, J.S. and McMurrian, R. (1996), "Development and validation of work-family conflict and family-work conflict scales", *Journal of applied psychology*, Vol. 81 No. 4, pp. 400.
- Newstrom, J.W., Davis, K. and Pierce, J.L. (1993), *Organizational Behavior: Human Behavior at Work*.
- Noor, K.M. (2011), "Work-life balance and intention to leave among academics in Malaysian public higher education institutions", *International Journal of Business and Social Science*, Vol. 2 No. 11.
- Odio, M.A., Walker, M. and Kim, M. (2013), "Examining the stress and coping process of mega-event employees", *International Journal of Event and Festival Management*, Vol. 4 No. 2, pp. 140-155, available at: <https://doi.org/10.1108/17582951311325908>
- Otley, D.T. and Pierce, B.J. (1996), "The operation of control systems in large audit firms", *Auditing*, Vol. 15 No. 2, p. 65.
- Paino, I.M.M., Marangoni, V.S., de Oliveira, R.D.C.S., Antunes, L.M.G. and Zucolotto, V. (2012), "Cytotoxicity of gold nanoparticles in human hepatocellular carcinoma and peripheral blood mononuclear cells", *Toxicology Letters*, Vol. 215 No. 2, pp. 119-125.

- Parasuraman, S. and Simmers, C.A. (2001), "Type of employment, work – family conflict and well-being: a comparative study", *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, Vol. 22 No. 5, pp. 551-568.
- Parker, D.F. and DeCotiis, T.A. (1983), "Organizational determinants of job stress", *Organizational Behavior and Human Performance*, Vol. 32 No. 2, pp. 160-177.
- Pasewark, W.R. and Viator, R.E. (2006), "Sources of work-family conflict in the accounting profession", *Behavioral Research in Accounting*, Vol. 18 No. 1, pp. 147-165.
- Peurseem, K.A.V. (2005), "Conversations with internal auditors: the power of ambiguity", *Managerial Auditing Journal*, Vol. 20 No. 5, pp. 489-512, available at: <https://doi.org/10.1108/02686900510598849>
- Rebele, J.E. and Michaels, R.E. (1990), "Independent auditor's role stress: antecedent, outcome and moderating variables", *Behavioral Research in Accounting*, Vol. 2, pp. 214-153
- Roberts, J.D. Jr, Fineman, J.R., Morin, F.C., Shaul, P.W., Rimar, S., Schreiber, M.D., Polin, R.A., Zwass, M.S., Zayek, M.M., Gross, I. and Heymann, M.A. (1997), "Inhaled nitric oxide and persistent pulmonary hypertension of the newborn", *New England Journal of Medicine*, Vol. 336 No. 9, pp. 605-610.
- Robinson, S.L. and Bennett, R.J. (1995), "A typology of deviant workplace behaviors: a multidimensional scaling study", *Academy of Management Journal*, Vol. 38 No. 2, pp. 555-572.
- Salehi, M., Jafarzadeh, A. and Nourbakhshhosseiny, Z. (2017), "The effect of audit fees pressure on audit quality during the sanctions in Iran", *International Journal of Law and Management*, Vol. 59 No. 1, pp. 66-81, available at: <https://doi.org/10.1108/IJLMA-10-2015-0054>
- Senatra, P.T. (1980), "Role conflict, role ambiguity, and organizational climate in a public accounting firm", *Accounting Review*, pp. 594-603.
- Siegall, M. (2000), "Putting the stress back into role stress: improving the measurement of role conflict and role ambiguity", *Journal of Managerial Psychology*, Vol. 15 No. 5, pp. 427-435, available at: <https://doi.org/10.1108/02683940010337176>
- Siegel, G. and Ramanauskas-Marconi, H. (1989), *Behavioral Accounting*, Thomson South-Western.
- Solimun (2010), *Analisis Multivariat Pemodelan Struktural Metode Partial Least Square- PLS*, Penerbit CV. Citra, Malang.
- Spector, A.A., Gordon, J.A. and Moore, S.A. (1988), "Hydroxyeicosatetraenoic acids (HETES)", *Progress in Lipid Research*, Vol. 27 No. 4, pp. 271-323.
- Svanberg, J. and Öhman, P. (2013), "Auditors' time pressure: does ethical culture support audit quality?", *Managerial Auditing Journal*, Vol. 28 No. 7, pp. 572-591, available at: <https://doi.org/10.1108/MAJ-10-2012-0761>
- Sweeney, J.T. and Summers, S.L. (2002), "The effect of the busy season workload on public accountants' job burnout", *Behavioral Research in Accounting*, Vol. 14 No. 1, pp. 223-245.
- Thornton, P.J. (1996), "The physiological, psychological and work stress of primary school principals", *International Journal of Educational Management*, Vol. 10 No. 6, pp. 42-55, available at: <https://doi.org/10.1108/09513549610151695>
- Virtanen, K.A., Lidell, M.E., Orava, J., Heglind, M., Westergren, R., Niemi, T., Taittonen, M., Laine, J., Savisto, N.J., Enerbäck, S. and Nuutila, P. (2009), "Functional brown adipose tissue in healthy adults", *New England Journal of Medicine*, Vol. 360 No. 15, pp. 1518-1525.
- Weick, K.E. (1983), "Managerial thought in the context of action", *The Executive Mind*, pp. 221-242.
- Wheeler, R.M., Hinkle, C.R., Mackowiak, C.L., Sager, J.C. and Knott, W.M. (1990), "Potato growth and yield using nutrient film technique (NFT)", *American Potato Journal*, Vol. 67 No. 3, pp. 177-187.

- Willett, C. and Page, M. (1996), "A survey of time budget pressure and irregular auditing practices among newly qualified UK chartered accountants", *The British Accounting Review*, Vol. 28 No. 2, pp. 101-120.
- Williams, L.J. and Anderson, S.E. (1991), "Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors", *Journal of management*, Vol. 17 No. 3, pp. 601-617.
- Yuen, D.C.Y., Law, P.K.F., Lu, C. and Guan, J.Q. (2013), "Dysfunctional auditing behaviour: empirical evidence on auditors' behaviour in macau", *International Journal of Accounting and Information Management*, Vol. 21 No. 3, pp. 209-226, available at: <https://doi.org/10.1108/IJAIM-12-2012-0075>
- Zgarni, I., Hlioui, K. and Zehri, F. (2016), "Effective audit committee, audit quality and earnings management: evidence from Tunisia", *Journal of Accounting in Emerging Economies*, Vol. 6 No. 2, pp. 138-155, available at: <https://doi.org/10.1108/JAEE-09-2013-0048>

### Further reading

- Bernard, G.R., Vincent, J.L., Laterre, P.F., LaRosa, S.P., Dhainaut, J.F., Lopez-Rodriguez, A., Steingrub, J.S., Garber, G.E., Helterbrand, J.D., Ely, E.W. and Fisher, C.J. Jr (2001), "Efficacy and safety of recombinant human activated protein C for severe sepsis", *New England Journal of Medicine*, Vol. 344 No. 10, pp. 699-709.
- Bonner, S.E. and Sprinkle, G.B. (2002), "The effect of monetary incentive on effort and task performance: theories, evidence and framework of research", *Accounting, Organization and Society*, Vol. 27 Nos 4/5, pp. 303-345.
- Donnelly, D.P., Quirin, J.J. and O'Bryan, D. (2003), "Auditor acceptance of dysfunctional audit behavior: an explanatory model using auditors' personal characteristics", *Behavioral Research in Accounting*, Vol. 15 No. 1, pp. 87-110.
- Fearnley, S., Brandt, R. and Beattie, V. (2002), "Financial regulation of public limited companies in the UK: a way forward Post-Enron", *Journal of Financial Regulation and Compliance*, Vol. 10 No. 3, pp. 254-265.
- Kelley, T. and Pattison, D. (2005), "An empirical analysis of the effects of auditor time budget pressure and time deadline pressure", *Journal of Applied Business Research*, Vol. 21 No. 1, pp. 23-35.
- Kelley, T. and Seller, R.E. (1982), "Auditor stress and time budgets", *The CPA Journal*, Vol. 3 No. 1, pp. 24-34.
- Kermis, G.F. and Mahapatra, S. (1985), "An empirical study of the effects of time pressure on audit time allocations", *Advances in Accounting*, Vol. 2 No. 1, pp. 261-273.
- McNamara, S.M. and Liyanarachchi, G.A. (2008), "Time budget pressure and auditor dysfunctional behaviour within an occupational stress model", *Accountancy Business and the Public Interest*, Vol. 7 No. 1, pp. 132-147.
- McVean, G.A., Myers, S.R., Hunt, S., Deloukas, P., Bentley, D.R. and Donnelly, P. (2004), "The fine-scale structure of recombination rate variation in the human genome", *Science*, Vol. 304 No. 5670, pp. 581-584.
- Madisen, L., Zwingman, T.A., Sunkin, S.M., Oh, S.W., Zariwala, H.A., Gu, H., Ng, L.L., Palmiter, R.D., Hawrylycz, M.J., Jones, A.R. and Lein, E.S. (2010), "A robust and high-throughput Cre reporting and characterization system for the whole mouse brain", *Nature neuroscience*, Vol. 13 No. 1, p. 133.
- Moeller, C. and Yan, G.A.C. (2013), "Effects of social support on professors' work stress", *International Journal of Educational Management*, Vol. 27 No. 3, pp. 188-202, available at: <https://doi.org/10.1108/09513541311306431>

- Otley, D.T. and Pierce, B.J. (1995), "The control problem in public accounting firms: an empirical study of the impact of leadership style", *Accounting, Organizations and Society*, Vol. 20 No. 5, pp. 405-420.
- Pasewark, W.R. and Strawser, J.R. (1996), "The determinants and outcomes associated with job insecurity in a professional accounting environment", *Behavioral Research in Accounting*, Vol. 8 No. 1, pp. 91-113.
- Tsai, M.T. and Shis, C.M. (2005), "The effect of organizational and personal ethic on role conflict among manager marjeting: an empirical investigation", *Journal of Management International*, Vol. 22 No. 1, pp. 54-62.