Block-holders and Monitoring Mechanisms in Nigeria

RACHAEL OLUYEMISI AROWOLO & AYOIB CHE-AHMAD

ABSTRACT

Companies continue to fold up after the global economic melt-down of 2008 starting with the Enron saga. One of the reasons offered by practitioners and intellectuals in their search for the cause and solution to the problem is information asymmetry between the management and the shareholders. It is extremely necessary ever since the sagas and continuous business failures and financial distress in Nigeria, in particular, to focus on monitoring mechanisms (MM), especially in Sub-Saharan countries. In addition, it is essential to understand the factors relating to MM as it cannot work in isolation. The purpose of this study is therefore to examine the extent to which block-holders impact on MM using the annual reports of 111 Nigerian non-financial listed companies in the context of agency theory. In addition, data were collected from the companies in respect of their internal auditing using the questionnaire as these are not available in the annual reports. The findings provide evidence that the block-holders significantly relate to monitoring mechanisms. Thus, this paper provides a new knowledge regarding monitoring mechanisms and its antecedents (directorship, internal and external auditing). These findings are with policy implications for the board of directors to implement their monitoring responsibilities. The findings also suggest policy implications for the internal and external auditors. The findings are useful for further review of corporate governance guidelines by the regulatory agencies and government. The paper contributes to knowledge in Sub-Saharan Africa, Nigeria in particular by examining block-holders in relation to the aggregate cost of monitoring mechanisms (directorship, internal and external auditing).

Keywords: Monitoring mechanisms, institutional block-holders, individual block-holders, agency problems, Nigeria

INTRODUCTION

Stockholders find it more necessary than ever before to monitor the activities of their agents in managing the resources of the companies with their investments to ensure that their interests are well protected. The incessant business failures following the global economic meltdown of 2008 involving Enron saga necessitates this desire (Al-Janadi, Rahman & Omar 2013). The relationship between these two parties is characterized by information asymmetry, expropriation of company’s assets by the management and controlling shareholders (Freeman 1994) and failure in corporate governance practices (Ikpefan & Ojeka 2013). Agency theory explains the problems that exist between the principal and the agents (Fama & Jensen 1983). The means by which the shareholders monitor their agents is known as monitoring mechanisms (Huson, Parrino & Starks 2001).

Many countries have developed and reviewed their codes of corporate governance in their efforts to reduce information asymmetry stemming from corruption and fraud. The continuous review of codes of corporate governance and accumulating extant literature notwithstanding, global and national economy keep experiencing business failures occasioning corporate mergers, bankruptcies, collapses, inadequate disclosure in financial reports and loss of shareholders’ trusts and confidence (Akinbuli & Kelilume 2013; Cadbury 1992; Fodio, Ibikunle & Oba 2013; Waweru 2014). All these transform to increased unemployment, bad roads and transportation, currency depreciation, substantial reduction in stock values, poor education, increased criminality and corruption, child abuse, poor education, severe poverty, power failures, poor health facilities, insecurity and declining income (Adebayo & Adetayo 2014; Habbash 2012; Hylton 2011). These are evidence that companies have not adequately addressed corruption and monitoring mechanisms (MM) are needed to reduce its practice and effects in their businesses. There is, therefore, an urgent need for more examination of corporate MM in Nigeria.

Though, there are many studies on monitoring mechanisms (MM), most of the studies are from developed and transiting countries like U.S, U.K, and Malaysia (Mohamad-Nor, Shafie & Wan-Hussin 2010; Mustapha & Che-Ahmad 2009; Liu, Uchida & Yang 2012; Banerjee, Couzoff & Pawlina 2012). Also, many of the studies do not address the aggregate MM (summation of directorship, internal and external auditing), but one or two of its dimensions. In addition, to the best of the knowledge of the researchers, only two of the extant literature treated total MM in their studies (Anderson, Francis & Stokes 1993; Mustapha & Che-Ahmad 2009).

There is a drought of literature on monitoring mechanisms (MM) in Sub-Saharan Africa with particular reference to Nigeria. There are few studies on external auditing (Adeyemi & Fagbemi 2010; Ogiedu & Izedonmi 2013), internal and external auditing (Zare, Khedri &
Farzanfar 2013) and directorship (Uadiale 2010) in Nigeria. None of the researchers addressed the total MM (directorship, internal and external auditing) in their studies, to the best of the knowledge of the researchers.

The dramatic business failures, bankruptcy, and drops in stock values this past decade resulting from weak monitoring mechanisms (MM) problem of enforcing the code of corporate governance have been of great concern (Babatunde & Olaniran 2009; Enofe, Mgbame, Aronmwan & Ogbeide 2013) in Nigeria. The concern for the present state of Nigerian economy irrespective of the revised code of corporate governance has motivated this study. Other motivations for this study are the dearth of literature on aggregate MM in Nigeria.

Extant literature suggests that companies with blockholders are likely to have less owner-manager conflicts (Habbash 2012; Mustapha & Che-Ahmad 2013) having great incentives to invest on monitoring the management (Arowolo & Che-Ahmad 2015; Hope 2013). Though, there is no specific directive in the code of corporate governance in Nigeria, investors and companies that know the significance of block-holding on agency conflicts encourage institutions and individuals to acquire large stocks. Two types of block-holding in Nigeria are the institutional and individual block-holding. However, block-holding is more of institutional than individuals in Nigeria. About 92% of the respondent companies in this study are with institutional block-holders while only about 37% are with individual block-holders. The research on block-holders in Nigeria is scanty and none of it relates to aggregate monitoring mechanisms.

This paper, therefore, empirically tests the relationship between the block-holders and monitoring mechanisms (directorship, internal and external auditing) in Nigerian non-financial listed companies. To the best of the knowledge of the researchers, this is the first study to investigate the relationship between block-holders and aggregate monitoring mechanisms, particularly in Nigeria. It is also the first study to examine total monitoring mechanisms (costs of directorship, internal and external auditing) in Sub-Saharan African, especially in Nigeria. Next to this section is literature review followed by hypotheses development, sections for discussion on methodology, result and conclusion.

**LITERATURE REVIEW**

Jensen and Meckling (1976) examined the theory of the firm. It documents that agency theory is concerned with contract relationships involving a person(s) known as the principal and the other person refers to as the agent who the principal engages to act on his behalf. The theory recognizes that the two parties to the contract are utility maximizers; therefore, there will be a conflict of interests. The theory, therefore, suggests that the principal incurs monitoring costs to align the interests of both parties. This study, therefore, used agency theory to explain the relationship between block-holders and monitoring mechanisms because it is designed to resolve agency problems, which is the main basis of monitoring (Jensen & Meckling 1976).

Monitoring mechanisms (MM) mean different things to different people (Azim 2012; Kao 2002; Shleifer & Vishny 1997). However, the different definitions notwithstanding, the objective remains the same. The objective is to resolve agency problems using MM to mitigate agency costs arising from the conflicts between the interests of the management and the shareholders (Azim 2012; Kao 2002) and inducing management to uphold the interests of the shareholders (Shleifer & Vishny 1997).

The study of Al-Janadi et al. (2013) is on corporate governance mechanisms and voluntary disclosure in Saudi Arabia. The study defines monitoring mechanisms (MM) as a means of providing adequate and sufficient information to the users of financial statements and protecting the interests of the shareholders. Bachlechner, Thalmann, and Manhart (2014), examines auditing service providers as related to cross-organizational settings using face-to-face and 14 telephone interviews. The study defines MM as a means of identifying and satisfying the information needs of the principal by making sure that adequate controls are in place. The study of Banerjee et al. (2012), examines external monitoring, managerial entrenchment and corporate cash holdings in the US. It defines MM as tools to effectively reduce the proportion of privileges that management can extract at the detriment of shareholders’ value. Babatunde and Olaniran (2009), investigates the effects of internal and external mechanisms of governance and company performance in Nigeria. The study defines MM as the governance tools companies employ to prevent managers from activities not ideal for optimizing shareholders’ values. The study of Pizzini, Lin, Vargus, and Ziegenfuss (2011), examines the quality of internal audit function and its contribution on audit delays. It defines MM as the process of preventing material weaknesses in internal control and financial reporting.

The economy of a nation is mostly the function of the performance of the companies operating in the country as they operate in the sectors of its economy and contributes to its gross domestic products (GDP), hence corporate MM is of great concern to governments, practitioners and academicians. Codes of corporate governance are therefore continually reviewed by various governments and organizations (Huson et al. 2001).

Academicians have examined many issues relating to MM and corporate governance (Amran & Che-Ahmad 2013; Banerjee et al. 2012; Chang 2015; Fodio et al. 2013; Liu et al. 2012; Mustapha & Che-Ahmad 2009; Mohamad-Nor et al. 2010). Some are just on directorship MM only (Gamba & Goldstein 2009; Latif, Kamardin, Nisham, Mohd & Adam 2013). Some others are just on internal auditing only (Moorthy, Seetharaman, Mohamed, Gopalan & San 2011; Soh & Martinov-Bennie 2011). Some others are just on external auditing only (Bachlechner et al. 2014; Chow 2012). Very few combine directorship and internal auditing or directorship and external auditing while few
others combine internal and external auditing (Chen & Zhou 2007; Sarens, De Beelde & Everaert 2009; Pizzini et al. 2011).

In Nigeria, the activities of companies are guided by the Company and Allied Act 1990 and 2004 as amended, standards (auditing, accounting and ethics), code of corporate governance 2011 SEC and other best practices (Appah & Emeh 2013). However, there are regulatory bodies to enforce and monitor compliance with these laws and standards, the provisions are inconsistent (World Bank 2004) and overlap (NASB 2010). It was expected that the passage of Financial Reporting Council (FRC) bill of 2011 and the revised code of corporate governance, SEC 2011 will help to eliminate the inconsistencies.

In the light of the various definition in the extant literature on monitoring mechanisms (MM) and weak corporate governance in Nigeria, this study examines the relationship between the block-holders and MM (directorship, internal and external auditing).

**HYPOTHESES DEVELOPMENT**

**BLOCK-HOLDERS**

Azim (2012), investigates the impact of corporate governance mechanisms and their impact on company performance. The researcher documents that control by shareholders is weak where company ownership is dispersed. The study also suggests that concentration of ownership create room for block-holders to monitor and reduce the opportunistic attitude of management. It claims that block-holders determine how power could be distributed between the management and the shareholders with proxy contests and direct concession with the management. The study of Habbash (2012), examines earnings management, the effectiveness of audit committee and block-holders using 350 large firms in the UK. It claims that agency problems are less in companies with high block-holders because ownership is separated from management. However, it further claims that the agency problems shift from management-shareholders’ conflict of interests to majority-minority shareholders’ conflict of interests especially if the block-holder is managerial or family owner. It also documents that the presence of high block-holders moderates the effectiveness of audit committee’s monitoring roles, suggesting a reduction in the independence of the board of directors and audit committee. Block-holders are into different categories (Azim 2012). In this study, two categories of block-holders are examined as follows:

**INSTITUTIONAL BLOCK-HOLDERS**

Agency theory suggests that institutional block-holders can reduce the opportunistic attitudes of the management. Extant literature has shown that institutional block-holders demand more monitoring the more their shareholding increases (Kao 2002; Liu 2012; Shleifer & Vishny 1997; Waweru 2014). Kao (2002), examines agency problems, firm performance and monitoring mechanisms in Taiwan. The study provides evidence that institutional block-holders effectively reduce agency problems. The study of Liu (2012), investigates board monitoring, management contracting and earnings management. It finds that institutional block-holders with long-term orientations help to alleviate earnings management. Liu et al. (2012), examine how corporate governance relates to firm value during the global financial crisis. The study finds that institutional block-shareholders restrain financial constraints and expropriation problems. The study of Omri, Becuwe, and Mathe (2014), examines the effect of board composition on ownership structure and innovative behaviour in Tunisia. It documents that institutional block-holders positively correlate to the proportion of outside directors on the board of directors. It also provides evidence that institutional block-holders significantly relate to independent directors and innovative behaviour of the manager.

The expectation, therefore, is that institutional block-holders will uphold board independence as there will be more non-executive or independent directors on the board of directors. Also, institutional block-holders will demand more monitoring to protect their interests because (1) of the size of their shares, (2) they are with varied interests and schemes in their various security investments, and (3) they also have more information about the company. Institutional block-holders’ demand for more monitoring will help to align the interests of the management with the interests of the shareholders and reduce or eliminate agency problems. More costs will be incurred to implement adequate monitoring. This study, therefore, predicts that:

- **H\textsubscript{1i}**: Institutional block-holders positively influence the demand for monitoring mechanisms (directorship, internal and external auditing).
- **H\textsubscript{iia}**: Institutional block-holders positively influence the demand for directorship as a monitoring mechanism
- **H\textsubscript{iib}**: Institutional block-holders positively influence the demand for internal auditing as a monitoring mechanism
- **H\textsubscript{iic}**: Institutional block-holders positively influence the demand for external auditing monitoring mechanism

**INDIVIDUAL BLOCK-HOLDERS**

Most of the extant literature either ignore or lump the individual block-holders with the institutional block-holders despite the difference between the two (Connelly, Hoskisson, Tihanyi & Certo 2010). Connelly et al. (2010) further claim that individual block-holders are treated as insider owners like CEOs, families and related parties. Haniffa and Hudaib (2006), investigate how corporate governance structure relates to the performance of listed companies in Malaysia. The study documents that individual block-shareholders are often CEOs or related
parties to top management or family owners. It also claims that the controlling block-holders may expropriate the assets of the company, expose the company to risks that may damage the performance of the company. The study of Ali and Lesage (2013), examines the relationship between the nature of controlling shareholders and audit pricing in France. Its findings conform to the findings of Haniffa and Hudaib (2006) that individual block-holders are motivated to expropriate company assets. The study of Eng and Mak (2003), examines corporate governance and voluntary disclosure. It concludes that individual block-holders are not related to the level of disclosure.

Based on the above discussion, there may be no separation between ownership and control as demanded by agency theory for corporate governance. However, this study wishes to differ in its investigation. Individual block-holders are not necessarily insider owners like managerial ownership. They could be outside owners like foreign investors or any other outside ownership. The data collected for the study does not portray inside ownership as the names of the block-holders used are not found on the list of management staff. The study, therefore, considers outside individual block-holders. It is, therefore, expected that though their demand may not be as strong as the institutional block-holders as they cannot be as influential as the institutional block-holders, they will demand to monitor the management considering the size of their shares in the company. Therefore, this study predicts that:

\[ H_{2i}: \text{Individual block-holders positively influence the demand for monitoring mechanisms (directorship, internal and external auditing).} \]

\[ H_{2ii}: \text{Individual block-holders positively influence the demand for directorship as a monitoring mechanism} \]

\[ H_{2iii}: \text{Individual block-holders positively influence the demand for internal auditing as a monitoring mechanism.} \]

\[ H_{2iv}: \text{Individual block-holders positively influence the demand for external auditing monitoring mechanism.} \]

**METHODOLOGY**

**SAMPLE**

The sample includes 111 non-financial companies listed in Nigerian Stock Exchange (NSE). Data were extracted from annual reports for years 2010 to 2012 and some others collected through questionnaires. The annual reports are with no information on the costs of internal auditing. Hence, data on the costs of internal auditing were collected using questionnaires. The researchers analysed 111 questionnaires out of the 117 collected because there were no corresponding annual reports for 6 of them. The custodians (company internal auditors, accountants, and secretaries) of financial reports were chosen as the respondents for questionnaires to guarantee the integrity of the data.

The researchers chose to use data for years 2010 to 2012 because the revised code of corporate governance was approved in 2011. The researchers could have used data for five or more years but it is difficult to collect financial data like costs of internal auditing for so many years using questionnaires in Nigeria.

**MEASUREMENT**

**Dependent Variable** The dependent variable in this study is the aggregate monitoring mechanisms. It is a construct based on three dimensions (directorship, internal and external auditing). It is measured as the total costs of the three dimensions. It is the remuneration of the non-executive directors added to the costs of internal auditing and external auditor’s fees. The three dimensions were chosen as a replication of the study of Anderson et al. (1993) since this paper is an extension of the study of Anderson et al. (1993) and Mustapha and Che-Ahmad (2009).

**Independent Variables** The independent variables in this study are the institutional and individual block-holders. The institutional block-holders measured as a variable is the proportion of the shareholdings of the institutional block shareholders to the issued share capital of the company. Individual block-holders as a variable is measured as a proportion of the shareholdings of the individual block shareholders to the issued share capital of the company.

**Control Variables** The control variables in this study include industry and complexity. The industry is binary coded as 1 for manufacturing and 0 for services. Complexity is measured by the number of subsidiary companies.

**Panel Data Models** The model for this study is as shown below:

\[
MC_{it} = \alpha_{i} + \beta_{1}INSB_{it} + \beta_{2}INDB_{it} + \beta_{3}IND_{it} + \beta_{4}CC_{it} + \mu_{i} + \epsilon_{it}
\]

Where:

- **MC** = Monitoring Cost
- **INSB** = Institutional Block-holders
- **INDB** = Individual Block-holders
- **IND** = Industry
- **CC** = Complexity

**RESULTS**

In this study, the researchers did data cleaning, tested for respondent bias, multicollinearity, heteroscedasticity, autocorrelation and normality. All tests suggest that the model meets the minimum requirement for multivariate analysis. The F-test for the model is also statistically significant (\(p<0.0000\)). The \(R^{2}\) of the regression is 42.43%
suggesting that the model explains 42.43% contribution by the block-holders to the variations in the demand for monitoring mechanisms (MM). It also suggests that there are some other variables to explain the remaining 57.57% indicating more need for research. Likewise, it indicates that the relationships in the model are linear.

Table 1 shows that the mean value of the dependent variable, MM is $58.13$ while those of the independent variables, institutional block-holders (INSB), and individual block-holders (INDB) are $47.41$ and $8.44$ respectively. The standard deviation for MM is $75.66$ m, while those of INSB and INDB are $27.38$ and $15.80$% respectively. The minimum score for MM is $11.66$ m while those of INSB and INDB are 0 because some companies are with no information on block-holders. Their maximum scores are $609.50$ m, 97.35% and 87% respectively.

The results on collinearity, multicollinearity, variance inflation factors (VIF) and tolerance of the study are shown in Tables 2 and 3. The variables in this study are free from collinearity and multicollinearity as all the values are less than 0.9, the VIF is 1.01, which is below the threshold of 5 and tolerance are more than 0.2.

The study examines the relationship between block-holders and monitoring mechanisms (directorship, internal and external auditing) in Nigerian non-financial listed companies. The researchers decided to use panel-corrected standard errors (PCSEs) regression for the direct relationship between the organizational attributes, institutional and individual block-holders and monitoring mechanisms. PCSEs regression is robust in nature (Beck & Katz 1995) and capable of correcting heteroscedasticity and autocorrelation (Bailey & Katz 2011).

Table 4 presents results of the regressions ran using Stata 12 and the linear equation. The results show a significant positive relationship between the Institutional block-holders and total monitoring mechanisms (MM) at 1% confidence level ($\beta = 0.156$, $z = 2.39$) as well as internal auditing ($\beta = 0.052$, $z = 10.13$) and external auditing ($\beta = 0.192$, $z = 5.02$) but significantly negative between institutional block-holders and directorship ($\beta = 0.088$, 2.92). Individual block-holders have a significant negative relationship with MM ($\beta = 0.364$, $z = 8.03$) and its dimensions [directorship ($\beta = 0.278$, 4.54), and external auditing ($\beta = 0.097$, $z = 7.71$) at 1% confidence level but have no significant but positive relationship with the internal auditing ($\beta = 0.011$, $z = 0.72$). Control variables, industry and complexity, are each with a significant positive relationship with MM and all the three dimensions, directorship, internal and external auditing.

The findings of this study are consistent with the studies of Mustapha and Che-Ahmad (2013), Omri et al.
A company with institutional block-holders is likely to demand more monitoring mechanisms to protect their interests. It also matches the suggestion of agency theory that institutional block-holders can help to reduce the opportunistic attitudes of management because they are likely to demand more monitoring. The institutional block-holders in many of the companies in Nigeria are foreign owners, government, and banks. The more their shares increase, the more their demand for monitoring. Hence, institutional blockholders positively and significantly influence monitoring mechanisms.

This study expects that individual block-holders in consistency with agency theory as outsiders, will provide the incentive for thorough monitoring of the management and enhance company performance and demand for more monitoring to align the interests of the management and shareholders. However, the results of this study deviate from this. It implies that the individual block-holders in the companies investigated are likely affiliated with the top management. Though they have the incentive to monitor, their relationship with top management may serve as a deterrent to acting as outsiders. Their roles shift therefore from being outsiders to insiders (related parties). Agency theory suggests that inside ownership helps to converge management and shareholder’s interests. Hence, they may not demand for monitoring. Added to this is the peculiarity of the Nigerian individual block-holders’ ignorance regarding their rights and roles they can play to reduce agency conflicts. The findings on individual block-holders are consistent with the study of Haniffa and Hudaib (2006) and agency theory for inside ownership. It also matches the study of Shleifer and Vishny (1997) that individual block-holders are often few and are less informed compared to the institutional block-holders. They lack enough information to exercise their control rights. They are not fascinated to participate in or learn about the governance of the company. The result also validates the fact that an individual block-shareholder lacks sufficient votes to personally control a company’s activities or management or board (Bennedsen & Wolfenzon 2000). Hence, the association of shareholders is emerging in many countries, Nigeria inclusive. There are few individual block-holders in Nigeria and may not be powerful enough to exercise their rights and ensure adequate monitoring of the management.

| Variables                  | Coef.  | Std. Err. | z       | P>|z| |
|----------------------------|--------|-----------|---------|------|
| Monitoring Mechanisms      |        |           |         |      |
| Institutional Block-holders| 0.156  | 0.065     | 2.39    | 0.017|
| Individual Block-holders   | -0.364 | 0.045     | -8.03   | 0.000|
| Industry                   | 13.400 | 2.245     | 5.96    | 0.000|
| Complexity                 | 12.300 | 0.516     | 23.77   | 0.000|
| _cons                      | -1.478 | 2.432     | -0.61   | 0.543|
| Directorship               |        |           |         |      |
| Institutional Block-holders| -0.088 | 0.030     | -2.92   | 0.003|
| Individual Block-holders   | -0.279 | 0.061     | -4.54   | 0.000|
| Industry                   | 3.741  | 0.999     | 3.74    | 0.000|
| Complexity                 | 7.915  | 0.494     | 16.01   | 0.000|
| _cons                      | -1.809 | 2.055     | -0.88   | 0.379|
| Internal Auditing          |        |           |         |      |
| Institutional Block-holders| 0.052  | 0.005     | 10.13   | 0.000|
| Individual Block-holders   | 0.011  | 0.016     | 0.72    | 0.473|
| Industry                   | 2.982  | 0.372     | 8.02    | 0.000|
| Complexity                 | 0.353  | 0.024     | 14.72   | 0.000|
| _cons                      | 12.200 | 0.654     | 18.62   | 0.000|
| External Auditing          |        |           |         |      |
| Institutional Block-holders| 0.192  | 0.038     | 5.02    | 0.000|
| Individual Block-holders   | -0.097 | 0.013     | -7.71   | 0.000|
| Industry                   | 6.666  | 1.009     | 6.61    | 0.000|
| Complexity                 | 3.998  | 0.576     | 6.95    | 0.000|
| _cons                      | -11.800| 2.765     | -4.29   | 0.000|
CONCLUSION

This study investigates the relationships between block-holders and monitoring mechanisms (MM) in Nigerian non-financial listed companies in the context of agency theory. The motivation of the study is found in the prevalent corruption despite the existence of good laws, regulations, policies, and the recent approval of codes of corporate governance meant to ensure good corporate governance in companies. The primary contributions of this paper in consistency with agency theory are that block-holders significantly affect MM. Likewise, the control variables, industry and complexity significantly relate to MM. In addition, this paper contributes to knowledge by combining the three dimensions of MM in a study in Sub-Saharan region. The study adds to the literature on block shareholding, agency conflicts, and MM in Nigeria.

These findings are of importance to the investors, auditors, board of directors and also government and the regulatory agents regarding minority shareholders’ protection. Many Nigerian shareholders including individual block-holders are ignorant of their rights and the roles they can play in reducing agency conflicts in companies with their investments. The revised code of corporate governance, 2011 SEC mandates all shareholders, especially the block-holders to seek to positively influence the standard of the corporate governance of the companies where they invested. This study is limited to non-financial listed companies. Financial listed companies may be considered for future studies.

REFERENCE


Rachael Oluymemisi Arowolo*
College of Business
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman
MALAYSIA
E-mail: aroldaot@gmail.com

Ayoib Che-Ahmad
College of Business
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman
MALAYSIA
E-mail: ayoib@uum.edu.my

*Corresponding author