The Effect of Board Structure on Egyptian Mutual Fund Fees: A Structural Equation Model Analysis

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Abstract

Mutual fund governance has been a great concern among practitioners and has received considerable attention in the finance literature. This paper aims to assess the impact of mutual fund board structure and ownership structure on mutual fund fees. This study fill the gap on the literature by focusing on the Egyptian mutual funds during the period of 2007 to 2013 with using a final sample of 48 mutual fund. This paper applies a Structural Equation Modelling to solve the potential endogeneity problem between internal governance measures and fees. The results reveal that board size, proportion of professional directors, and proportion of audit committee are negatively correlated with mutual fund expenses ratio.

Keywords: Corporate Governance, Mutual Fund, Endogeneity.

1   Introduction

This paper focuses on the relation between board structure and fees (Durlauf and Quah, 1999; Asada, et al., 1998) which has given fundamental concern in the finance literature (Wintoki, et al., 2012). From the perspective of investors, mutual fund fees are the price paid for investment management, distribution and other services. From the perspective of financial service firms, these fees represent revenues. For both, fees are important. Higher fees are associated with lower investment performance (Carhart, 1997), and they drive revenues and profits of fund companies.

Among the most popular issues are those that focus on the quality of fund boards, the structure of the fund's board of directors, and the relationship between boards and fund fees. Examining the board composition and compensation received by directors, previous research in this area points out that good fund governance is related to lower fund fees, lower expense ratios, and value enhancing restructuring (Tufano and Sevick, 1997). They find that shareholder fees are lower when fund boards are smaller, have a greater fraction of independent directors, and are composed of directors who sit on a large fraction of the fund sponsor's other boards.

To gauge the fund board's contribution to fund governance, Calluzzo and Dong (2014) measure governance outcomes. They choose the fund's expense ratio as their primary measure of the fund's governance quality. Their decision to focus on a fund's fees to proxy for a fund's governance quality is supported by Khorana et al. (2009) who find that the fees are lower in countries with stronger investor protections, and are consistent with the prior literature (Del Guercio et al., 2003; and Ferris and Yan, 2007). For robustness, they also measure governance quality using the fund's management fee, 12b-1 fee, and maximum contractual 12b-1 fee. All fee data is obtained from the CRSP mutual fund database.

Calluzzo and Dong (2014) prefer fund fees over investment manager quality due to the relative difficulty of accurately evaluating manger quality, the ease of measuring fund fees, and the relevance of fund fees from the point of view of the fund's investors. Their paper provides evidence that the governance environment at other funds and in other industries influences a fund's governance quality. With respect to the trend towards more independent fund boards, the results of this paper suggest caution: a more independent board does not necessarily equate to superior governance. They observe that good funds are associated with good fund governance.

Similarly, Tan and Cam (2014) examine the governance structure and fund costs of not-for-profit superannuation funds over a two-year period covering 2009–2010 and 2010–2011, they argue that the different agency relationships inherent in different types and sizes of funds contribute to various levels of agency costs, as measured by fund costs. Specifically, they investigate governance structures in terms of board size and independence, the number of board committees and the presence of audit, risk, nomination and remuneration committees. Their findings show that good governance practices in terms of larger, more independent and diversified boards and the presence of specialized board committees result in higher agency costs although the effect differs between fund sizes. This result emphasizes the contribution of understanding board composition in terms of trustee profiles and the relationships between trustees in any examination of governance structures in superannuation funds. It is the variation in board composition that gives rise to potential conflicts of interest among trustees which could contribute to higher agency costs in the form of related party conflicts. Lastly,

economies of scale contribute little to cost reduction in superannuation funds; hence, they are not a justified rationale for fund mergers.

This paper extends the previous mutual fund governance literature by examining the potential endogeneity problem between internal governance and performance by a structural equation model (SEM), where corporate governance, ownership structure, and fund fees are endogenous. The rest of this paper is structured as follows: section 2 reviews the previous literature and empirical hypothesis on the relationship between mutual fund board structure and fees; section 3 discusses the econometric approach and data description; section 4 lays out the structural equation modelling analysis; finally, section 5 presents research contributions and suggestions for future studies.

2   Literature Review and the Hypotheses

One of the main unresolved issues in the mutual fund industry is the question of whether investment advisory firms that manage mutual funds' assets have the same incentives as the funds' shareholders or not. Central to this principal-agent problem is the idea that advisory firms can charge fees that are disproportionate relative to the services they provide. Recognizing this conflict, in Egypt, the Executive Regulations of the Capital Market Law have been amended in February 2014 regarding the section of investment funds. Several decisions have been issued in this respect under Section (63) such as: The transaction costs that fund company paid for issuing or recovery of investment certificates, for instance, registration fees and other official fees, payments to consultants and accountants, and printing costs and taxes, will be deducted from equity ownership to the extent that such costs are directly related to the transaction (EFSA).

In terms of comparative fee structures, Freeman and Brown (2001) argue that fees in the mutual fund industry are often excessive and note that mutual fund advisory fees are much higher than fees for comparable services at pension funds. Furthermore, Johnson (2009) contends that a better measure of excessive fees is a direct comparison of fees charged to retail and institutional investors within the same fund. Although retail mutual fund investors usually pay substantially higher fees than institutional clients, no court has ever found a breach of duty by the investment advisor to its shareholders. Investment advisors and other service providers of the fund are compensated based on the size of the fund assets. As a result, fund sponsors can increase revenues by increasing the level of fees, increasing the size of the fund, or increasing the fees and the fund size simultaneously.

Sirri and Tufano (1998) report a negative correlation between fund flows and total fund fees. Sponsors can increase fund size by attracting a new cash flow. They further note that fund sponsors can increase cash inflows by reducing investor search costs. Likewise, Gallaher et al. (2006) report that advertising efforts are positively related to fund flows while Khorana and Servaes (2012) find that fund 12b-1 fees are positively related to fund flows. Fund sponsors can also increase fund size by offering new share classes of existing funds (Nanda et al., 2009). Therefore, these findings suggest that sponsors can increase fees and attract new cash flow by adopting a multiple share class strategy. This paper examines the role of corporate governance in mutual fund fees through investigating the role of the board of directors in mutual fund fees, and the role of ownership structure in mutual fund fees.

2.1   Role of Board of Directors in Mutual Funds Fee Structure

Johnson (2009) argues that allowing sponsors to effectively control the board appointment process makes directors less likely to negotiate fees rigorously with sponsors. Despite the close relationship between fund boards and sponsors, there is evidence that boards can be effective mentors. Tufano and Sevick (1997) find an inverse relationship between board independence and fund fees. Adams et al. (2010) further report that independent boards of index funds offered by publicly traded investment companies, where conflicts between sponsors and fund shareholders are particularly high, are associated with lower fees. In addition, two large providers of index funds have fund sponsor officers acting as mutual fund board chairs and charge especially competitive fees (Lutton et al., 2011).

Similarly, Gil‑Bazo and Ruiz-Verdú (2009) find that higher quality boards, measured using Morningstar's stewardship scores that assumed that highly independent boards were superior monitors, are related to lower ownership costs. However, Adams et al. (2010) also find that board with independent chairs charge higher front end loads.

Overall, the literature is consistent with Hermalin (1994) argument that there is no single optimal board structure. In addition, just because a board is implicitly of high quality (i.e., more independent, smaller, unitary) does not mean it monitors each share class with the same intensity. Boards may pay little attention to some classes and more attention to others. For instance, they may focus on fees at the largest share class or they may consider overall average expenses and not individual share class expenses. As such, there is no expectation concerning how board structure is associated with the range of fees charged to mutual fund investors.

2.2   Role of Ownership Structure in Mutual Funds Fee Structure

Jensen and Meckling (1976) argue that, inside equity, ownership provides a powerful incentive for managers to act in the interest of shareholders (Rowe and Davidson, 2005). If management has too large an equity position, it may control enough votes to consolidate itself (Demsetz, 1983; Fama and Jensen, 1983 a and b). Morck et al. (1988) argue that there is a positive correlation between managerial ownership and firm value. Rowe and Davidson (2005) argue that outside directors' ownership helps to align management interests and reduces fees.

The ownership structure of publicly held sponsors suffers more from the effects of agency costs than does the ownership of privately held ones (McConnell and Servaes 1990; Barnhart et al., 1994). Alternatively, the operating strategies of private sponsor funds may be more complex than public ones and incorporate concerns about firm and founder reputation (Anderson et al., 2003). Ferris and Yan (2009) find that private fund sponsors charge lower fees and are less likely to be involved in fund scandals that harm sponsors' reputations. Overall, the literature suggests that publicly held firms have different incentive structures than privately owned firms. Therefore, they differ in how they assess the costs across single and multiple share class funds.

This paper examines the role of the board of directors and ownership structure on fees using structural equation modelling (SEM) (Martens, 2005; Bollen, 1990; Fan et al., 1999; Raykov and Marcoulides, 1999; Hair et al., 2009; Jarratt, 2000). SEM is a statistical technique prepared to deal with endogeneity problem, which come from the powerful relationship between past values of the regressand (fees), and current values of the regressors (corporate governance structure) (Wintoki et al., 2012; Agrawal & Knoeber, 1996; Rediker & Seth, 1995; Chandio, 2011; Klein & Zur, 2011; Westland, 2010; Rundle- Thiele et al., 2008; Cornett et al., 2007; Hair et al., 2006). There are many methods of overcoming this; including Maximum likelihood (ML) and Ggeneralized Method of Moments (GMM).

Although, GMM and ML is a general framework for deriving estimators, there is a difference between the assumptions of the two methods. ML estimators use assumptions about the specific families of distributions for the random variables to derive an objective function. It selects the parameters that are probably have generated the observed data, which can be proceeded by maximizing an objective function. GMM estimators use assumptions about the moments of the random variables to derive an   objective function. The assumed moments of the random variables present population moment conditions, which can be achieved by minimizing an objective function. Accordingly, ML can be more efficient than GMM, because ML uses the entire distribution instead of uses specified moments only (Breitung and Lechner, 1995).

Therefore, this paper utilizes SEM which is a multivariate technique that allows us to estimate a system of equations. Structural Equation Models are often drawn as Path Diagrams. SEM is a Full Information Maximum Likelihood (FIML), which estimates all the equations and all the unknown parameters jointly and obtains robust findings, compared with GMM. This paper extends the previous fund governance literature by examining the impact of the board of directors on mutual fund fees. Therefore, this paper uses different independent variables to characterize the structure of the board as illustrated below:

Board size: studies of the US mutual fund industry show that larger boards are linked to higher fees for shareholders due to higher bureaucracy costs (Tufano and Sevick, 1997). Adams et al. (2009) examine the relation between boards of directors and shareholder wealth by employing a sample of mutual funds designed to track the performance of various domestic equity indexes. Overall, their results suggest that large boards are associated with higher expense ratios.

On the other hand, corporate governance studies argue that larger boards exhibit more consistent operations and communication policies (Byard and Weintrop, 2006; Cheng, 2008). Larger board size also enhances the effectiveness of control mechanisms and board monitoring efficiencies (Sánchez et al., 2011). Since trustees play an important role in negotiating and monitoring the fees of asset consultants and fund managers, Bryan et al. (2009a) argue that larger boards are linked to lower fees. This is because larger boards can broaden the collective knowledge and experience of trustees; enhance communication and debates about critical issues and decisions and set up advanced governance structures and monitoring mechanisms. Furthermore, larger boards enjoy economies of scale that allow the governance practices to be implemented at lower cost to the fund and their members.

H1: There is a negative relationship between board size and fund fees.

In addition, Ezat and El-Masry (2008), using Egypt as a case study, argue that there is a positive relation between board size and voluntary disclosure, and therefore leads to a higher level of CG Index (Samaha et al., 2012; Wang and Hussainey, 2013; Singh et al, 2004; Laksmana, 2008; and Yermack, 1996).

H2: There is a positive relationship between board size and corporate governance index of the fund management company.

Proportion of independent directors: the two way inside-outside director classification are used to measure the proportion of inside directors on the board, and the proportion of outside directors on the board. Tufano and Sevick (1997) report that higher proportion of independent directors is linked to a lower level of shareholder fees in the US mutual fund industry. This finding supports the argument that potential conflicts of interest between

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outside directors and managers are lower than those between inside directors and managers. In addition, independent trustees can bring additional objective knowledge and experience to the trustee board and enhance information collection and dissemination to facilitate better decision making. On the other hand, studies also find that the degree of information asymmetry between outside directors and firm insiders (such as the CEO) affects how the former can contribute to firm value with a high cost for information reducing the value of outside directors to a firm (Duchin et al., 2010). Similarly, Adams et al. (2009) find that boards with inside directors who are also officers of the fund sponsor are associated with improved fund expense ratios. Overall, their results suggest that sponsor-level factors are important board structure considerations.

However, in this paper, there is not any significant relation between the proportion of independent directors and fund fees, but the result is consistent with Ferris and Yan (2007) finding that the high percentage of independent directors does not seem to mitigate major issues such as misconduct and trading abuse. Furthermore, independent trustees may endogenously restrict their voice because they rely on other trustees for nomination and election. Therefore, independent directors may not have any significant effect on fees.

Fama (1980), Chau and Leung (2006), and Weir and Laing (2003) find that independent directors will raise the goodness of board oversight because they are trying to fulfill the shareholders' interests (Pincus et al., 1989). On the other hand, Eng and Mak (2003), Barako et al. (2006), and Gul and Leung (2004) find that there is a significant negative relation between the voluntary disclosure and independent directors. Furthermore, Al-Moataz and Hussainey (2013), using Saudi Arabia as a case study, suggest that there is a significant negative relation between voluntary disclosures and independent directors, and therefore leads to a lower level of CG Index.

H3: There is a negative relationship between the proportion of independent directors on the board and corporate governance index of the fund management company.

As indicated before, low director ownership increases agency problems because managers have greater incentives to consume bonuses and lower incentives to maximize job performance (Eng and Mak, 2003), so that shareholders need to offset the increase in agency costs through maximizing the proportion of independent directors on the board (Ghazali and Weetman, 2006). Therefore, the number of independent directors is positively associated with a low director ownership (Samaha et al., 2012) to offset the increase in agency costs as indicated by Ghazali and Weetman (2006).

H4: There is a positive relationship between the proportion of independent directors on the board and the proportion of directors holding zero shares.

Director's background: Although there are very rare researches on the relation between director's background and fund fees, this paper believes it is an important factor and it should have been examined. Similar to Brickley et al. (1994) they find the results of their study to be driven by the proportion of professional independent directors. They find professional directors have the greatest positive coefficient (0. 085) of the four types, and the only one that is individually significant. Brickley et al. (1994) also contend professional directors are best equipped given their experience in oversight and their desire to maintain their reputation; therefore, they could negotiate fees rigorously with sponsors.

H5: There is a negative relationship between proportion of professional directors on the board and fund fees.

As indicated before, the proportion of professional directors has a positive association with performance, negative association with fees which will lead to a higher corporate governance index. Therefore, the directors will have a powerful incentive to increase their ownership in the firm, and decrease the proportion of directors holding zero shares (Ghazali and Weetman, 2006).

H6: There is a negative relationship between proportion of professional directors on the board and proportion of directors holding zero shares.

Board committee structure: to examine the role of board committee structure on mutual fund fees, this chapter focuses on investment committees and audit committees. Yatim et al. (2006) further examine whether firms having audit committee structure are likely to be associated with higher quality of financial reporting, resulting in lower auditors assessment of control risks; hence, lower external audit fees are expected. They find that external audit fees are positively and significantly related to board independence, audit committee expertise, and the frequency of audit committee meetings. On the contrary, the Blue Ribbon Committee's (1999) recommendations suggest that audit committee independence, financial literacy and expertise, as well as audit committee size and authority are expected to result in a more effective audit committee oversight of the financial reporting process (Millstein, 1999). Similarly, Samaha and Dahawy (2010 and 2011), using Egypt as a case study, find that the audit committee influences the corporate voluntary disclosures; and therefore leads to a higher level of CG Index (Samaha et al., 2012; Forker, 1992; Barako et al., 2006), and it is consistent with the result.

H7: There is a negative relationship between the proportion of directors on the audit committee and fund fees.

Ferris and Yan (2007) find that the likelihood of a fund scandal is negatively related to the presence of an investment committee, and a fund family that does not have an investment committee is approximately five

times more likely to be involved in a scandal than those with an investment committee. Accordingly, the directors will have greater incentive to increase their ownership in the company, and this might lead to decreasing the proportion of directors holding zero shares (Samaha et al., 2012).

H8: There is a negative relationship between the proportion of directors in the investment committee and proportion of directors holding zero shares.

Equity ownership by directors: the ability of equity ownership to align managerial interests is a well-established proposition in the corporate finance literature (e.g., Shleifer and Vishny (1997)). Mitra et al. (2007) examine the empirical relationship between ownership characteristics and audit fees. By employing a cross-sectional least square regression analysis for a sample of 358 New York Stock Exchange listed firms audited by the Big Five auditors, they find evidence of a significant positive relationship between diffused institutional stock ownership (i.e., having less than 5% individual shareholding) and audit fees, and a significantly negative relationship between institutional block holder ownership (i.e., having 5% or more individual shareholding) and audit fees. Finally, they document that managerial stock ownership is negatively associated with audit fees. Similarly, this variable is included to examine if equity ownership by directors supports their fulfilment of shareholder interests, equity ownership by each director is reported within one of five EGP ranges. Similar to Ferris and Yan (2007), the proportion of directors holding zero shares is used as the measure of equity ownership by directors rather than the proportion of directors holding more than EGP 100,000 (or any other EGP range) because holding zero shares of the funds strongly reveals the absence of any incentive for the fund directors.

Although, in the paper, there is not any significant relation between the proportion of directors holding zero shares and fund fees, the result is consistent with Rowe and Davidson (2005) argument that there is no evidence suggesting that block ownership significantly affects expense ratios. This might be because that managerial ownership does not help to align management interests with those of shareholders, so they do not protect shareholder interests, and do not negotiate fees rigorously with the sponsors.

Number of funds overseen by the fund management company: the number of funds overseen by the fund management company is motivated by the busyness hypothesis of Ferris et al. (2003). They show that there is no significant evidence that multiple board memberships harm firm value. In this analysis, this variable allows to investigate if the fund management company with multiple funds to monitor is either too busy to provide effective oversight or possessing prominent expertise as a director. Although, in this paper, there is not any significant relation between the number of funds overseen by the fund management company and fund fees, this might be due to that the number of funds overseen by the fund management company does not impact the efficiency of using direct methods to monitor manager behaviour (Almazan et al., 2004). So, that does not have any significant effect on fund fees.

Ferris et al. (2003) find that no evidence firms with multiple directors are more vulnerable to securities fraud litigation. On the contrary, they find that multiple directors sit on more committees and attend more meetings than their less-busy counterparts which will lead to an effective board oversight and increase firm value, and therefore increase the quality of corporate governance.

H9: There is a positive relationship between numbers of funds overseen by the fund Management Company and corporate governance index of the fund management company.

Director's tenure: similar to Villiers et al. (2011), director's tenure is measured as the average number of years the firm's directors have served on the board either the fund management company board or any other boards. Chan et al. (2013) examine whether independent audit committee members' board tenure affects audit fees. They find that audit fees are lower for firms with high proportion of long board tenure directors on the independent audit committee than for firms with low proportion of long board tenure directors on the independent audit committee.

However, in this paper, there is not any significant relation between the average tenure of directors and fund fees, but the result is consistent with Del Guercio et al. (2003) argument that directors who are long-serving can lose their capability to stay independent and become less effective as representatives for the shareholder interests. Therefore, they do not protect shareholder interests, and do not negotiate fees rigorously with the sponsors.

H10: There is a negative relationship between the average tenure of directors and corporate governance index of the fund management company.

Corporate governance index: the analysis focuses primarily on the effect of the company board of directors and ownership structure on fund fees (Denis and McConnell, 2003). The international corporate governance literature demonstrates that an external governance mechanism is an important measure of corporate governance used to protect shareholder interests (López de Silanes et al., 1998). Similar to Erkens et al. (2012), the influence of corporate governance is explored on fund fees. A governance index is constructed - calculated as an average of six governance indicators: (1) Effective Corporate Governance Framework (2) The rights of shareholders (3) The equitable treatment of shareholders (4) The role of stakeholders in corporate governance (5) Disclosure and transparency (6) The responsibilities of the board - using the annual reports of the companies and the companies websites, based on the OECD Corporate Governance Principles April 2004 (EFSA).

Rowe and Davidson (2005) examine the efficacy of closed-end mutual fund governance. They use a set of 130 closed-end equity and bond funds with 390 fund-year observations over the period 1994-1996. Their results are similar to those in the study of open-end funds by Tufano and Sevick (1997), and this similarity is important for two reasons. First, confirming their findings provides more trust to the role of boards in protecting shareholders from excessive agency costs. Second, Tobe (2000) argues that there is a growing lack of trust in the mutual fund industry. Unless something is done to protect shareholders from excessive expenses, the next market downturn will lead to stringent government regulation.

Furthermore, they find a strong inverse relation between the percentage of outside directors on boards and closed-end fund expense ratios. This supports previous findings of board structure studies that effective board monitoring mitigates agency costs, and there is evidence that outside directors' ownership helps to align management interests with those of shareholders and reduces fees.

H11: There is a negative relationship between the corporate governance index of the fund management company and fund fees.

In addition to the board structure variables that are discussed in this section, control variables are included in the regression analysis which might influence fund fees. The following discussion contains a brief description of these control variables:

Fund size: similar to Ferris and Yan (2007), size is controlled using the logarithm of total net assets of the fund. This variable controls for the well-established presence of economies of scale in the mutual fund industry. Economies of scale can enhance fund performance through reduced per unit cost of research and administration.[1] Therefore, and similar to Rowe and Davidson (2005), the effect of scale economies and transparency are expected to produce an inverse relation between fund size and investor fees. Accordingly, it is expected that reducing investor fees will lead to a higher corporate governance index. Thus, the effect of scale economies and transparency is expected to produce a positive relation between fund size and corporate governance index.

Investment objective dummy variables: the type of investment strategy a fund adopts affects the portfolio risk and return. Tufano and Sevick (1997) argue that funds investing in different asset classes are likely to have varying operating costs, reflecting on part different research and analysis needs. Investment research effort, marketing strategy, and information availability are influenced by the security within the portfolio; thus, this paper expects the fees charged to investors to be related to the type of investment objective of the fund Hubbard (2010).

For instance, the operational cost incurred in managing an equity fund may exceed the cost of a fixed income fund that may be less risky and require less information gathering. Therefore, a positive relation between expense ratio and both dummy variables for equity fund, and balanced fund is expected (Chay and Trzcinka, 1999).

Similar to Tufano and Sevick (1997), a series of dummy variables is included to describe the investment objectives represented in the sample to take a value of 1 if the fund belongs to the same category under study and zero otherwise. The investment objectives represented in the sample are: Fund Obj1: Equity Fund, Fund Obj2: Balanced Fund, Fund Obj3: Islamic Fund, Fund Obj4: Money Market Fund, Fund Obj5: Others (Islamic Balanced Fund, and Fund of Funds).

Time: the period of the study is the years between 2007 and 2013 - due to data availability – that can affect the fees of the fund. Fund age is another control variable used by both Tufano and Sevick (1997), and Del Guercio et al. (2003) in their examinations of fund fees. Younger funds may need to spend more on initial fund research, and they might require high start-up costs. Older funds may have gathered experience and expertise over the years and be able to achieve improved operating efficiency.

Similar to them, fund fees are controlled using Time to examine how mutual fund fees change over time. Accordingly, there is a negative relation between the time and fund fees. Finally, Table (1) summarizes the key studies in the previous literature that investigate the effect of board structure on mutual funds' fees.

3   The Data

In this paper, the population is extracted from an updated version of Egyptian mutual funds database in the Egyptian Stock Market existing at the end of December 2013, which are 84 mutual funds belong to 14 categories (EIMA). The simple random sample for the study is 48 mutual funds between 2007 and 2013, due to data availability. The sample is free from survivorship bias since the sample contains both surviving and dead funds. This paper uses secondary data only which is collected from the most recent available data from the Egyptian Stock Market, Central Bank of Egypt, EIMA, World Bank, EFSA, Misr for Central Clearing, Depository and Registry (MCDR), and National Bank of Egypt. The data is a panel data that tracks the fees of several mutual funds at several points in time 2007-2013. See, Table 2 providing a full set of variables of the study. The results are based on a sample of 501 annual and semi-annual observations for 48 mutual funds from 2007 to 2013. See,

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[1] Studies by Dermine and Röller (1992) and Baumol et al. (2012) confirm the existence of scale economies.

Table 3 which includes two panels.

Panel A provides main fund and governance statistics for the overall sample. Included is the mean, standard deviation, minimum, and maximum of the variables used in the analysis for model (A). For the overall sample, Expenses ratio has mean values of 4% which is higher than the benchmark 1.59%. The board structure is comprised of nine directors, and about 83% of them are independent directors. The board composition, on average, consists of 28% of directors on the audit committee, and 18% of directors on the investment committee. The board of directors, on average, includes 34% financial directors, and 43% professional directors. The average tenure of directors is 19 years. In terms of director ownership, about 86% of directors holding zero shares. Furthermore, the corporate governance index, on average, is 59%. The number of funds overseen by the fund management company, on average, is nine mutual funds per company. The major funds in the sample belong to open end equity fund. Furthermore, the logarithm of fund size, on average, is 19.

Panel B provides the correlations between all variables included in model (A). ExpRatio is negatively correlated with BSize, IndDir, InvComm, DirOwn, DirFn, DirTn, FinDir, ProfDir, CGQ, and LogSize, and positively correlated with AudComm. BSize exhibits the same pattern and is negatively correlated with InvComm. IndDir exhibits the same pattern and is negatively correlated with InvComm. AudComm exhibits the same pattern and is negatively correlated with InvComm, DirOwn, FinDir, and LogSize. InvComm exhibits the same pattern and is negatively correlated with DirOwn, DirFn, DirTn, FinDir, ProfDir, and CGQ.

On the contrary, DirOwn is positively correlated with DirFn, DirTn, FinDir, ProfDir, CGQ, and LogSize. DirFn exhibits the same pattern and is positively correlated with DirTn, FinDir, ProfDir, CGQ, and LogSize. DirTn exhibits the same pattern and is positively correlated with FinDir, ProfDir, CGQ, and LogSize. FinDir exhibits the same pattern and is positively correlated with ProfDir, CGQ, and LogSize. ProfDir exhibits the same pattern and is positively correlated with CGQ, and LogSize. Finally, CGQ exhibits the same pattern and is positively correlated with LogSize.

Overall, the results of the descriptive statistics reported in Table (3) are consistent with agency theory (e.g., Jensen and Murphy, 1990) and the law and finance (e.g., López de Silanes et al., 1998) literatures suggest that firm good governance characteristics, including an independent and vigilant board, will enhance corporate value (Essen et al., 2013). These findings that internal governance mechanisms, such as mutual fund board structure and ownership structure that may be related to fund fees, suggest that corporate governance mechanisms are important determinants of fund fees.

4   Structural Equation Modelling Analysis

SEM is adapted from (Erkens et al., 2012; Adams, 2012; Tufano and Sevick, 1997; Del Guercio et al., 2003; Hermalin and Weisbach, 2001; Ferris and Yan, 2007; Agrawal and Knoeber, 1996). To test the effect of board composition on mutual fund fees, this paper uses the SEM technique through the following three stages: model specification, model estimation, and goodness of fit indices.

4.1   Structural Model Specification

Considering the potential endogeneity problem between internal governance measures and fund fees and similar to (Erkens et al., 2012; Adams, 2012; Tufano and Sevick, 1997; Del Guercio et al., 2003; Hermalin and Weisbach, 2001; Ferris and Yan, 2007; Agrawal and Knoeber, 1996), the central research question focuses on whether the composition of the board affects the level of the mutual fund fees incurred by investors in mutual fund by using the following structural equation model:

1. $Fees_{it} = \alpha_{it} + \alpha_1 (B_{Size}) + \alpha_2 (Ind_{Dir}) + \alpha_3 (Fin_{Dir}) + \alpha_4 (Prof_{Dir}) + \alpha_5 (Dir_{Tn}) + \alpha_6 (CG_Q) + \alpha_7 (Dir_{Own}) + \alpha_8 (Inv_{Comm}) + \alpha_9 (Aud_{Comm}) + \alpha_{10} (Dir_{Fn}) + \alpha_{11} (Log_{Size}) + \alpha_{12} (Time) + \alpha_{13} (Dum_p) + \alpha_{14}(Fund_{Obj1}) + \alpha_{15} (Fund_{Obj2}) + \alpha_{16} (Fund_{Obj3}) + \alpha_{17} (Fund_{Obj4}) + \varepsilon_{it}$

   (1)

2. $CG_Q = \beta_{it} + \beta_1 (B_{Size}) + \beta_2 (Ind_{Dir}) + \beta_3 (Fin_{Dir}) + \beta_4 (Prof_{Dir}) + \beta_5(Dir_{Tn}) + \beta_6 (Dir_{Own}) + \beta_7 (Inv_{Comm}) + \beta_8(Aud_{Comm}) + \beta_9 (Dir_{Fn}) + \beta_{10} (Time) + \beta_{11}(Dum_p) + \beta_{12} (Log_{Size}) + \beta_{13}(Fund_{Obj1}) + \beta_{14} (Fund_{Obj2}) + \beta_{15} (Fund_{Obj3}) + \beta_{16} (Fund_{Obj4}) + \varepsilon_{it}$ (2)

3. $Dir_{Own} = \gamma_{it} + \gamma_1 (B_{Size}) + \gamma_2 (Ind_{Dir}) + \gamma_3 (Fin_{Dir}) + \gamma_4 (Prof_{Dir}) + \gamma_5 (Dir_{Tn}) + \gamma_6 (Dir_{Fn}) + \gamma_7(Aud_{Comm}) + \gamma_8 (Inv_{Comm}) + \gamma_9(Fund_{Obj1}) + \gamma_{10} (Fund_{Obj2}) + \gamma_{11} (Fund_{Obj3}) + \gamma_{12} (Fund_{Obj4}) + \varepsilon_{it}$ (3)

4.2   Structural Equation Modelling Estimation

The results about the estimation of the structural model (A) are presented in Table (4) which includes three panels. Panel A: The Effect of Board Structure on Mutual Fund Fees, Panel B: The Effect of Board Structure on Corporate governance Index, and Panel C: The Effect of Board Structure on Director Ownership which will be illustrated below. The path diagram for model (A) is presented in Figure (1).

According to the previous, in testing the hypotheses, results reveal that there are eleven hypotheses in this study, and ten hypotheses i.e. H1, H2, H3, H4, H5, H6, H7, H8, H9, and H10 are statistically significant. Thus, these hypotheses are supported. While, one hypothesis i.e. H11 is found statistically not significant. Hence, this hypothesis is not supported.

Although the hypothesis is not supported, the result is consistent with Ebaid (2011) argument that the internal audit function in Egypt suffers from many weaknesses that affect negatively its effective role in corporate governance. Furthermore, the result is consistent with Fawzy (2003) argument that however corporate governance standards in Egypt have improved significantly, as reflected in the overall assessment of all five OECD principles, the degree of progress is still far from properly implementing corporate governance principles. Additionally, the result is consistent with Tobe (2000) who argues that there is a growing lack of trust in the mutual fund industry. Unless something is done to protect shareholders from excessive expenses, the next market downturn will lead to stringent government regulation.

The Direct, Indirect and Total Effects

Table (5) demonstrates direct, indirect, and total effects among all variables in the Structural Equation Model. It includes three panels (A), (B), and (C) respectively.

Panel A: The Effect of Board Structure on Mutual Fund Fees

Panel (A) demonstrates several significant direct, indirect, and total effects. Firstly, BSize, FinDir, ProfDir, FundObj2, and FundObj3 have significant direct influence on ExpRatio. Secondly, BSize has a significant indirect influence on ExpRatio through the mediating effect of CGQ (BSize →CGQ →ExpRatio). Finally, BSize, FinDir, ProfDir, FundObj2, and FundObj3 have significant total influence on ExpRatio. The Structural Equation Model indicates that evaluation of total effects on the determination of ExpRatio arises from the combination of direct and indirect effects of the variables in the model. As indicated previously, all the path coefficients which have a significant direct, and a significant indirect effect on ExpRatio have also a significant total effect on ExpRatio.

Panel B: The Effect of Board Structure on Corporate Governance Index

Panel (B) demonstrates several significant direct and total effects. Firstly, BSize, IndDir, AudComm, DirFn, DirTn, FinDir, ProfDir, FundObj1, FundObj2 FundObj3, FundObj4, LogSize, and Time have a significant direct influence on CGQ. Secondly, BSize, IndDir, AudComm, DirFn, DirTn, FinDir, ProfDir, FundObj1, FundObj2 FundObj3, FundObj4, LogSize, and Time have a significant total influence on CGQ. The Structural Equation Model indicates that evaluation of total effects on the determination of CGQ arises from the direct effects of the variables in the model only because there are no significant indirect effects of the variables in this model.

Panel C: The Effect of Board Structure on Ownership Structure

Panel (C) demonstrates several significant direct and total effects. Firstly, BSize, IndDir, AudComm, InvComm, DirFn, DirTn, ProfDir, and FundObj2 have a significant direct influence on DirOwn. Secondly, BSize, IndDir, AudComm, InvComm, DirFn, DirTn, ProfDir, and FundObj2 have a significant total influence on DirOwn. The Structural Equation Model indicates that evaluation of total effects on the determination of DirOwn arises from the direct effects of the variables in the model only because there are no indirect effects of the variables in this model.

4.3 The Goodness of Fit

The fit indices shown in Table (6) indicate that the hypothesized structural model provides a good fit to the data. In this paper, the (R-squared) values of the endogenous variables in Table (7) range from 0.23 and 0.89, and the overall (R-squared) value is 0.98 for model (A), these values fall within the acceptable range compared with other studies in the area of financial management research.

5   Conclusion

Achieving the aim of this paper contributes to the finance literature through a theoretical model of the determinants of mutual fund governance that empirically examine the effect of board independence and ownership structure as part of an effective board design for the mutual funds governance based on integrating perspectives from the agency theory.[1] Consequently, this paper contributes to the literature at three levels; theoretical, methodological and empirical levels. At the theoretical level, firstly, this study bridges the gap

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[1] In a contemporary paper, Khorana, Tufano and Wedge (2007) examine the role of independent chairman in mutual fund mergers.

between different disciplines including fees, mutual fund industry, and corporate governance through developing a theoretical model that links to mutual fund fees and corporate governance mechanisms, i.e., board structure and ownership structure which is under-researched in the literature. Integrating both the board structure and ownership structure mechanisms contributes to the development of a comprehensive model of mutual fund governance. Unlike previous studies (Morck et al., 1988; Klein, 1998; Eisenberg et al., 1998), the theoretical model provides insights into the interrelationships between board structure, and ownership structure as fundamental determinants of mutual fund fees rather than investigating the effect of each of these mechanisms separately on mutual fund fees. Secondly, achieving the aim of this study contributes to the finance literature through developing a structural equation model of mutual fund governance that addresses the possible interrelationships between mutual fund governance and fees based on integrating perspectives from the agency theory. Furthermore, mutual fund industry provides an appropriate laboratory to test the effects of regulatory policy on investor welfare. The independent trustee is the main mechanism to resolve conflicts of interest between fund managers and investors, and negotiate fair, competitive fees for index-fund management rigorously with sponsors; therefore, the board has a direct impact on investor welfare. By studying the relation between board structure and investor welfare, this study indirectly examines the effect of the regulatory requirement.

At the methodological level, unlike previous studies that have addressed that the relation between board characteristics and firm fees may be spurious because they are endogenously determined and use OLS, 2SLS, 3SLS to overcoming this problem (Hermalin and Weisbach, 2001; Rowe and Davidson, 2005; Adams, 2012; Tufano and Sevick, 1997, Ferris and Yan, 2007, Del Guercio et al., 2003), this study has achieved the broad objective of developing sophisticated statistical techniques, i.e., structural equation model (SEM) using STATA MP v.13. SEM allows simultaneous evaluation of the sufficiency of the causal model that is proposed to investigate the determinants of mutual fund fee structure. In addition, structural model, showing empirical support for the interrelationships between the important determinants of mutual fund fees, contribute to the knowledge in corporate governance in general and mutual fund governance in particular. Furthermore, using a powerful statistical technique of multivariate data analysis (SEM) enables examination of multiple relationships between variables simultaneously and obtains robust findings. Finally, this study uses a longitudinal perspective and panel data with large sample for a number of years to see how the dynamics of corporate governance implementation and its relationships with fund fees develop over time which leads to a greater generalizability of the results.

At the empirical level, this study is undertaken in Egypt (Prowse, 1998), and provides evidence from the emerging markets which differs significantly from the developing markets (Farooque et al., 2007). Finally, the findings of this study contribute to developing a better understanding of a number of issues. For example, the study provides evidence against the argument that corporate governance has a significant impact on fees in Egypt at the level of the mutual funds which ensures the ineffectiveness of the adopted Regulatory Regime of Corporate Governance in Egypt. However, the study provides evidence of a negative association between board size and fund fees. Additionally, the study provides evidence of a negative association between the proportion of directors on audit committee and fund fees. Furthermore, the study provides evidence of a negative association between the proportion of professional directors on the board and fund fees. The findings suggest that corporate governance rules are included in the Egypt Code of Corporate Governance: Guidelines and Standards are not mandatory and lack legislative force (Sharma et al., 2008), and are still far from properly implementing corporate governance principles (Fawzy, 2003), which can contribute to explaining the mixed results in the corporate governance literature.

For future research, the model in this study could be expanded to include more factors such as director compensation, because there is no data available for complex-level director compensation in the Egyptian mutual funds. Thus, this paper suggests that the Egyptian Stock Market should require funds to disclose the total director compensation by the complex rather than per fund. The availability of time series data on director compensation by the complex leads to higher quality compensation data for research on the relationship between compensation and fund fees.

This paper conclude that most the hypothesised relationships are supported (e.g. BSize is positively associated with CGQ and DirOwn, and negatively associated with ExpRatio. IndDir is positively associated with DirOwn, and negatively associated with CGQ. AudComm is negatively associated with ExpRatio and DirOwn and positively associated with CGQ, and ProfDir is negatively associated with ExpRatio and DirOwn and positively associated with CGQ and some others are not supported (e.g. CGQ is not associated with ExpRatio). Additionally, this paper is consistent with Kirkpatrick (2009) argument that the contribution of effective board oversight is an important, but often neglected, governance issue in issue in many OECD countries. This paper is consistent with (Kryzanowski and Mohebshahedin, 2016) argument that closed end funds board sizes are negatively related to fees.

Acknowledgement

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Appendix

Table (1)

Prior Empirical Analysis of the Effect of Corporate Governance on Firm Fees

Paper	Sample	Period	Fees Measure	Methodology	Relationship
Tan and Cam (2014)	81	2009–2010 2010–2011	management fees, operating expenses, and audit fees	OLS	Positive and differs between fund sizes
Khorana et al. (2009)	46,799	2002	management fees, total expense ratios, and total shareholder costs	OLS	Negative
Robinson and Sensoy (2013)	837	1984–2010	management fees	OLS	None
Adams (2012)	165	1998–2007	total expense ratio, total fee spreads	OLS	Negative
Adams et al. (2010)	148	1998–2007	expense ratio	OLS	Negative
Chan et al. (2013)	1,561	2005–2005	audit fees	OLS	Negative
Mitra et al. (2007)	358	2000	audit fees	OLS	Negative
Ferris and Yan (2009)	750	1992–2004	expense ratio plus 1/7 of the total load charges	OLS	Positive for public funds
Gil‑Bazo and Ruiz-Verdú (2009)	1,106	1961–2005	expense ratio	OLS	Positive for superior performance

Source: Developed by the researcher

Table (2)

Summary of Endogenous, Exogenous and Control Variables

Panel (A) Endogenous Variables

Variables	Measures	Source
Mutual fund fees ($Fees_{it}$)	$Exp_{Rat} = (\frac{Tot\ opt_{Fee}}{Fund\ Size}) \times 100$	Calculated from the mutual fund's financial statements.
Corporate governance index (CG_Q)	A constructed governance index calculated as an average of six governance indicators: (1) Effective Corporate Governance Framework (2) The rights of shareholders (3) The equitable treatment of shareholders (4) The role of stakeholders in corporate governance (5) Disclosure and transparency (6) The responsibilities of the board.	Calculated from the annual reports of the fund management companies and the companies' websites.
Equity ownership by directors (Dir_{Own})	The number of directors holding zero shares divided by board size.	Board of director's annual reports of Egyptian mutual funds.

Panel (B) Exogenous Variables

Variables	Measures	Source
Board size (B_{Size})	The size of the board.	Board of director's annual reports of Egyptian mutual funds.
Proportion of independent directors (Ind_{Dir})	The number of independent directors on the board divided by board size.	Board of director's annual reports of Egyptian mutual funds.
Director's background (Fin_{Dir}) ($Prof_{Dir}$)	The directors' background. The number of directors with a background in finance or investment divided by board size. The number of directors who are retired or serve on several different boards as professional directors divided by board size.	Board of director's annual reports of Egyptian mutual funds.
Board committee structure (Inv_{Comm}) (Aud_{Comm})	The number of directors on the investment committee divided by board size. The number of directors on the audit committee divided by board size.	Board of director's annual reports of Egyptian mutual funds.
Number of funds overseen by the fund management company (Dir_{Fn})	The number of funds overseen by the fund management company.	Board of director's annual reports of Egyptian mutual funds.
Director's tenure (Dir_{Tn})	The average number of years the firm's directors have served on the board either the fund management company board or any other boards.	Board of director's annual reports of Egyptian mutual funds.

Panel (C) Control Variables

Variables	Measures	Source
Fund size (Log_{size})	The logarithm of total net assets of the fund.	Calculated from the mutual fund's financial statements.
Investment objective dummy variables ($Fund_{Obj}$)	This study uses dummy variables for the investment objectives represented in the sample, to take a value of 1 if the fund belongs to the same category under study and zero otherwise.	Mutual fund prospectuses.
Time (Time)	The years between 2007 and 2013 due to data availability.	Sample Period.

Source: Developed by the researcher

Table (5-3)
Descriptive Statistics of Board Structure and Fund Fees
Panel A: Fund and Governance Descriptive Statistics
Model A

Number of obs =   501

Variable	Mean	Std. Dev.	Min	Max
ExpRatio	0.0439	0.0708	0.0018	0.4920
CGQ	0.5995	0.1790	0.1667	0.8333
DirOwn	0.8691	0.2299	0.0000	1.0000
BSize	8.8982	3.3316	3.0000	17.0000
IndDir	0.8334	0.2565	0.0000	1.0000
AudComm	0.2877	0.0972	0.0909	0.5000
InvComm	0.1865	0.1285	0.0588	0.5455
DirFn	9.7046	5.5307	1.0000	15.0000
DirTn	19.4112	5.6305	6.0000	29.0000
FinDir	0.3444	0.2085	0.0909	0.6667
ProfDir	0.4325	0.3172	0.0909	0.8889
Dump	0.4930	0.5005	0.0000	1.0000
FundObj1	0.3932	0.4890	0.0000	1.0000
FundObj2	0.1657	0.3722	0.0000	1.0000
FundObj3	0.1377	0.3450	0.0000	1.0000
FundObj4	0.2754	0.4472	0.0000	1.0000
LogSize	19.0721	1.7816	15.3200	23.7900
Time	2010	1.9220	2007	2013

Panel B: Pearson Correlations (Model A)

Variable	Time	Dump	ExpRatio	BSize	IndDir	AudComm	InvComm	DirOwn	DirFn	DirTn	FinDir	ProfDir	CGQ	LogSize	FundObj1	FundObj2	FundObj3	FundObj4
Time	1.0000																	
Dump	0.0107	1.0000																
ExpRatio	-0.0047	0.1013	1.0000															
BSize	-0.1180	-0.0058	-0.2561	1.0000														
IndDir	0.0072	0.0119	-0.0329	0.3274	1.0000													
AudComm	0.0211	-0.0056	0.0438	-0.0726	-0.0579	1.0000												
InvComm	-0.0699	-0.0062	-0.0518	-0.3050	-0.2536	-0.5272	1.0000											
DirOwn	-0.0053	0.0035	-0.0744	0.6232	0.8168	-0.2144	-0.248	1.0000										
DirFn	-0.1624	-0.0058	-0.0598	0.4935	0.4650	0.3811	-0.5652	0.3171	1.0000									
DirTn	-0.2157	-0.0267	-0.0914	0.5266	0.0661	0.0575	-0.3002	0.2161	0.5470	1.0000								
FinDir	-0.0346	-0.0090	-0.1537	0.5228	0.0704	-0.0434	-0.1944	0.2278	0.2868	0.2657	1.0000							
ProfDir	-0.0564	-0.0025	-0.1620	0.4919	0.2299	0.0309	-0.2408	0.2940	0.3914	0.2483	0.9552	1.0000						
CGQ	-0.0685	0.0022	-0.1355	0.4967	0.2399	0.4374	-0.4349	0.2081	0.6369	0.1912	0.6396	0.7150	1.0000					
LogSize	-0.2215	0.0138	-0.2458	0.1052	0.0890	-0.3654	0.3795	0.0553	0.0711	0.1254	0.1180	0.1063	0.0800	1.0000				
FundObj1	-0.0723	-0.0092	0.0117	0.1769	-0.0638	0.3492	-0.2695	-0.0215	0.1969	0.1279	0.0132	0.0240	0.1540	-0.4148	1.0000			
FundObj2	-0.0101	0.0009	0.2609	-0.1896	0.0077	-0.1147	0.0196	0.0196	-0.1219	-0.1691	0.0037	0.0009	-0.0928	-0.1390	-0.3587	1.0000		
FundObj3	0.0606	-0.0002	0.1056	0.0174	0.1009	0.1398	-0.1810	0.0604	0.1283	0.0202	0.0025	0.0185	0.1016	-0.1877	-0.3217	-0.1781	1.0000	
FundObj4	0.0004	0.0086	-0.3116	0.0081	-0.0551	-0.3219	0.4233	-0.0673	-0.1207	-0.0054	0.0313	0.0094	-0.0765	0.7713	-0.4963	-0.2747	-0.2464	1.0000

Note: This table reports descriptive statistics for our sample of 501 annual and semi-annual observations for 48 mutual funds from 2007 to 2013.

Note: This table reports Pearson correlation statistics for our sample of 501 annual and semi-annual observations for 48 mutual funds from 2007 to 2013.

Table (4)

Path Coefficients - Whole Sample (p value of the t tests in parentheses)

	Model A	
	(1)	(2)
Panel A: The Effect of Board Structure on Mutual Fund Fees		
ExpRatio		
CGQ	0.0634	(0.103)
DirOwn	0.0700	(0.055)
BSize	-0.0112***	(0.000)
IndDir	-0.0070	(0.833)
AudComm	-0.1000*	(0.047)
InvComm	0.0015	(0.964)
DirFn	0.0013	(0.308)
DirTn	0.0013	(0.117)
FinDir	0.1842**	(0.004)
ProfDir	-0.1467***	(0.001)
Dump	0.0152**	(0.006)
FundObj1	0.0421*	(0.042)
FundObj2	0.0641**	(0.002)
FundObj3	0.0526*	(0.012)
FundObj4	0.0132	(0.570)
LogSize	-0.0056	(0.075)
Time	-0.0020	(0.213)
Constant	4.1365	(0.204)
Panel B: The Effect of Board Structure on Corporate Governance Index		
CGQ		
DirOwn	0.0031	(0.942)
BSize	0.0188***	(0.000)
IndDir	-0.1503***	(0.000)
AudComm	0.6892***	(0.000)
InvComm	0.0222	(0.573)
DirFn	0.0125***	(0.000)
DirTn	-0.0110***	(0.000)
FinDir	-0.2456***	(0.001)
ProfDir	0.4371***	(0.000)
Dump	-0.0008	(0.895)
FundObj1	-0.0935***	(0.000)
FundObj2	-0.0812***	(0.000)
FundObj3	-0.0717**	(0.003)
FundObj4	-0.1474***	(0.000)
LogSize	0.0300***	(0.000)
Time	0.0041*	(0.027)
Constant	-8.3399*	(0.025)
Panel C: The Effect of Board Structure on Director Ownership		
DirOwn		
BSize	0.0315***	(0.000)
IndDir	0.7487***	(0.000)
AudComm	-0.1141*	(0.026)
InvComm	-0.1837***	(0.000)
DirFn	-0.0157***	(0.000)
DirTn	0.0045***	(0.000)
FinDir	0.1486	(0.052)
ProfDir	-0.1144*	(0.020)
FundObj1	0.0420	(0.092)
FundObj2	0.0766**	(0.002)
FundObj3	0.0385	(0.129)
FundObj4	0.0245	(0.323)
Constant	0.0534	(0.192)
var(e.ExpRatio)		
Constant	0.0038***	(0.000)
var(e.CGQ)		
Constant	0.0050***	(0.000)
var(e.DirOwn)		
Constant	0.0057***	(0.000)
Observations	501	

Note: This table provides results from SEM of the effect of board structure on mutual fund fees for the sample of 48 funds from (2007-2013). In Model (A), mutual fund fees measured by the expense ratio. A robust t-statistics test is conducted, and p-values are in parentheses. Column (2) provides p-values. Column (1) presents the path coefficients of the model (A).

* Statistical significance at 10% level.

** Statistical significance at 5% level.

*** Statistical significance at 1% level.

Probability of a t-value equals to or greater than actual t-value in a two-tailed test for significance of coefficient under the null hypothesis that the true value is zero. The symbol *** indicates that the null hypothesis is rejected at the 0.001 level of significance.

Figure (1)
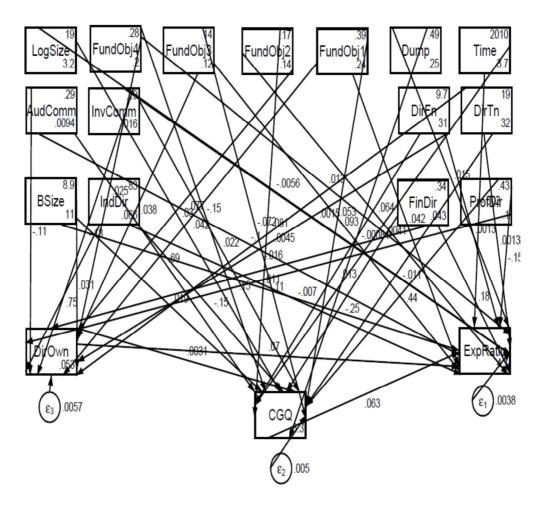**Path Diagram - Whole Sample - for Structural Equation Model (A)**

Table (5) Summary of Direct, Indirect and Total Effects of Structural Equation Model

Direct Effects			Indirect Effects			Total Effects		
Model A			Model A			Model A		
	(1)	(2)		(1)	(2)		(1)	(2)

Panel A: The Effect of Board Structure on Mutual Fund Fees

ExpRatio			ExpRatio			ExpRatio		
CGQ	0.0634	0.103	CGQ			CGQ	0.0634	0.103
DirOwn	0.0700	0.055	DirOwn	0.0002	0.942	DirOwn	0.0702	0.055
BSize	-0.0112	0.000	BSize	0.0034	0.013	BSize	-0.0078	0.000
IndDir	-0.0070	0.833	IndDir	0.0430	0.124	IndDir	0.0360	0.040
AudComm	-0.1000	0.047	AudComm	0.0357	0.195	AudComm	-0.0643	0.132
InvComm	0.0015	0.964	InvComm	-0.0115	0.137	InvComm	-0.0099	0.769
DirFn	0.0013	0.308	DirFn	-0.0003	0.686	DirFn	0.0009	0.335
DirTn	0.0013	0.117	DirTn	-0.0004	0.414	DirTn	0.0009	0.186
FinDir	0.1842	0.004	FinDir	-0.0051	0.694	FinDir	0.1790	0.005
ProfDir	-0.1467	0.001	ProfDir	0.0197	0.276	ProfDir	-0.1270	0.002
Dump	0.0152	0.006	Dump	-0.0001	0.895	Dump	0.0152	0.006
FundObj1	0.0421	0.042	FundObj1	-0.0030	0.513	FundObj1	0.0392	0.056
FundObj2	0.0641	0.002	FundObj2	0.0002	0.963	FundObj2	0.0643	0.001
FundObj3	0.0526	0.012	FundObj3	-0.0018	0.635	FundObj3	0.0508	0.015
FundObj4	0.0132	0.570	FundObj4	-0.0076	0.224	FundObj4	0.0055	0.806
LogSize	-0.0056	0.075	LogSize	0.0019	0.108	LogSize	-0.0037	0.206
Time	-0.0020	0.213	Time	0.0003	0.189	Time	-0.0017	0.277

Panel B: The Effect of Board Structure on Corporate Governance Index

CGQ			CGQ			CGQ		
DirOwn	0.0031	0.942	DirOwn			DirOwn	0.0031	0.942
BSize	0.0188	0.000	BSize	0.0001	0.942	BSize	0.0189	0.000
IndDir	-0.1503	0.000	IndDir	0.0023	0.942	IndDir	-0.1481	0.000
AudComm	0.6892	0.000	AudComm	-0.0004	0.942	AudComm	0.6888	0.000
InvComm	0.0222	0.573	InvComm	-0.0006	0.942	InvComm	0.0217	0.576
DirFn	0.0125	0.000	DirFn	0.0000	0.942	DirFn	0.0125	0.000
DirTn	-0.0110	0.000	DirTn	0.0000	0.942	DirTn	-0.0110	0.000
FinDir	-0.2456	0.001	FinDir	0.0005	0.942	FinDir	-0.2452	0.001
ProfDir	0.4371	0.000	ProfDir	-0.0004	0.942	ProfDir	0.4368	0.000
Dump	-0.0008	0.895	Dump			Dump	-0.0008	0.895
FundObj1	-0.0935	0.000	FundObj1	0.0001	0.942	FundObj1	-0.0933	0.000
FundObj2	-0.0812	0.000	FundObj2	0.0002	0.942	FundObj2	-0.0810	0.000
FundObj3	-0.0717	0.003	FundObj3	0.0001	0.942	FundObj3	-0.0716	0.003
FundObj4	-0.1474	0.000	FundObj4	0.0001	0.942	FundObj4	-0.1473	0.000
LogSize	0.0300	0.000	LogSize			LogSize	0.0300	0.000
Time	0.0041	0.027	Time			Time	0.0041	0.027

Panel C: The Effect of Board Structure on Director Ownership

DirOwn			DirOwn			DirOwn		
BSize	0.0315	0.000				BSize	0.0315	0.000
IndDir	0.7487	0.000				IndDir	0.7487	0.000
AudComm	-0.1141	0.026				AudComm	-0.1141	0.026
InvComm	-0.1837	0.000				InvComm	-0.1837	0.000
DirFn	-0.0157	0.000				DirFn	-0.0157	0.000
DirTn	0.0045	0.000				DirTn	0.0045	0.000
FinDir	0.1486	0.052				FinDir	0.1486	0.052
ProfDir	-0.1144	0.020				ProfDir	-0.1144	0.020
FundObj1	0.0420	0.092				FundObj1	0.0420	0.092
FundObj2	0.0766	0.002				FundObj2	0.0766	0.002
FundObj3	0.0385	0.129				FundObj3	0.0385	0.129
FundObj4	0.0245	0.323				FundObj4	0.0245	0.323

Note: This table provides summary of direct, indirect, and total effects from SEM of The effect of board structure on mutual fund fees for the sample of 48 funds from (2007-2013).

Table (6)
Structural Equation Model Fit Measure Assessment

Model A		
Fit Statistics	**Value**	**Description**
Likelihood ratio		
chi2_ms	0.277	model vs. saturated
p > chi2	0.964	
chi2_bs	2171.258	baseline vs. saturated
p > chi2	0.000	
Population error		
RMSEA	0.000	Root mean squared error of approximation
90% CI, lower bound	0.000	
upper bound	.	
Pclose	0.994	Probability RMSEA <= 0.05
Information criteria		
AIC	5716.551	Akaike's information criterion
BIC	5931.598	Bayesian information criterion
Baseline comparison		
CFI	1.000	Comparative fit index
TLI	1.021	Tucker-Lewis index
Size of residuals		
SRMR	0.000	Standardized root mean squared residual
CD	0.986	Coefficient of determination

Note: This table provides summary of goodness of fit index.

Table (7)
Summary of (R-squared)

Model A

Dep vars	Fitted	Variance predicted	Residual	**R-squared**	Mc	mc2
Observed						
ExpRatio	0.005007	0.001185	0.003822	0.236615	0.486431	0.236615
CGQ	0.031967	0.026919	0.005048	0.842092	0.917656	0.842092
DirOwn	0.052738	0.046996	0.005742	0.891122	0.943993	0.891122
Overall				0.985987		

mc = correlation between Dep vars and its prediction

mc2 = mc^2 is the Bentler-Raykov squared multiple correlation coefficient