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Shock Dependence and Volatility Transmission Between Crude Oil and Stock Markets: Evidence from Pakistan

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Abstract

This paper investigates shock dependence and volatility transmission between the crude oil and equity markets, based on crude oil returns and stock index returns for the period 2 January 2009 to 27 January 2014. We employ the bivariate BEKK-GARCH (1, 1) model developed by Engle and Kroner (1995) as well as the Engle and Granger (1987) cointegration and unit root tests. These parameterization tools are more flexible and innovative than other specifications, which often give counter-intuitive results. The results of the cointegration test reject the notion of a long-run relationship between the crude oil market and stock market. The results of the BEKK-GARCH model suggest that shocks and volatility created in the oil market have a significant effect on the Pakistan Stock Exchange. They also reveal bidirectional shock persistence and a unidirectional volatility spillover between crude oil prices and Pakistani equity prices. These empirical findings can help predict price movements in each market efficiently. The empirical results are also important for policymakers involved in shock prevention and for portfolio managers seeking optimal portfolio allocation.

Keywords: Shock dependence, volatility transmission, BEKK-GARCH.

JEL classification: C22, C32, G17.

1. Introduction

The crude oil and stock markets have a long-established relationship, given that almost all production-intensive economies depend heavily on oil as a source of energy. This dependency means that shocks to and volatility in the oil market can present severe challenges to industrial output. Fluctuations in the price of oil are transmitted to other markets through various channels. Changes in oil prices create inflationary pressure in the economy by making consumer goods more expensive. This leads to a decline in industrial production, causing stock

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prices to fall (see Mork, 1994; Sadorsky, 1999; Lee & Ni, 2002; Hamilton & Herrera, 2004; Cunado & de Gracia, 2005; Kilian, 2008; Cologni & Manera, 2008; Park & Ratti, 2008).

While several channels link these two markets, the most common is the financial channel. Based on the present value pricing method, the price of any security is the present value of its future earnings discounted at the appropriate rate of return. A surge in oil prices will increase manufacturing costs and subsequently reduce the company's cash flows. Understanding the volatility of the linkages between the global oil and equity markets can help investors assess risk better and select optimal portfolios, thereby allowing resources to be allocated more efficiently. The bulk of the literature in this area focuses on developing as well as developed countries. Several studies investigate dynamic linkages in the context of oil-exporting and oil-importing countries, but very few look at production economies in South Asia, which depend heavily on oil.

This paper uses the BEKK-GARCH model and cointegration test developed by Engle and Granger (1987) to examine the long-term relationship between global oil and equity markets in the context of Pakistan. The BEKK-GARCH model gauges shock dependence and volatility spillovers between both markets. Our empirical results do not confirm the existence of long-term drift components between the equity market and global crude oil market. The results of the multivariate BEKK-GARCH model point to bidirectional shock dependence and unidirectional volatility spillovers between the equity and Brent crude oil markets. The results also suggest that a shock to the oil market has a negative effect on the stock market. This is not counter-intuitive, given the structure of Pakistan's economy in which the energy and financial sectors are key to the country's GDP.

This study adds to the literature in several ways. First, its empirical results may be useful to practitioners and academics investigating shock dependence and volatility in the international crude oil and domestic equity markets. Second, using the BEKK-GARCH framework ensures that the conditional variance-covariance matrix remains semi-positive definite. Third, its flexible parameterization enables the variance-covariance matrix (which estimates the model's time-varying coefficients) to behave stochastically (Engle & Kroner, 1995).

Section 2 presents a review of the literature. Section 3 describes the data and methodology used. Section 4 provides an empirical analysis. Section 5 presents some policy implications. Section 6 concludes the study.

2. Literature Review

The interaction between the crude oil and stock markets has attracted attention among policymakers and portfolio managers, given the recent indeterminate surges in the oil market. As Adelman (1993) says, "Oil is so significant in the international economy that forecasts of economic growth are routinely qualified with the caveat: 'Provided there is no oil shock'." Jones and Kaul (1996) investigate the effect of oil price volatility on equity market returns, using data for the US, UK, Japan and Canada. They find that any uncertainty in the price of oil leads to a significant reduction in equity returns. Ciner (2001) employs both linear and nonlinear tests to explore market behavior in the presence of oil market volatility and points to a nonlinear association between oil futures prices and equity prices.

Hammoudeh and Aleisa (2004) study the oil-exporting states of Mexico, Bahrain, Venezuela and Indonesia. They find that a volatility spillover mechanism exists between the oil and stock markets. Killian and Park (2009) show that a positive surge in oil prices driven by precautionary demand creates future concerns about the supply of oil and has a negative effect on stock returns. Driesprong, Jacobsen and Maat (2008) also find a strong link between oil market volatility and equity returns.

Several studies use vector autoregressive models to examine volatility diffusion between the oil and equity markets. Kaneko and Lee (1995) find that oil price shocks largely explain the variations in Japanese equity index returns. Huang, Masulis and Stoll (1996) find that oil price futures have a significant spillover effect on individual firms' security returns, but leave aggregate market portfolio returns unaffected. They also indicate that oil future returns determine equity prices in the petroleum industry. Sadorsky (1999) shows that a positive change in oil prices has a negative effect on real stock returns, such that oil shocks account for the variation in stock prices.

Using the impulse-response test, Papapetrou (2001) shows that an upward change in oil prices leads to decreasing returns in the Greek stock market, such that oil price shocks are a significant factor in stock price variations. Lee and Ni (2002) find that oil price changes reduce the supply

of industries for which oil constitutes a large share of the cost, such as the petroleum refinery sector and industrial chemicals. In contrast, oil price shocks tend to reduce demand in the automobile sector. Park and Ratti (2008) analyze the impact of oil price shocks and the volatility of stock returns in the US and 13 European markets. They suggest that oil price shocks have a significant impact on real stock returns across all these markets. Looking at 22 emerging economies, Maghyereh (2004) finds no statistically significant evidence of oil price shocks being transmitted to stock returns. Basher and Sadorsky (2006), however, present strong evidence of oil price shocks affecting stock prices in emerging markets.

Faff and Brailsford (1999) find a positive and significant association between oil prices and different industrial sectors, specifically oil and gas. However, their results do not support this relationship for the packaging, banking and transport sectors. The study also investigates the impact of oil price volatility on real cash earnings. Sadorsky (2001) uses a multifactor model and finds a positive association between oil prices and oil and gas returns in Canada. Boyer and Filion (2004) present similar results for the energy sector and stock market. In a study of oil-intensive industries, Hammoudeh and Li (2005) find that uncertainty in the oil market has a negative effect on the US equity market. Nandha and Faff (2008) use global industry indices to gauge the impact of oil price movements on equity returns. Their empirical work suggests a negative relationship between oil price shocks and equity returns in almost all industries, barring oil and gas and mining.

3. Dataset and Methodology

The study uses weekly data on the KSE-100 index – the benchmark index of the Pakistan Stock Exchange (PSX) – and Brent oil prices (measuring world oil prices)[1] for the period 5 January 2009 to 27 January 2014. Arouri and Nguyen (2010) recommend using weekly data because it is less noisy and able to capture fresh information on the oil and equity markets. We calculate the continuously compounded returns of both series to resolve any data nonstationarity. Extending the univariate GARCH framework to a multidimensional dynamic model means estimating variance and covariance equations for each series. To develop a conditional variance-covariance matrix, we define the mean equations for the oil and stock market returns series as follows:

[1] Available from https://finance.yahoo.com/ and http://www.eia.gov/, respectively.

$$r_s = \mu_s + \varphi_s r_{s-1} + \varepsilon_s \quad (1)$$

$$r_o = \mu_o + \varphi_o r_{o-1} + \varepsilon_o \quad (2)$$

where r_s and r_o are vectors of appropriately definite returns for the oil and stock market series, respectively, and r_{s-1} and r_{o-1} are the autoregressive coefficients in the conditional mean equations for stock market returns and oil market returns. The long-term drift coefficients are denoted by μ_s and μ_o, respectively, along with the residual terms ε_s and ε_o.

Engle and Kroner's (1995) bivariate BEKK model is used to estimate the conditional variance matrix. This model detects the transmission and persistence of volatility in different series and incorporates quadratic forms in such a way as to ensure that the conditional variance-covariance matrix remains nonnegative. The variance-covariance function for unrestricted BEKK parametrization is:

$$H_t = C'C + A'\varepsilon_{t-1}\varepsilon'_{t-1}A + B'H_{t-1}B \quad (3)$$

where the individual elements for matrices C, A and B are:

$$A = \begin{bmatrix} \beta_{o,t} & \beta_{os,t} \\ \beta_{so,t} & \beta_{s,t} \end{bmatrix} B = \begin{bmatrix} \delta_{o,t} & \delta_{os,t} \\ \delta_{so,t} & \delta_{s,t} \end{bmatrix} C = \begin{bmatrix} \alpha_{o,t} & \alpha_{so,t} \\ 0 & \alpha_{s,t} \end{bmatrix}$$

where H_t is the parametrization of the conditional variance-covariance matrix. C is an upper triangular matrix of parameters and B is a (2 x 2) coefficient matrix that indicates the transmission effect to the extent that the current conditional variance is a function of the lagged conditional variance between the series. A is a (2 x 2) matrix that represents the shock dependence parameters and measures the extent to which past price behavior is a function of the conditional variance. In this case, the total number of estimated parameters is 11.

Expanding the conditional variance for each equation in the bivariate GARCH (1, 1) model yields:

$$h_o^2 = c_o + \beta_o^2\varepsilon_{o-1}^2 + 2\beta_o\beta_{so}\varepsilon_{s-1}\varepsilon_{o-1} + \beta_{so}^2\varepsilon_{s-1}^2 + \delta_o^2 h_{o-1}^2 + 2\delta_o\delta_{so}h_{so-1} + \delta_{so}^2 h_{s-1}^2 \quad (4)$$

$$h_{so} = c_{so} + \beta_s\beta_o\varepsilon_{s-1}^2 + (\beta_{os}\beta_{so} + \beta_s\beta_o)\varepsilon_{s-1}\varepsilon_{o-1} + \beta_{os}\beta_o\varepsilon_{o-1}^2 + \delta_s\delta_o h_{s-1}^2 + (\delta_{os}\delta_{so} + \delta_s\delta_o)h_{so-1} + \delta_{os}\delta_o h_{s-1}^2 \quad (5)$$

$$h_s^2 = c_s + \beta_o^2 \varepsilon_{o-1}^2 + 2\beta_o \beta_{so} \varepsilon_{s-1} \varepsilon_{o-1} + \beta_{so}^2 \varepsilon_{s-1}^2 + \delta_o^2 h_{o-1}^2 + 2\delta_o \delta_{so} h_{so-1} + \delta_{so}^2 h_{s-1}^2 \quad (6)$$

The maximum likelihood function assuming conditional normality is used to estimate the parameters of the bivariate BEKK-GARCH model as follows:

$$Max\ logL_T(\theta) = \sum_{t=1}^{T} l_t(\theta) \quad (7)$$

$$l_t(\theta) = -\frac{TN}{2} log(2\pi) - \frac{1}{2} \sum_{t=1}^{T} (log|H_t| + e_t' H_t^{-1} e_t) \quad (8)$$

where θindicates all the unknown coefficients to be computed, N denotes the number of series and T is the number of observations.

4. Empirical Analysis

Table 1 presents the descriptive statistics for the natural log series of KSE-100 and Brent oil returns. The mean weekly return for the KSE-100 index is 0.45 percent and in annual terms is 23.46 percent. The maximum weekly return for the PSX during the study period is 20.02 percent, whereas the weekly loss is 11.91 percent. The weekly Brent oil returns vary at around 0.63 percent. The percentage deviation in oil prices ranges between –11.16 and 10.96 percent. However, significant volatility is observed in the stock returns and Brent oil prices for this period. The kurtosis values indicate that both change series are leptokurtic.

Table 1: Descriptive statistics

	Returns, KSE-100	Returns, Brent oil
Mean	0.004465	0.006327
Median	0.003124	0.007689
Maximum	0.200204	0.109625
Minimum	-0.119125	-0.111669
Standard deviation	0.037491	0.028213
Skewness	0.673113	-0.411420
Kurtosis	6.742407	6.056331
Jarque–Bera test	159.497500	101.017100
Probability	0.000000	0.000000
Observations	242	242

Source: Authors' calculations.

4.1. Unit Root Test

We use the augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) tests to determine the stationarity of the series. Time series data generally has a unit root, implying that the data is not stationary. In such a situation, ordinary least squares yield nonsense results. Granger and Newbold (1974) refer to such estimations as 'spurious regressions', which yield high R2 values and high t-ratios. To avoid this, we apply the unit root test to check the stationarity of the data and finalize which methodology to use. Subsequently, we assess the presence of a long-run equilibrium between stock returns and oil returns, using Engle and Granger's (1987) two-step cointegration technique, which is simpler than the Johansen cointegration test. Tables 2 and 3 give the results of the unit root test and cointegration test, respectively, for both series.

Table 2: Unit root test results

	ADF (level)	ADF (first diff)	PP (level)	PP (first diff)
KSE-100	1.997215	-12.99211	1.88999	-12.87830
Brent oil	-2.358018	-12.92808	-2.15295	-12.72480
1% critical value	-3.457400	-3.45751	-3.45740	-3.45751
5% critical value	-2.873339	-2.87339	-2.87333	-2.87339
10% critical value	-2.573133	-2.57316	-2.57313	-2.57316

Source: Authors' calculations.

The ADF test statistic is 1.997215 (p = 0.1549) for the KSE-100 variable and statistically insignificant. Thus, we accept the null hypothesis of a unit root in this case. However, the series is stationary at first difference under both tests. Similarly, the ADF and PP test results for the Brent oil prices variable indicate that the series is nonstationary at level, but stationary at first difference.

4.2. Cointegration Test

Table 3 gives the results of the cointegration test. The tau-statistics and normalized autocorrelation coefficients both imply that we can accept the null hypothesis of no cointegration at the 1 percent level.

Table 3: Cointegration test results

	Tau statistic	Probability	Z statistic	Probability
LKSE-100	-0.598675	0.95430	-1.946330	0.93370
LBrent oil	-1.992605	0.53290	-7.402485	0.53610

Source: Authors' calculations.

This implies that the Brent oil market is not cointegrated with the Pakistan stock market and thus there is no long-run relationship between the two. These findings are consistent with Hasan and Nasir (2008).

4.3. Bivariate BEKK-GARCH (1, 1) Model

Table 4 gives the parameter estimates of the bivariate BEKK-GARCH model for the equity market and Brent oil price returns. Panel A gives the conditional mean estimates and Panel B shows the conditional variance-covariance estimates of the market index and oil price returns series. The parameters of the conditional variance-covariance matrix gauge the extent of volatility transmission from one series to the other.

The results of the conditional mean equation show that one-period-lagged index returns (denoted by ϕ_{KSE}) do not explain the significant variation in current index returns. The insignificant value of the autoregressive coefficient ϕ_{KSE} is consistent with the efficient markets hypothesis. On the other hand, the coefficient of the constant term is significant for the KSE-100 index returns. For the oil prices returns, the coefficients of the autoregressive and constant terms are both insignificant.

The ARCH and GARCH coefficient estimates, which capture shock dependence and volatility persistence in the conditional variance equations, are statistically significant at conventional levels. For the index returns data, shock dependence in the preceding period and volatility are highly persistent and the coefficients are highly significant. The coefficients β_s and δ_s are positive, which indicates that both will increase the conditional volatility of the index returns. Moreover, the large value of δ_s suggests that the conditional volatility of the stock index returns fluctuates gradually over time.

Table 4: Bivariate BEKK-GARCH (1, 1) parameter estimates

Variable	Coefficient	Standard error	t stat	Significance
Panel A				
Conditional mean estimates (KSE-100 – Brent oil prices)				
μ_{KSE}	0.211942774	0.079097286	2.67952	0.00737278
ϕ_{KSE}	0.104903333	0.071592189	1.46529	0.14284176
μ_{oil}	-0.04958556	0.043185330	-1.14820	0.25088445
ϕ_{oil}	0.068105122	0.053980816	1.26165	0.20707325
Panel B				
Conditional variance-covariance estimates (KSE-100 – Brent oil prices)				
α_s	1.349109959	0.217609744	6.19968	0.00000000*
α_{so}	0.422340623	0.246163601	1.71569	0.08621865***
α_o	0.000106662	0.145519574	7.32974e-004	0.99941517
β_s	0.491313965	0.083054905	5.91553	0.00000000*
β_{so}	0.274156901	0.096128488	2.85198	0.00434473*
β_{os}	-0.183610915	0.103245949	-1.77838	0.07534085***
β_o	-0.025827558	0.065268336	-0.39571	0.69231644
δ_s	0.709901787	0.082511546	8.60367	0.00000000*
δ_{so}	-0.018120117	0.068148849	-0.26589	0.79032371
δ_{os}	-0.086747202	0.035787650	-2.42394	0.01535304**
δ_o	0.968350020	0.018125449	53.42488	0.00000000*

Note: * = significant at 0.01, ** = significant at 0.05, *** = significant at 0.1.
Source: Authors' calculations.

Our results show that the conditional volatility of the stock market is influenced by shocks to the oil market. The coefficient of oil price shocks toward the stock market β_{os} is statistically significant at the 10 percent level. This is not counterintuitive, given the structure of Pakistan's economy in which the energy and financial sectors contribute significantly to GDP. In addition, it is evident that oil market volatility in the previous period affects current stock market volatility. The coefficient of volatility transmission δ_{os} is statistically significant and negative.

Volatility spillovers between oil prices and the stock market are theoretically justified for two reasons in the context of Pakistan. The bulk of the PSX comprises oil and gas and manufacturing. The future cash flows of these sectors depend heavily on the price of oil: if oil prices become volatile, so do the sectors' earnings. Thus, volatility in the oil market is transmitted to the stock market through this channel. Moreover, as an oil-

importing country, Pakistan faces a current account deficit every year. As a key input in industry and transportation, oil prices influence consumers as well as monetary policy, thus affecting the country's financial indicators.

Unexpectedly, the shock transmission coefficient from the stock market to the oil market β_{so} is statistically significant. This indicates that a shock to the stock market will affect the volatility of the oil market significantly. This result opens new avenues for research investigating the bidirectional nature of shock dependence in the context of Pakistan. However, there are unidirectional volatility spillovers between the oil and stock markets. Irrespective of the direction of shock transmission, our findings are consistent with other studies, which indicate strong spillovers and dependence from the oil market toward the stock market. It is important to note that the data used includes several turbulent periods in which markets behaved abnormally, in which case systemic factors might also account for the biased dependence and spillover from the oil market to the stock market.

5. Policy Implications

Since the oil crisis of 1973, oil price fluctuations have been studied carefully by researchers and policymakers to gauge their impact on different economic activities. Given their dependence on oil, most sectors listed on the PSX are recipients of any freefall in oil prices. Thus, policymakers and portfolio managers need to predict price movements and transmission mechanisms in both series to formulate effective policies and hedging strategies.

The results indicate that any shock to the oil market will make the stock market more volatile. Investors will demand higher compensation in periods of higher volatility. Thus, policymakers, financial analysts and shareholders must consider international and domestic oil price changes when making financial decisions.

The results for volatility spillover suggest that the oil and stock markets are interdependent and negatively correlated with each other. A decline in oil prices will reduce the country's oil imports bill, which constitutes 30 percent of total imports. This will help reduce subsidies and the circular debt. A fall in oil prices is also an opportunity to undertake serious fuel pricing and taxation, resulting in a stronger fiscal balance and creating space for other priority expenditures and/or cutting distortionary taxes, thereby boosting growth reforms.

6. Conclusion

This study examines the shock dependence and volatility spillover between oil prices and stock returns. To do so, it applies the unit root test to check the stationarity of the data for stock returns and oil prices. The results show that all the data series are nonstationary I(0) and integrated of order one I(1). Next, we apply Engle and Granger's (1987) methodology to test the possibility of a long-run relationship between the two time series. The results show that there is no cointegrating relationship between stock returns and oil prices.

We employ the multivariate BEKK-GARCH model to capture volatility transmission between the stock and oil markets for the period January 2001 to January 2014. The results suggest that a shock originating in the oil market will have a negative effect on the stock market. This is not counterintuitive, given the structure of Pakistan's economy in which the energy and financial sectors account for a significant share of GDP. It also proves that oil market volatility in the previous period affects current stock market volatility.

The coefficient of volatility transmission δ_{os} is statistically significant and negative. The volatility spillover between oil prices and the stock market is empirically justified for two reasons. First, the bulk of the PSX comprises oil and gas and manufacturing firms, whose future cash flows depend heavily on oil prices. Thus, volatile oil prices (the oil market) will lead to volatile earnings (the stock market) through this channel. Second, Pakistan is an oil-importing country, which causes a current account deficit every year.

Surprisingly, the shock dependence parameter β_{so} is statistically significant in the conditional variance-covariance equation. The coefficient indicates that a shock to the stock market will affect the volatility of the oil market significantly. This opens new avenues for research investigating the bidirectional nature of shock dependence in the context of the Pakistani market. While these findings indicate bidirectional shock dependence between the oil and stock markets, the volatility spillover between the two is unidirectional. Irrespective of the direction of shock transmission, our findings are consistent with other studies indicating strong spillover and dependence from the oil market toward the stock market.

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The Effect of IAS-24 Disclosures on Governance Mechanisms and Ownership Structures in Pakistan

Abdul Rafay[*], Ramla Sadiq[**] and Mobeen Ajmal[***]

Abstract

IAS-24 of the International Financial Reporting Standards focuses on the concept and disclosures of related party transactions (RPTs) for a reporting entity. This study examines the interrelationship between RPTs (as disclosed under IAS-24), agency theory, ownership structures and firm performance. Our sample includes nonfinancial companies indexed by the KSE-100 of the Pakistan Stock Exchange during 2006–15. To run the regression models, we determine the regression assumptions, normality, heteroskedasticity, autocorrelation and multicollinearity. We investigate the impact of different RPTs, including cash inflows and outflows, whereas other studies generally look at the impact of RPTs on firm performance in totality. The empirical analysis suggests that institutional ownership has a positive, significant impact on firm performance. Related party purchases have a significant, negative impact on performance, resulting in the expropriation of institutional ownership. RPTs that generate revenues have a significant, positive impact on performance, such that institutional ownership has a propping-up effect with respect to the related parties. In practice, institutional ownership leads to strong corporate governance and contributes to firm performance. While other studies find family ownership responsible for the expropriation effect, we argue that institutional ownership has a propping-up and expropriation effect on related parties. Our study also suggests that certain ownership structures lead to weaker corporate governance mechanisms, resulting in greater agency problems. This, in turn, badly affects company performance and leads to the exploitation of minority shareholders.

Keywords: IAS-24, IFRS, related party transactions, ownership structures, conflict of interest, governance.

JEL classification: M40, M41, M49.

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1. Introduction

IAS-24 of the International Financial Reporting Standards (IFRS) defines a related party as a person or entity that is related to the reporting entity preparing its financial statements (see Appendix). A related party transaction (RPT) is the transfer of resources, services or obligations between related parties, regardless of whether a price is charged. A thorough study of RPTs is essential to understand their relationship with corporate performance, which is linked directly to corporate governance mechanisms.

In the long run, the connection between ownership structure, RPTs and performance affects company valuation for prospective investors. This interrelationship needs some investigation because the empirical results show that RPTs lead to efficiency and opportunism (see Cheung, Rau & Stouraitis, 2006; Jian & Wong, 2010; Kohlbeck & Mayhew, 2004; Bertrand, Mehta & Mullainathan, 2000). RPT disclosure is, therefore, mandatory in financial statements under IAS-24 (see Appendix). These disclosures allow investors to determine the level of interaction between related parties.

The emerging market crisis of 1997/98 showed that ownership structures were fundamental to rerouting cash resources (Jian & Wong, 2010). Johnson et al. (2000) indicate that controlling stakeholders benefit from asset sales or purchases in the European market. Thus, it becomes necessary to determine the impact of these transactions on firms' financial performance, drawing on earlier studies that examine the incentives underlying corporate decisions to pursue certain types of RPTs (Watts & Zimmerman, 1986). Several studies show how the volume of RPTs affects earnings management (see DeAngelo, 1988; Jones, 1991; Teoh, Welch & Wong, 1998a, 1998b) and review its implications for accounting standard setters and regulators (see Healy & Wahlen, 1999).

While much of the literature looks at the impact of RPTs on company performance in totality, few studies focus on the impact of different types of RPTs, including cash inflows and outflows. The aims of this study are to determine (i) the impact of different types of operational RPTs on firm performance and (ii) if corporate governance mechanisms enhance organizational performance and mitigate agency problems in companies engaged in extensive RPTs. Most studies in this area focus on developed markets, with little or no attention paid to developing markets.

Our sample consists of nonfinancial companies indexed by the KSE-100 on the Pakistan Stock Exchange.[1]

Our primary research questions are:

- Do RPTs have a significant impact on organizational performance?
- Does ownership structure affect organizational performance?
- Do RPTs affect organizational performance when isolated from ownership structures?

2. Literature Review

There are two fundamental results of any RPT: the creation of wealth and the destruction of wealth. The creation of wealth through an RPT is considered an efficient transaction because it indicates that the organization has received a better price against a transaction under firm-specific conditions. Most often, this implies that the parent company can protect the transactions carried out with a subsidiary, transferring some benefits and resources to the firm, which may not have been possible under normal market conditions. As a result, the subsidiary's profitability rises.

The destruction of wealth through an RPT is considered an opportunistic transaction, indicating that the firm's managers place their own interests before those of the firm and the goal of shareholder wealth maximization. This can result in transaction losses, which may not have occurred under normal market conditions. In extreme cases, it may also indicate that the services rendered and assets or financing provided are not charged any price at all, thus resulting in exploitation (Gordon, Henry & Palia, 2004).

2.1. RPTs and Minority Shareholders

Shleifer (2000) argues that RPTs are used to divert resources from the corporation to majority shareholders. This is considered an opportunistic transaction and takes place under specific ownership structures. Examples include, but are not limited to, transfer pricing that favors shareholders, the transfer of assets to controlling shareholders at nonmarket prices and the use of assets as collateral for loans. When a firm is involved in such transactions through a parent company, partnership or

[1] Formerly known as the Karachi Stock Exchange.

joint venture, it reaps benefits that would not have come about under fair market conditions.

RPTs involve the transfer of an advantage from the company to its majority shareholders, sometimes at the expense of minority shareholders (Friedman, Johnson & Mitton, 2003). They can be used to relocate wealth or capital from the company to the controlling managers and executives, thereby putting minority shareholders at a disadvantage (La Porta et al., 2000). In the case of China, Jian and Wong (2010) find that resources are diverted through RPTs in approximately 90 percent of listed firms.

The firm's ownership structure plays a significant role in the degree of exploitation (Jensen & Meckling, 1976). When investors understand how minority shareholders can be exploited in this way, the average investor is likely to assign a lower market value to firms that employ RPTs (Jian & Wong, 2010; Cheung et al., 2009). Cheung et al. (2006) point to the greater likelihood of negative returns as well as lower abnormal returns when internal mechanisms are used to exploit the firm's resources, ultimately harming its minority shareholders.

2.2. RPTs, Agency Theory and Ownership Structures

While ownership structures play a significant role in efficient RPTs, agency theory implies that, in the absence of oversight, executives have a chance to expropriate the firm's funds, leading to a fundamental conflict of interest. Maury (2006) identifies two forms of agency conflict:

- Type I: Classic principal–agent conflict between the firm's owner and manager
- Type II: Conflict between the firm's controlling family and manager.

Type I agency conflicts do not arise in family-owned organizations, which tend to have strong mechanisms in place to monitor firm managers. Family-owned firms are also characterized by better incentive packages for managers. Organizations with high levels of family ownership are more likely to face expropriation due to RPTs (Morck & Yeung, 2003), which ultimately benefit the controlling family (Gordon et al., 2007; Louwers et al., 2008). The traditional type I agency problem is thus associated with institutional, rather than family, ownership.

When RPTs are used to help firms in financial distress, the pattern of shareholding in group companies determines the extent of the agency

problem. Riyanto and Toolsema (2008) argue that a group company's decision to use RPTs to support subordinate firms benefits the former. Berle and Means (1991) and Jensen and Meckling (1976) find that arm's-length transactions create a conflict between agent and owner.

Family-owned firms also face lower agency costs and are likely to have a better grasp of their particular business (Klein, 2002; Maury, 2006; Villalonga & Amit, 2006). This implies that such firms perform better in the context of RPTs (Anderson & Reeb, 2003; Villalonga & Amit, 2006; Maury, 2006; Siregar & Utama, 2008). This benefits minority shareholders because lower agency costs and better corporate governance practices increase the profitability of the firm (Larcker, Richardson & Tuna, 2007). A growing body of research focuses on the possible expropriation of funds by large shareholders (see, for example, Bae, Kang & Kim, 2002; Bebchuk, Kraakman & Triantis, 2000; Johnson et al., 2000). Most of these studies concentrate on the market valuation effects of ownership structures (see Bae et al., 2002; Claessens et al., 2002).

2.3. Efficient RPTs, Profitability and Earnings Management

Efficient RPTs are those that enable efficient resource use between holding companies and subsidiaries (Coase, 1937; Williamson, 1983). This refers to transactions that may not have occurred under general market conditions, but become possible with the additional resources and expertise provided by related parties. Such transactions are likely to lead to better performance and higher levels of profitability.

Although most studies analyze RPTs as a single, summarized variable, the indication of profitability makes it necessary to segregate the types of RPTs to determine which specific transactions are more efficient (Gordon et al., 2004). Jian and Wong (2010) find that Chinese companies engaged in RPTs support their associated companies by offering more trade credit and lending to related parties. The net effect is that of wealth maximization for shareholders due to better access to financing. Similarly, a study of S&P 500 companies finds that the incidence of borrowing from related parties is lowest, while that of loans to directors, executives and controlling owners is highest (Kohlbeck & Mayhew, 2004). Another study shows that controlling owners shift resources from organizations with high profits to those with lower cash flows to prop up firm performance (Jaggi, Leung & Gul, 2009).

Few studies have investigated RPTs as a means of earnings management and their impact on seasoned companies versus new issuers. Aharony, Wang and Yuan (2010) explain that RPTs enable companies to expropriate and increase their earnings prior to the initial public offering (IPO) period. However, this strategy results in post-IPO losses, indicating that RPTs have a negative impact on IPOs in the long term. In considering financial RPTs (those involving loans and loan markups), the research shows that companies tend to provide loans to their subsidiaries, in which scenario, holding companies perform poorly and have a greater likelihood of being delisted (Jiang, Lee & Yue, 2008).

Synergy and value maximization is important in emerging markets with capital constraints and prone to economic or financial instability. Small firms in emerging markets may face information asymmetries and inaccurate evaluations. Risk-averse investors tend to invest in large, stable firms that have, historically, performed well (Gopalan, Nanda & Seru, 2007; Shin & Park, 1999). Group affiliated corporations benefit from group membership when financial resources are shared with other member corporations (Chang & Hong, 2000). Equity investment and internal trade are widely used for cross-subsidization purposes (Khanna, 2000; Khanna & Palepu, 2000). This effectively indicates that RPTs can lead to value maximization in an otherwise unfavorable environment.

3. Research Methodology

The data for this study was drawn from the annual reports of 78 nonfinancial companies indexed by the Pakistan Stock Exchange's KSE-100 over the period 2006–15.

3.1. Variables

The return on total assets (ROA) is used to measure organizational performance – the dependent variable. ROA is the proportion of net income to the total book value of assets. In order to determine which type of RPT has the greatest impact on organizational performance, we select five operational RPT variables: two for related party inflows and three for related party outflows. These are constructed based on the prevalent transactions in the sample and in accordance with IAS-24 classification. Related party inflows include:

- Related party sales (*RpSale*): all sales of goods made to related parties.
- Related party revenues (*RpRev*): all services provided to related parties.

Related party outflows include:

- Related party donations (*RpDon*): donations made to an organization in which the directors or their immediate family members have any interest.
- Related party purchases (*RpPur*): all purchases of goods from related parties.
- Related party expenses (*RpExp*): all expenses incurred by services provided by related parties.

Four variables are used to determine the impact of ownership structure on RPTs. Each variable is calculated as the party's relevant proportion of ownership relative to total shares:

- Public shareholding (*ShInd*): shares held by the public / total shares.
- Institutional shareholding (*ShInst*): shares held by institutions / total shares.
- Executive and family shareholding (*ShDFam*): shares held by directors, executives and their family members / total shares.
- Associated companies' shareholding (*ShACo*): shares held by associated companies / total shares.

The four control variables include:

- Audit quality (*Aud*): a dummy variable equal to 1 when the company's external auditor is one of the Big Four, and 0 otherwise. This controls for basic corporate governance attributes.
- Board independence (*Inboard*): the ratio of independent directors to total directors, to control for basic corporate governance attributes.
- Leverage (*Lev*): the ratio of total debt to total assets, to control for the different leverage of companies.
- Company size (*Size*): the log of total assets, to control for the variation in company size.

3.2. Empirical Model

Running a simple ordinary least squares (OLS) regression requires checking for the associated assumptions of normality, heteroskedasticity, autocorrelation and multicollinearity. The OLS model is:

$$ROA_i = \propto_0 + \propto_1 Lev_{it} + \propto_2 Size_{it} + \propto_3 Aud_{it} + \propto_4 Inboard_{it} + \propto_5 ShInd_{it} + \propto_6 ShInst_{it} + \propto_6 ShDFam_{it} + \propto_6 ShACo_{it} + \beta_1 RpRev_{it} + \beta_2 RpSale_{it} + \beta_3 RpPur_{it} + \beta_4 RpExp_{it} + \beta_5 RpDon_{it} + \varepsilon_i$$

However, a two-stage least squares (2SLS) model is more appropriate because good corporate governance would deter organizations from using RPTs opportunistically or exploiting minority shareholders. Logically, poor corporate governance would foster an environment in which RPTs could be used by other organizations to benefit at the expense of the subject organization.

$$ROA_i = \propto_0 + \propto_1 Lev_{it} + \propto_2 Size_{it} + \propto_3 Aud_{it} + \propto_4 Inboard_{it} + \propto_5 ShInd_{it} + \propto_6 ShInst_{it} + \propto_6 ShDFam_{it} + \propto_6 ShACo_{it} + \varepsilon_i$$

The first equation attempts to determine which part of ROA is explained by corporate governance and shareholding patterns. Thus, stronger corporate governance and optimal, efficient shareholding patterns should explain a portion of the returns. The error term is the idiosyncratic portion that is not affected by good corporate governance practices and is referred to as noncorporate governance ROA or NROA. The second step is to regress the error (NROA) on the RPT variables:

$$NROA_i = \beta_0 + \beta_1 RpRev_{it} + \beta_2 RpSale_{it} + \beta_3 RpPur_{it} + \beta_4 RpExp_{it} + \beta_5 RpDon_{it} + \gamma_i$$

This step determines whether the portion of ROA that is not explained by good corporate governance practices is affected by RPTs. Thus, we would expect β_1 and β_2 to be positive and significant and β_3, β_4 and β_5 to be negative. This would explain how RPTs supersede the firm's corporate governance practices and positively or negatively affect the firm. If all the β_i variables are 0, this would indicate that the organization is not using RPTs to benefit from, or to support, any other organization. To account for heteroskedasticity, we use robust standard errors to correct the model's parameter estimates for heteroskedasticity.

4. Results

Table 1 gives the summary statistics for the variables of interest. Over the period of 10 years, organizations earned a return of 14.80 percent on average, with a standard deviation of 20.82 percent. To resolve the problem of scaling, the variables are expressed as logs or as percentages.

Table 1: Summary statistics

Variable	Observations	Mean	SD	Min	Max
ROA	3,516	14.80	20.82	-17.03	86.50
Size	3,516	15.74	1.78	12.32	17.84
Inboard	3,516	13.88	10.64	0.00	32.85
ShInd	3,516	23.62	19.44	1.89	65.12
ShInst	3,516	11.24	12.56	0.00	61.74
ShDFam	3,516	16.99	23.33	0.00	82.64
ShAco	3,516	39.42	31.98	0.00	88.25
RpRev	3,516	4.11	5.74	0.00	14.80
RpSales	3,516	6.56	5.65	0.00	19.36
RpPur	3,516	6.95	6.25	0.00	18.95
RpExp	3,516	6.88	5.62	0.00	18.99
RpDon	3,516	1.71	3.64	0.00	14.45

Source: Authors' calculations.

Table 2 captures the correlation among the variables. As expected, there is a high negative correlation between leverage and ROA, indicating an inverse relationship between leverage and firm performance. Organizations with higher levels of related party sales also have more related party purchases and similar operational RPTs. Firms with related party expenses tend to have higher levels of related party donations.

Table 2: Correlation results

Variable	ROA	Lev	Size	Aud	Inboard	ShInd	ShInst	ShDFam	ShAco	RpRev	RpSales	RpPur	RpExp	RpDon
ROA	1.00													
Lev	-0.47	1.00												
Size	0.38	-0.12	1.00											
Aud	0.25	-0.18	0.45	1.00										
Inboard	0.31	-0.33	0.31	0.32	1.00									
ShInd	-0.02	0.07	-0.22	-0.39	-0.18	1.00								
ShInst	0.01	0.05	0.18	0.17	0.13	-0.23	1.00							
ShDFam	-0.09	0.28	-0.05	-0.28	-0.53	0.24	-0.26	1.00						
ShAco	-0.01	-0.22	0.16	0.46	0.05	-0.59	-0.08	-0.54	1.00					
RpRev	0.22	-0.34	0.29	0.31	0.18	0.04	0.16	0.04	0.04	1.00				
RpSales	-0.19	-0.22	-0.16	-0.19	-0.26	0.05	-0.13	-0.06	0.38	0.33	1.00			
RpPur	-0.09	-0.26	0.28	0.27	-0.14	-0.25	-0.04	0.18	0.36	0.57	0.54	1.00		
RpExp	0.28	-0.14	0.17	0.02	0.08	0.18	0.01	0.00	-0.09	0.09	0.25	0.16	1.00	
RpDon	-0.02	-0.12	0.16	-0.29	0.03	0.36	-0.13	-0.08	-0.04	0.16	0.26	0.16	0.37	1.00

Source: Authors' calculations.

Table 3: VIF statistics

Variable	ShAco	ShDFam	RpPur	RpSales	Aud	Inboard	RpRev	Size	RpDon	Lev	ShInst	RpExp	ShInd	Mean VIF
VIF	3.880	3.670	3.150	2.660	2.520	2.260	2.550	1.740	1.550	1.520	1.400	1.390	1.180	2.190
1/VIF	0.268	0.262	0.332	0.401	0.432	0.464	0.483	0.616	0.610	0.699	0.701	0.788	0.926	

Source: Authors' calculations.

The high correlations suggest there may be multicollinearity in the data and that we have added certain explanatory variables unnecessarily. However, the variance inflation factors (VIFs) in Table 3 are all less than 10, which means there is no multicollinearity in the independent variables. Table 4 gives the results of the simple OLS regression and shows that all the assumptions of linear regression hold. The Shapiro–Francia statistic suggests that the data is normal. The Durbin–Watson test shows there is no autocorrelation in the data. The Breusch–Pagan test confirms linear homoskedasticity and White's test establishes general homoskedasticity (see Gujarati, Porter & Gunasekar, 2009).

Table 4: Overall regression analysis

ROA	Coefficient	SE	T	P > t	[95% Conf.	interval]
Lev	-0.1492	0.0702	-2.1428	0.0425*	-0.2832	-0.0121
Size	0.0061	0.0975	0.0682	0.9526	-0.1923	0.2056
Aud	-0.0095	0.4326	-0.0229	0.9901	-0.8696	0.8562
Inboard	1.3294	1.8288	0.7269	0.4706	-2.3102	4.9582
ShInd	0.0001	0.0003	0.5720	0.5732	-0.0002	0.0005
ShInst	0.0419	0.0134	3.3263	0.0016*	0.0174	0.0656
ShDFam	0.0172	0.0121	1.4574	0.1511	-0.0065	0.0382
ShAco	0.0075	0.0083	0.7801	0.4623	-0.0092	0.0231
RpRev	0.0444	0.0210	2.1733	0.0326*	0.0045	0.0854
RpSales	0.0196	0.0396	0.4838	0.6425	-0.0586	0.0935
RpPur	-0.0536	0.0223	-2.4569	0.0171*	-0.0949	-0.0109
RpExp	0.0229	0.0290	0.7886	0.4625	-0.0336	0.0756
RpDon	-0.0367	0.0191	-2.0426	0.0503*	-0.0726	-0.0003
Constant	-0.6756	1.4039	-0.4826	0.6364	-3.4739	2.1162

Observations	3,516
R-squared	0.2572
Prob. > F	0.0495
Shapiro–Francia normality test	0.9671
	p = 0.066622
Durbin–Watson test	2.285
	p = 0.004601
Breusch–Pagan test	0.9102
	p = 0.3512
White's general test for heteroskedasticity	10.54
	p = 0.0699

Note: * = significant at 5% level.

Source: Authors' calculations.

The model predicts that leverage and institutional shareholding as well as related party revenues, purchases and donations have a significant impact on ROA. As expected, related party revenues have a positive effect on ROA, while donations and purchases have a negative impact on ROA. A 1 percent increase in related party revenues is expected to increase ROA by 4.44 percent, while a 1 percent increase in related party purchases will decrease ROA by 5.36 percent. This suggests that RPTs do affect returns. The positive impact of RPTs indicates efficient transactions, which is in accordance with the literature (see Coase, 1937; Williamson, 1983; Jian & Wong, 2010; Jaggi et al., 2009).

A 2SLS model is used to judge the effectiveness of corporate governance and shareholding structures on related party dynamics. Table 5 shows that two corporate governance variables affect firm performance. The larger the number of independent members of the board, the better the firm will perform.

Table 5: Regression analysis of corporate governance

ROA	Coefficient	SE	T	P > t	[95% Conf. interval]	
Lev	-0.162	0.064	-2.149	0.042*	-0.302	-0.013
Size	-0.027	0.095	-0.276	0.8.1	-0.215	0.161
Aud	0.126	0.362	0.323	0.769	-0.598	0.813
Inboard	1.921	0.619	3.056	0.004*	0.669	3.075
ShInd	0.000	0.000	0.322	0.777	0.000	0.000
ShInst	0.038	0.013	3.478	0.001*	0.018	0.072
ShDFam	0.012	0.009	1.396	0.184	-0.005	0.039
ShAco	0.003	0.008	0.357	0.764	-0.016	0.018
Constant	-0.173	1.264	-0.143	0.902	-2.684	2.333
Observations		107				
R-squared		0.1866				
Prob. > F		0.0371				

Source: Authors' calculations.

An increase in institutional shareholding affects firm performance positively. This indicates the propping-up effect of ownership structures on company performance, which contravenes the results of earlier research. Most other studies find that family ownership tends to lead to efficient transactions (see Anderson & Reeb, 2003; Villalonga & Amit, 2006; Maury, 2006; Riyanto & Toolsema, 2008; Siregar & Utama, 2008), while institutional ownership leads to opportunism (Bae et al., 2002; Bebchuk et al., 2000; Johnson et al., 2000).

Related party revenues and purchases are still significant in this model (Table 6). Donations are not significant, but expenses are significant at 10 percent. This shows that RPTs affect firm performance over and above the effect of a normal transaction. While donations were significant in the 1SLS model, they are no longer so in the 2SLS model. This finding is also unique to our study, especially considering the decomposition of the RPT variables. While RPT donations appear to be significant for the overall sample, isolating the impact of ownership structures renders the former insignificant.

Table 6: Regression analysis of performance and RPTs

NROA	Coefficient	SE	T	P > t	[95% Conf. interval]	
RpRev	0.192	0.075	2.744	0.008*	0.058	0.335
RpSales	-0.029	0.091	-0.245	0.824	-0.222	0.176
RpPur	-0.089	0.049	-2.436	0.019*	-0.186	-0.019
RpExp	0.131	0.072	1.892	0.069**	-0.009	0.260
RpDon	0.098	0.109	0.925	0.371	-0.116	0.321
Constant	-2.603	0.536	-4.932	0.000*	-3.665	-1.584
Observations		3,516				
R-squared		0.1544				
Prob. > F		0.0051				

Note: ** = significant at 10% level.
Source: Authors' calculations.

Similarly, board independence and institutional shareholding deter unnecessary donations to firms in which the directors hold an interest. However, this does not deter the purchase pattern in the sample companies, suggesting vertical integration. Transparent borders do not allow arm's-length transactions and thus have a negative impact on firm performance.

5. Conclusion

This study was conducted to investigate the interrelationship among RPTs, agency theory, ownership structures and firm performance. The empirical analysis reveals that institutional ownership has a positive, significant impact on organizational performance because it is associated with strong corporate governance practices.

While most other studies identify family ownership as the culprit in cases of expropriation, we argue that institutional ownership has a specific role to play, in which regard RPTs explain the variation or residual

effect. Related party purchases have a negative and significant impact on organizational performance, with an expropriation effect under institutional ownership on related parties. RPTs that generate revenues have a positive and significant impact on organizational performance, which props up the effect of institutional ownership on related parties.

The policy implications of this are relevant to company executives, policymakers and shareholders. The study shows that company executives can develop policies to prop up companies and enhance firm performance. This means that firms in emerging economies should focus on RPT revenues and RPT expenses with higher levels of institutional ownership. Policymakers should focus on the prevalence of expropriation in family-owned firms through RPT purchases. Limiting the volume or frequency of RPT purchases could help curtail the exploitation of minority shareholders. For investors, the study provides additional information that may help them determine if RPTs are likely to lead to expropriation. Specifically, investors should remain wary of family-owned firms characterized by a high volume of RPTs, which could result in smaller returns.

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Appendix

Who are related parties? (as per IAS-24 of the IFRS)[2]

A related party is a person or entity that is related to the entity preparing its financial statements (referred to as the 'reporting entity').

(a) A person or a close member of that person's family is related to a reporting entity if that person:

- Has control or joint control over the reporting entity
- Has significant influence over the reporting entity
- Is a member of the key management personnel of the reporting entity or of a parent of the reporting entity.

(b) An entity is related to a reporting entity if any of the following conditions applies:

- The entity and the reporting entity are members of the same group (which means that each parent, subsidiary and fellow subsidiary is related to the others).
- One entity is an associate or joint venture of the other entity (or an associate or joint venture of a member of a group of which the other entity is a member).
- Both entities are joint ventures of the same third party.
- One entity is a joint venture of a third entity and the other entity is an associate of the third entity.
- The entity is a post-employment defined benefit plan for the benefit of employees of either the reporting entity or an entity related to the reporting entity. If the reporting entity is itself such a plan, the sponsoring employers are also related to the reporting entity.
- The entity is controlled or jointly controlled by a person identified in (a).
- A person identified in (a)(i) has significant influence over the entity or is a member of the key management personnel of the entity (or of a parent of the entity).

[2] http://www.iasplus.com/en/standards/ias/ias24

- The entity, or any member of a group of which it is a part, provides key management personnel services to the reporting entity or to the parent of the reporting entity.

Who are not related parties? (as per IAS-24 of the IFRS)

The following are deemed not to be related:

- Two entities simply because they have a director or key manager in common.
- Two venturers who share joint control over a joint venture.
- Providers of finance, trade unions, public utilities, and departments and agencies of a government that does not control, jointly control or significantly influence the reporting entity, simply by virtue of their normal dealings with an entity (even though they may affect the freedom of action of an entity or participate in its decision-making process).

Disclosure required (as per IAS-24 of the IFRS)

Relationships between parents and subsidiaries

Regardless of whether there have been transactions between a parent and a subsidiary, an entity must disclose the name of its parent and, if different, the ultimate controlling party. If neither the entity's parent nor the ultimate controlling party produces financial statements available for public use, the name of the next most senior parent that does so must also be disclosed.

Management compensation

Disclose key management personnel compensation in total and for each of the following categories:

- Short-term employee benefits
- Post-employment benefits
- Other long-term benefits
- Termination benefits
- Share-based payment benefits

Key management personnel are those persons having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any directors (whether executive or otherwise) of the entity.

If an entity obtains key management personnel services from a management entity, the entity is not required to disclose the compensation paid or payable by the management entity to the management entity's employees or directors. Instead the entity discloses the amounts incurred by the entity for the provision of key management personnel services that are provided by the separate management entity.

Related party transactions

If there have been transactions between related parties, disclose the nature of the related party relationship as well as information about the transactions and outstanding balances necessary for an understanding of the potential effect of the relationship on the financial statements. These disclosures would be made separately for each category of related parties and would include:

- The amount of the transactions
- The amount of outstanding balances, including terms and conditions and guarantees
- Provisions for doubtful debts related to the amount of outstanding balances
- Expense recognized during the period in respect of bad or doubtful debts due from related parties.

Examples of the kinds of transactions that are disclosed if they are with a related party:

- Purchases or sales of goods
- Purchases or sales of property and other assets
- Rendering or receiving of services
- Leases
- Transfers of research and development
- Transfers under license agreements

- Transfers under finance arrangements (including loans and equity contributions in cash or in kind)
- Provision of guarantees or collateral
- Commitments to do something if a particular event occurs or does not occur in the future, including executory contracts (recognized and unrecognized)
- Settlement of liabilities on behalf of the entity or by the entity on behalf of another party.

A statement that related party transactions were made on terms equivalent to those that prevail in arm's-length transactions should be made only if such terms can be substantiated.

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The Impact of Perceived Supervisor Support on OCB: The Moderating Effect of Introversion

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Abstract

This study examines the extent to which introversion moderates the relationship between perceived supervisor support and organizational citizenship behavior (OCB). Based on a sample of 586 employees working in Pakistan's education sector, we find that introverts have a positive moderating effect on the indirect relationship between perceived supervisor support, work engagement and OCB. This suggests that supervisor support fosters work engagement and, in turn, OCB.

Keywords: Supervisor support, organizational citizenship behavior, personality, introversion.

JEL classification: M19.

1. Introduction

Supervisors are a key part of the management hierarchy and play an important role in monitoring and training employees. They are also responsible for mediating between senior management and operational employees (Lu & Lin, 2014). Thus, they serve as problem solvers, designing procedures and policies and developing the skills and competencies needed to improve the quality of employees' daily tasks (Azman et al., 2009).

Supervisors are also responsible for providing employees with professional support and resources for development, removing any obstacles to their work and offering feedback on the latter's work. Ismail et al. (2010) show that supervisors have a positive impact on employee

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performance: their role involves training and motivating employees to develop their skills and improve their job performance.

In this context, supervisor support refers to the extent to which supervisors value their employees' work and care about their wellbeing (Liaw, Chi & Chuang, 2010). In turn, employees know that supervisors are responsible for evaluating their performance and see supervisor support as an indication of organizational support (Rhoades & Eisenberger, 2002).

The literature demonstrates the positive outcomes of supervisor support, including greater job satisfaction, organizational commitment, better working relationships with other employees, a willingness to assume additional responsibilities and lower levels of job tension and work–family conflict (Rhoades & Eisenberger, 2002). Job satisfaction as a result of better supervisor support strongly affects turnover intention (Galletta et al., 2011). Moreover, employees with higher levels of supervisor support experience less job stress, role conflict and role ambiguity (Steinhardt et al., 2003).

Eisenberger et al. (2002) investigate the relationship between perceived supervisor support (PSS) and employee turnover, moderated by perceived organizational support (POS). They find that both PSS and POS have a significant positive effect on employee turnover. The relationship between PSS, affective commitment and performance is also positive, but with other variables affecting the relationship between supervisor support and performance (Soulen, 2003). Coworker support, for instance, is also important in motivating employees to innovate and engage with their work (Arora & Kamalanabhan, 2013).

While organizational citizenship behavior (OCB) is not a formal job requirement, nor is it formally rewarded or recognized, it has a positive impact on organizational performance (Emami et al., 2012). OCB may be reflected in performance appraisals when supervisors and coworkers are favorably rated. This, in turn, leads to lower turnover intention and enhances job satisfaction and employee productivity (Lapierre & Hackett, 2007). Certain, though not all, personality types are correlated with OCB. Effective leadership, the social environment and supervisor awareness are all factors that determine OCB in the workplace (Zhang, 2011). Higher levels of OCB induce employee loyalty at an emotional and cognitive level (Paillé & Grima, 2011).

Section 2 reviews the literature on the outcomes of PSS and the impact of this construct on work engagement (WE) and OCB. In Section 3,

we hypothesize that PSS has a positive effect on OCB through the mediating role of WE. The boundary condition applied here is that introversion can strengthen or weaken the latter. Section 4 describes the data and methodology used. Section 5 presents our findings and Section 6 discusses the results. Section 7 concludes the study, outlines its limitations and suggests future directions for research.

While many studies have looked at the relationship between PSS and OCB (see, for example, Chen & Chiu, 2008; Wang, 2014), very few have employed WE as a mediator. Chen and Chiu (2008) demonstrate that job satisfaction moderates the relationship between PSS and OCB, while Deniz, Noyan and Ertosun (2015) examine the relationship between person–organization fit and job stress. However, other variables too can affect the relationship between PSS and OCB. We seek to address this gap in the literature by using extraversion and introversion as moderators. Under social exchange theory, we argue that PSS induces WE and, in turn, leads to OCB.

2. Conceptual Background

Chen and Chiu (2008) demonstrate the relationship between PSS and OCB using two cognitive mechanisms (job satisfaction and person–organization fit) and one effective mechanism (job tension). Their results build on social exchange theory, which holds that supervisor support will lead to OCB through different cognitive mechanisms. The presence of PSS drives employees to reciprocate and maintain the social exchange between employee and organization. Supervisor support helps them recognize the extent to which they are well matched to the firm.

When PSS enhances job satisfaction, employees are more likely to engage in OCB. Job stress, on the other hand, will have a negative effect on OCB. Ismail et al. (2010) conclude that supervisor support in the form of training programs plays a key role in employee learning. A good supervisor will explain firm procedures, goals and tasks effectively, thereby motivating employees to learn new skills and perform better. Under expectancy theory, employees will only be motivated to carry out a certain task if they perceive its value in terms of a return.

Maertz et al. (2007) describe the relationship between PSS, POS and turnover intention, based on the theory of social exchange and reciprocity: employees who receive support from their organization and supervisor will feel obligated to the firm. PSS and POS induce many employee

outcomes, including OCB and job performance, and directly influence turnover. Here, PSS is a stronger determinant of turnover than POS.

Griffin, Patterson and West (2001) show that PSS has a greater impact in companies where employees do not work in teams. This does not imply, however, that supervisor support is not important in teamwork situations because it is still positively correlated with job satisfaction. A higher level of teamwork may have a negative impact on job satisfaction because employees who are given more autonomy – and thus more responsibility – find greater job satisfaction.

Bolino, Turnley and Bloodgood (2002) argue that OCB enhances firm performance because it creates social capital. Behaviors such as obedience, loyalty and functional participation create trust and identification among employees. This has a positive effect on cognitive behavior and produces a shared language. Thus, social capital mediates the positive relationship between OCB and organizational performance.

Kidd and Smewing (2001) show that greater trust and autonomy between supervisors and employees increase the latter's organizational commitment. They use gender as a moderating variable in this relationship and find that an increase in supervisor support is associated with higher organizational commitment in the case of female employees. The results for male employees are more complex: both high and low levels of supervisor support have a positive linear relationship with organizational commitment, while moderate levels of support are associated with decreasing organizational commitment.

Baloyi, van Waveren and Chan (2014) demonstrate that PSS acts as a mediator, but not a moderator, in the relationship between performance management systems and perceived job satisfaction. Employees who receive a positive performance management response attribute this to higher levels of supervisor support and report greater job satisfaction. Conversely, a poor performance management response is associated with lower levels of supervisor support and job dissatisfaction.

DeConinck and Johnson (2009) show that better supervisor support improves performance and reduces turnover among salespersons. They find that PSS and POS mediate the relationship between organizational justice and employee turnover. Calderón, Battistelli and Odoardi (2013) establish that WE is determined by PSS and by employees' participation in decision making (the extent to which employees feel their input is valued).

Kuvaas and Dysvik (2010) argue that perceived investment in employee development mediates the relationship between PSS and employee outcomes. Under the theory of organizational support and social exchange, employees who feel they are valued by their supervisors and organization reciprocate with better performance, greater effort, effective organizational commitment and low turnover intentions. Similarly, Byrne et al. (2012) demonstrate that PSS influences the relationship between organizational justice (informational and interpersonal) and the extent to which employees trust their supervisors' appraisal decisions.

Neves and Caetano (2009) show that PSS mediates the relationship between supervisor competence and commitment to change. Using organizational support theory, the authors explain that competent supervisors are perceived as being more supportive because they do not see their employees as a threat. Thus, supervisor competence has a positive relationship with both normative and effective commitment to change, but is negatively associated with continuance commitment to change. Bhatnagar (2014) uses a multilevel model to show that PSS has a positive impact on innovation. Stronger levels of supervisor support create mutual expectations of input and outcomes. Employees who perceive that their work is valued in the form of reward and recognition are more likely to display innovative behavior.

Barnard's (1938) theory of equilibrium supports the relationship between PSS and the psychological contract, which underlines the significance of a task. Rashid et al. (2012) show that supervisor support reduces work-related stress as well as family-versus-work conflict among employees. In turn, PSS has a significant, positive effect on job satisfaction. Paillé and Grima (2011) find that OCB is negatively related to an employee's intention to leave his/her current organization. In organizations that foster higher levels of OCB, employees are likely to prefer changing jobs within the same organization to leaving it altogether.

3. Hypothesis Development

This section draws on the literature supporting our hypotheses.

3.1. PSS and OCB

OCB is constructive behavior: employees choose to help their co-workers, which in turn benefits the company (Organ, 1997). Supervisors who value their employees' work and help them develop the skills and competencies needed to achieve the organization's goals create higher

levels of motivation and job satisfaction (Chen & Chiu, 2008; Foote & Tang, 2008; Podsakoff et al., 2000). This improves person–organization fit and OCB among employees (Liaw et al., 2010). It also creates mutual trust between supervisors and their employees (Organ, Podsakoff & MacKenzie, 2006) and reduces job stress (Brough & Pears, 2004). The social exchange relationship between supervisor and employee implies that higher levels of PSS induce OCB (Liu, Cho & Seo, 2011). Based on these studies, we hypothesize the following:

- H1: PSS has a positive impact on OCB.

3.2. PSS and WE

WE is characterized by vigor, dedication and absorption on the part of employees (Bakker & Demerouti, 2008). Supervisors who communicate with their employees effectively and help them organize their work, carry out their assigned tasks and develop their skills are more likely to generate self-confidence and motivation. This, in turn, is associated with higher levels of WE (Chughtai & Buckley, 2008). Olivier and Rothmann (2007) show that meaningfulness, safety and availability are prerequisites for creating conditions conducive to WE. Kular et al. (2008) argue that WE depends on whether employees' immediate supervisor practices 'servant leadership'. Based on these findings, we hypothesize the following:

- H2: PSS has a positive impact on WE.

3.3. WE and OCB

The literature shows that the more involved employees are in their work, the more likely they are to display intrinsic motivation and carry out tasks over and above their formal job requirements (Saks, 2006; Kataria, Garg & Rastogi, 2013; Ariani, 2013; Rich, Lepine & Crawford, 2010). Based on social exchange theory, OCB is an outcome of WE because such employees act on the principal of reciprocity. Thus, there is a positive relationship between WE and OCB (Ahmed, Rasheed & Jehanzeb, 2012). Schaufeli et al. (2002) describe WE as a positive work-related state of mind that enables employees to work harder because it involves new opportunities, information and experiences (Bakker & Demerouti, 2008). Based on these studies, we hypothesize the following:

- H3: WE has a positive impact on OCB.
- H4: WE mediates the relationship between PSS and OCB.

3.4. Introversion as a Moderator

In this context, we differentiate between introverts and extraverts based on their relative ability to feel engaged in their work, depending on the level of supervisor support. Most people are ambiverts: they will behave as either extraverts or introverts depending on the situation (Grant, 2013). Introverts are less likely to feel as engaged as extraverts when provided the same level of supervisor support (Atamanik, 2013). This gives rise to the following hypothesis:

- H5: When introversion is high, PSS has a weak, positive impact on WE.

Introverts are more likely to be engaged in their work, given that they are less sociable. The literature suggests that introversion is strongly related to OCB (Harper, 2015). Thus, we hypothesize the following:

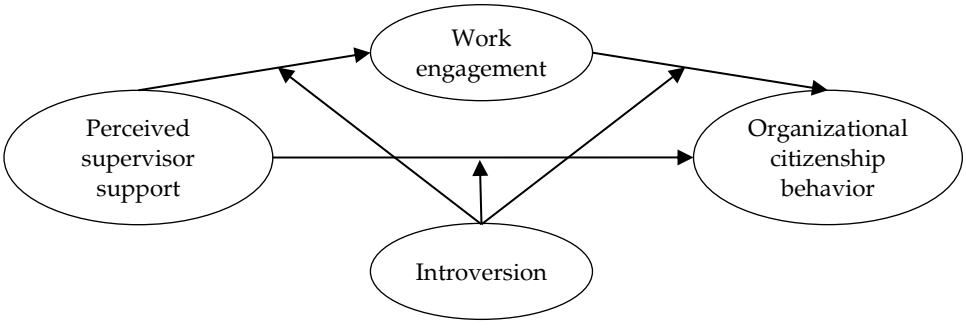
- H6: When introversion is high, WE has a strong, positive impact on OCB.

Introverts are more likely to be motivated by a sense of duty or fear of punishment than by the desire to expand their work-related experience. As a result, they tend to remain focused on routine tasks as opposed to additional tasks. Thus, introversion has a weak relationship with OCB (Shoaeshargh & Dadashi, 2013; Hakim et al., 2014). Van Emmerik and Euwema (2007) show that teachers are less likely to exhibit OCB because they have limited social interaction with their colleagues. This supports the following hypothesis:

- H7: When introversion is high, PSS has a weak, positive impact on OCB.

Figure 1 shows how WE mediates the relationship between PSS and OCB and how introversion acts as a moderator in this relationship.

Figure 1: Relationship between WE, PSS, OCB and introversion



4. Dataset and Methodology

The data for this study was collected from seven private educational institutions in Pakistan. The questionnaire was designed based on input from a focus group of four subject specialists and translated into Urdu (see Appendix). Using a nonprobability convenience sampling method, we distributed 650 questionnaires, of which 600 were returned. Another 14 were dropped due to missing values identified using the hot deck imputation method, whereby missing values are replaced with data from a similar observed response (Andridge & Little, 2010). This yields a total sample of 586 respondents.

Table 1 gives the sample characteristics. More than two thirds of the sample (68 percent) comprised male respondents. Almost half the sample (47 percent) was aged 18–28 years, followed by 44 percent in the 29–40 age group. About a third of the respondents had an intermediate degree and almost half had an undergraduate degree. Most respondents had worked for their current organization for up to two years (42 percent) or up to five years (37 percent).

Table 1: Descriptive statistics

Sample characteristics		Percentage
Gender	Female	32%
	Male	68%
Age	18–28 years	47%
	29–40 years	44%
	41–55 years	7%
	> 55 years	2%
Level of education	Intermediate	32%
	Undergraduate	47%
	Postgraduate	12%
	Professional degree	2%
Job tenure	0–2 years	42%
	3–5 years	37%
	6–10 years	17%
	More than 10 years	4%

Note: Percentage values are rounded off.
Source: Authors' calculations.

The PSS variable is measured using four items adapted from Rhoades, Eisenberger and Armeli (2001). WE is measured using five items adapted from Bledow et al. (2011). OCB is measured using four items adapted from Podsakoff et al. (1990) and introversion is measured using three items adapted from Brown et al. (2002). The questionnaire was administered in both English and Urdu and each item examined closely for any translation problems. The items are measured on a seven-point Likert scale ranging from 1 ('strongly disagree') to 7 ('strongly agree'). The survey itself was preceded by a pilot comprising 15 questionnaires to fine-tune the design.

5. Analysis and Results

This section discusses the study's results.

5.1. Descriptive Statistics and Correlation Matrix

Table 2 gives the zero-order correlations, mean and standard deviation of all the scales. As expected, PSS, WE and OCB are strongly correlated with introversion.

Table 2: Descriptive statistics and correlation matrix

Variable	Mean	SD	1	2	3	3	4	5
Gender	1.1600	0.640	1.000					
Age	1.4200	0.850	0.449**	1.000				
PSS	5.4804	1.100	0.075	0.085*	1.000			
WE	5.7973	0.910	-0.074	-0.040	0.236**	1.000		
OCB	5.7675	0.100	-0.009	0.069	0.436**	0.399**	1.000	
Introversion	4.9659	1.342	0.126**	0.139**	0.151**	0.207**	0.295**	1.000

Source: Authors' calculations.

5.2. Confirmatory Factor Analysis

We carry out a confirmatory factor analysis (CFA) to determine if the three support-related variables, PSS, WE and OCB, are distinct theoretical constructs. The results indicate that a four-factor model provides the best data fit while a one-factor model (combining all four constructs) yields an acceptable model fit (Table 3). This supports the argument that PSS, WE and OCB are distinct constructs.

Table 3: Alternative CFA model

Model	Chi-sq.	df	RRMSEA	NFI	CFI	GFI	AGFI	IFI
One-factor	28.154	104	0.215	0.374	0.374	0.547	0.407	0.440
Four-factor	4.339	98	0.076	0.917	0.935	0.920	0.889	0.935

Source: Authors' calculations.

5.3. Validity and Reliability

Following Kline (2011), all the items achieve high factor loadings of between 0.62 and 0.90 in the four-factor model. Next, we measure the convergent validity, discriminant validity and reliability of the four instruments. The average variance extracted (AVE) of all four is greater than the recommended value of 0.50, indicating a satisfactory level of convergent validity (Table 4). The AVE of each construct is greater than any squared correlation, which establishes their discriminant validity. All four constructs show a high level of internal consistency and reliability, with Cronbach alpha values that are all greater than the recommended value of 0.7 (see Nunnally & Bernstein, 1994).

Table 4: Validity and reliability scores

Variable	AVE	1	2	3	4	α
WE	0.612	0.782				0.88
PSS	0.658	0.224	0.811			0.88
Introversion	0.524	0.206	0.173	0.724		0.75
OCB employees	0.618	0.372	0.463	0.291	0.786	0.86

Note: The diagonal values in the correlation of constructs matrix are the square root of the AVE. For adequate discriminant validity, these should be greater than the corresponding off-diagonal values.
Source: Authors' calculations.

5.4. Common Method Variance and Goodness of Fit

Data that is self-reported and collected using a cross-sectional questionnaire in the same period is potentially subject to common method bias (CMB) (Podsakoff et al., 2003). We apply one-factor CFA, Harman's one-factor method and common latent factors to test for the existence of CMB. The principal component analysis of all the variables produces four distinct factors, which together account for 71 percent of the total variance (the first factor accounts for only 34 percent). The common method latent factor test for the independent mediator and dependent variables yields a

score less than the acceptable threshold of 25 percent (see Podsakoff et al., 2003). Thus, CMB does not pose a serious problem in this case.

The results in Table 5 indicate that the one-factor model provides the best fit (adjusted goodness-of-fit index = 0.900).

Table 5: Goodness-of-fit indices

Model	Chi-sq.	df	RRMSEA	NFI	CFI	GFI	AGFI	IFI
One-factor	4.681	61	0.079	0.932	0.945	0.933	0.900	0.946

Source: Authors' calculations.

5.5. Direct and Indirect Effects of PSS

The results in Table 6 support the first hypothesis of a positive relationship between PSS and OCB (0.38, $p < 0.001$) as well as the second hypothesis of a positive relationship between PSS and WE (0.22, $p < 0.001$). The relationship between WE and OCB is also significant (0.33, $p < 0.001$).

Before examining the indirect effect of supervisor support on OCB when mediated by WE, we measure its direct effect. The results show that PSS has a positive impact on OCB (direct effect: 0.38, $p < 0.001$). The results also support the third hypothesis concerning the indirect effect of PSS and OCB (0.073, $p < 0.001$), that is, WE mediates the relationship between PSS and OCB.

Table 6: Direct and indirect effects

	Dependent variables				
	WE	OCB			
Independent variables	Direct effect	Direct effect	Indirect effect	Total effect	% Mediation
PSS	0.22***	0.38***	0.07***	0.45***	16%
WE		0.33***			

Source: Authors' calculations.

5.6. Moderating Effects

In Table 7, model 1 shows that introversion does not moderate the direct relationship between PSS and WE because the interaction value is 0.004 ($p > 0.005$). Thus, we reject the fifth hypothesis. Model 2 recognizes that introversion acts as a positive moderator in the direct relationship

between WE and OCB (interaction = 0.08, $p < 0.05$). When introversion is low, the positive effect of WE on OCB is 0.34 ($p < 0.001$). When introversion is high, the direct effect is high (0.51, $p < 0.001$).

Table 7: Introversion as a moderator in the relationship between independent and dependent variables

Model	Independent variables	WE	OCB
Model 1	Constant	4.850***	
	PSS	0.170***	
	Introversion	0.140	
	PSS x introversion	0.004	
Model 2	Constant		2.22***
	WE		0.34***
	Introversion		0.28
	WE x introversion		0.08*
Model 3	Constant		2.22***
	PSS		0.28***
	Introversion		0.28
	PSS x introversion		-0.10***

Source: Authors' calculations.

In model 3, introversion acts as a negative moderator in the relationship between PSS and OCB (interaction = –0.10, $p < 0.001$). A low level of moderation yields an interaction term of 0.39 ($p < 0.001$) and a high level yields 0.18 ($p < 0.001$). Moreover, introversion moderates the relationship between PSS and OCB through WE (low = 0.045, $p < 0.05$; high = 0.075, $p < 0.05$) (Table 8).

Table 8: Moderated mediation analysis

Independent variable	Moderator		OCB	
			Direct effect	Indirect effect via WE
PSS	Introversion	Low	0.39***	0.045*
	Introversion	High	0.18***	0.075*
WE	Introversion	Low	0.34***	
	Introversion	High	0.51***	

Source: Authors' calculations.

6. Discussion

This study examines the impact of PSS on OCB, where WE plays a mediating role and introversion acts as a moderator. Our findings support

the literature, which suggests that two cognitive mechanisms and an affective mechanism govern the relationship between PSS and OCB (Chen & Chiu, 2008). While supervisor support increases employee OCB (Jung & Avolio, 2000), Podsakoff et al. (2000) indicate that one should look beyond the causal relationship between the two. Accordingly, we identify WE as a mediator in this relationship and introversion as a moderator.

Our results show that PSS has a positive and significant impact on OCB. This is in line with studies such as Chughtai and Buckley (2008), who find that better supervisor support and communication between employee and supervisor generate self-confidence, motivating employees to work harder. Employees with a higher level of WE are more likely to be characterized by contextual performance (Kataria et al., 2013), whereby they reciprocate in the form of OCB, taking on additional tasks to meet the organization's goals (Ariani, 2013).

We also find that introversion acts as a negative moderator in the relationship between supervisor support and employee OCB: low levels of introversion are associated with higher OCB in the presence of supervisor support. The results indicate that introversion moderates the relationship between PSS and OCB indirectly through WE. In this case, higher levels of introversion are associated with higher OCB because introverts are more likely to focus on their work. Introversion is thus strongly related to OCB (Harper, 2015).

7. Conclusion

Having established that PSS is an important antecedent of OCB, we find that the relationship is mediated by WE. Supervisors who value their employees induce greater job satisfaction and WE, leading in turn to higher OCB. PSS strongly influences OCB in the case of high levels of introversion when the relationship is mediated by WE. This suggests that supervisors should identify and support introverted employees to encourage WE and drive OCB. Employees who are less introverted, however, are associated directly with OCB, where the effect is stronger and positive.

The study's main limitation is that it examines only one personality trait, i.e., introversion. Future research could look at other traits to see how they affect the relationship between PSS and OCB.

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Appendix

Questionnaire

Part 1

Please mark **one** option in response to the following questions:

1. Nationality:
2. Gender:
   - Male
   - Female
3. Age:
   - 18 to 28 years
   - 29 to 40 years
   - 41 to 55 years
   - Over 55 years
4. Educational qualification:
5. Name of the company where you work:
6. How long have you worked at this company (years)?
7. What is your primary responsibility?
   - General manager
   - Faculty member
   - Administration or finance
   - Human resources
   - Marketing or sales
   - Technical, lab staff, etc.
8. What is your role?
   - Senior management
   - Middle management
   - Supervisory
   - Nonmanagement technical or professional

Part 2

Keeping in mind the company you work for, please rank the statements below. Mark the single most appropriate option on the right-hand side (1–7). Mark 1 if you disagree strongly with the statement and 7 if you agree strongly with the statement. If you agree or disagree to some extent, mark 3, 4 or 5 to indicate this. Please note that there is no wrong or right answer.

I frequently make suggestions for improving the work of my department (**OCB**). میں اکثر اپنے ڈیپارٹمنٹ کی بہتری کے لئے رائے دیتا ہوں۔	1	2	3	4	5	6	7
Part of my job is to think of better ways of doing the job. یہ میری جاب کا حصہ ہے کہ میں اپنی جاب کو بہترطریقے سے کرنے کی کوشش کروں ۔	1	2	3	4	5	6	7
I participate in activities that are not required of me, but that help build the image of my organization. میں اپنے ادارہ کی بہتری کے لئے اپنے کام میں بھی حصہ لیتا ہوں جو کہ میری نوکری کے لئے ضروری نہیں ہے	1	2	3	4	5	6	7
I keep up with developments in my organization. میں ان بہتریوں کا حصہ بنتا ہوں جو میرے ادارہ میں ہوتی ہیں ۔	1	2	3	4	5	6	7
My supervisor cares about my opinion (**PSS**). میرا سپر وائزر میری رائے کا خیال رکھتا ہے	1	2	3	4	5	6	7
My supervisor cares very much about my wellbeing. میرا سپر وائزر حقیقت میں میری بہتری کا خیال رکھتا ہے	1	2	3	4	5	6	7
My supervisor strongly considers my goals and values. میرا سپر وائزر میرے مقاصد کا خیال رکھتا ہے۔	1	2	3	4	5	6	7
My supervisor shows very little concern for me. میرا سپر وائزر میرے لئے بہت کم تشویش کا اظہار کرتا ہے۔	1	2	3	4	5	6	7
I feel strong and vigorous about my work (**WE**). میں اپنے کام کے دوران پرجوش محسوس کرتا ہوں	1	2	3	4	5	6	7
At work, I feel as though I am bursting with energy. کام کے دوران میں اپنے آپ کو توانائی سے بھرپور محسوس کرتا ہوں	1	2	3	4	5	6	7
I am enthusiastic about my work. میں اپنے کام کے مطابق بہت پرجوش ہوں	1	2	3	4	5	6	7
My work inspires me. میرا کام مجھے متاثر کرتا ہے۔	1	2	3	4	5	6	7
I am happily engrossed in my work. میرا کام مجھے متاثر کرتا ہے	1	2	3	4	5	6	7
I generally feel more bashful than others (**introversion**). میں عام طور پر دوسروں کی نسبت زیادہ شرمندگی محسوس کر تا ہوں	1	2	3	4	5	6	7
I am generally quiet when with other people. میں جب لوگوں کے ساتھ ہوتا ہوں عام طور پر خاموش رہتا ہوں	1	2	3	4	5	6	7
I am generally shy. میں عام طور پر شرم و حیا والا ہوں	1	2	3	4	5	6	7

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An Analysis of the US Mutual Funds Sector: What Determines Performance?

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Abstract

This paper analyzes the performance of equity mutual funds in the US, using monthly data for a sample of 4,431 equity mutual funds over the period 1999–2012. Our empirical findings suggest that larger funds with higher liquidity and turnover generate higher returns, while expenses and management fees have a negative impact on performance.

Keywords: Equity mutual funds, liquidity, fund size.

JEL classification: G11, G23.

1. Introduction

Mutual funds refer to money pooled together by several investors and managed by sophisticated fund managers who use their skills to obtain high returns. Mutual funds give individual investors an opportunity to invest in a professionally managed diversified portfolio and have recently gained popularity in global markets. The total net asset holdings of global mutual funds increased from US$ 11.9 trillion in 2000 to US$ 23.80 trillion in 2011 (Investment Company Institute, 2012). Jiang, Luo and Tian (2012) show that the number of mutual funds rose substantially from 55,523 to 69,519 over the period 2004 to 2010.

The US mutual funds market is the world's biggest fund market, accounting for 49 percent of the global mutual funds industry, with a net asset value of US$ 11.6 trillion in 2011. This has led investors around the world to invest in various types of US mutual funds, including domestic funds, world equity funds, bonds and money market funds. Apart from deciding which category to invest in, investors need to assess the size and growth of the mutual funds market. Fund performance is a key determinant of such decisions, making it important to examine not only performance trends, but also the factors affecting fund performance.

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This study evaluates the determinants of mutual fund performance in the US by looking at equity mutual funds, which account for 33 percent of the country's mutual funds sector (Investment Company Institute, 2012). The sheer volume of investment and the number of stakeholders involved makes this an important exercise.[1] The literature looks at three broad aspects of this subject. The first part deals with the relationship between fund managers' abilities and fund performance. The second part examines persistent performance in fund returns. The third part analyzes which factors drive fund performance, including expense ratios, management fees, fund wealth, fund style, risk, cash flows, management structure and fund age.

Factors such as fund liquidity, however, need further investigation[2] and the literature provides no conclusive evidence of its impact on mutual fund performance. Accordingly, we look at the effect of fund liquidity, fund turnover, fund size, management fees and expense ratios on equity mutual funds in the US. Our findings suggest that liquidity, size and turnover have a positive, significant impact on fund performance. The rest of the paper is structured as follows. Section 2 provides a review of the literature. Sections 3 and 4 describe the dataset and methodology used. Section 5 gives our empirical results and Section 6 concludes the study.

2. Literature Review

Investment in mutual funds has increased rapidly in the last two decades, giving even small investors the advantages of professional fund management and portfolio diversification. An important aspect of portfolio management is estimating the fund's performance.[3] Given that mutual funds are seen to yield high returns in the public eye and that numerous factors affect their performance, this can be difficult to do. The literature in this area looks at the relative importance of these factors and how they drive investment decisions.

Sharpe (1966) studies 34 open-ended mutual funds over the period 1954–63 and shows how expense ratios and past performance explain the diversity in performance of mutual funds. Jensen (1968) examines 115

[1] Other studies in this area include Wermers (2000); Daniel, Grinblatt, Titman and Wermers (1997); Jensen (1968); Fu (2009); and Ang, Hodrick, Xing and Zhang (2006).

[2] The consensus in the literature is that higher levels of risk are associated with higher returns and that fund styles (passive, active, market timing and stock picking abilities) affect performance.

[3] Past performance does not, however, guarantee the same results: many other factors affect the performance of a mutual fund.

mutual funds for the period 1945–64 and underscores the importance of estimating security prices. He argues that mutual funds must estimate their research benefits, cost and trading activity to ensure higher returns at acceptable levels of risk.

Malkiel (1995) identifies patterns in mutual fund returns that present an investment opportunity and allow investors to earn risk-adjusted excess returns.[4] Mutual funds tend to underperform the market after meeting their management expenses and reported expenditures (except for fund loads). Thus, management fees and fund expenses have a negative impact on mutual fund performance. Ciccotello and Grant (1996) study 626 equity mutual funds over the period 1982–92 and find that the largest funds are associated with better past performance. This implies that aggressive investors can use fund size to forecast future performance.

In a study on US mutual funds, Gruber (1996) points to customer service, low transaction costs, diversification and professional management as central reasons for holding mutual funds. He also finds that better management is associated with persistence in fund performance, while the best-performing funds have lower expenses. This makes fund performance predictable to some extent. Carhart (1997) analyzes persistent performance among mutual funds during 1962–93 by considering investment expenditure and stock returns. The results indicate a significant, negative relationship between performance and portfolio turnover and expense ratios. A key finding is that fund performance is negatively affected by transaction costs, load fees and expense ratios.

Indro, Jiang, Hu and Lee (1999) study the effect of fund size on the performance of equity funds in the US over the period 1993–95. They argue that such funds should be small enough to earn sufficient returns to meet the purchase cost involved. Wermers (2000) measures mutual fund performance for the period 1975–94 by decomposing returns and expenses/costs into different components. The results show that the stock returns on mutual funds outperform the market index. Generally, mutual funds underperform due to fund expenses and management fees. Funds with a higher turnover tend to perform better.

Otten and Bams (2002) show that the risk-adjusted performance of mutual funds in Europe is driven by fund size, age and management expenses. The results suggest that small cap funds are capable of value

[4] The opportunity to earn larger risk-adjusted returns.

addition.[5] The funds in question have positive after-cost alphas, explaining their optimism.[6] Small cap mutual funds perform better than their benchmarks because they have lower management fees than larger funds. Compared to US mutual funds, European mutual funds provide additional benefits such as diversification, lower transaction costs and positive returns.

Using panel data for 600 US mutual funds over the period 1995–2001, Latzko (2002) finds that the operating cost of a mutual fund is central to understanding the sector. He argues that average-sized funds tend to enjoy economies of scale, while their larger counterparts face diseconomies of scale. Ruckman (2003) studies trends in the expense ratio of mutual funds in North America and finds that Canadian investors pay a 50 percent higher expense ratio than US investors. This may be a result of lower competition and economies of scale. The study also shows that Canadian investors are more likely to buy rear-end load funds than front-end load funds, whereas the choice of funds is equally weighted among US investors.

Looking at US equity funds for the period 1962–99, Chen, Hong, Huang and Kubik (2004) find that the relationship between fund size and liquidity wears down the performance of these funds. Goel, Sharma and Mani (2012) analyze 160 open-ended mutual funds over the period 2006–11 and identify a lead-lag relationship for fund performance. They show that the expense ratio is negatively correlated with performance, while the size of the fund is positively related to its performance.

Jiang et al. (2012) investigate the relationship between fund promotion and performance in the Chinese mutual funds sector during 2004–10. They find little evidence that promoting a fund helps predict its future performance. Investors with poor fund selection ability are more likely to be attracted by fund promotion, which implies that mutual funds with a superior capital inflow will not necessarily perform better in the future. Tang, Wang and Xu (2012) analyze the relationship between size and performance in the Chinese mutual funds sector over the period 2004–09. They find that size has a positive impact on performance, but this effect is constrained by the fund's liquidity.

[5] Although the definition varies among brokers, funds with market capitalization of US$ 300 million to US$ 2 billion are considered small cap funds.

[6] The alpha coefficient measures risk-adjusted performance. The after-cost alpha measures the fund's performance after it has met its costs.

Dong, Feng and Sadka (2012) show that higher liquidity can result in greater future returns. The investment skills of a fund manager are related to liquidity exposure and the performance of mutual funds. In addition to liquidity risk, investors should account for other factors such as performance persistence, smart money and size when forecasting mutual fund performance.[7] Vidal-Garcia and Vidal (2013) investigate the effect of liquidity and idiosyncratic risk on the European market for mutual funds and find that performance is influenced by liquidity and idiosyncratic risk. They also show that both variables can be tested jointly without affecting the other's influence.

Narayan and Zheng (2011) examine the impact of liquidity on mutual fund performance in China over the period 1997–2003. They find a negative relationship between liquidity and mutual fund returns on the Shenzhen and Shanghai stock exchanges. Wagner and Winter (2013) explore the impact of idiosyncratic risk and liquidity on the performance of mutual funds in Europe for the period 2002–09. They show that both liquidity and idiosyncratic risk determine performance, where liquidity has a positive impact on mutual fund performance. Even when measured together, neither variable reduces the magnitude of the other's effect.

Overall, the literature yields mixed findings on the relationship between mutual fund characteristics and performance: liquidity in particular can have a positive or negative impact on the former (Dong et al., 2012; Narayan & Zheng, 2011; Tang et al., 2012). Accordingly, we aim to reinvestigate the relationship between liquidity and mutual fund performance in the US.

3. Data and Variables

The data used is drawn from Thomson Reuters (for CUSIPs)[8] and the Center for Research in Security Prices (CRSP) (for mutual fund returns and characteristics). The sample comprises 4,431 US equity mutual funds over the period 1999–2012. Table 1 defines each variable. The data for fund turnover ratio, management fee and expenses has already been calculated in the CRSP database; we calculate the remaining data ourselves.

[7] Money investment by well-informed investors.

[8] The CUSIP number identifies a North American security, including all registered US and Canadian stocks as well as US government and municipal bonds.

Table 1: Definition of variables

Variable	Definition
Dependent variable	
Fund performance	Mutual fund returns
Explanatory variables	
Liquidity	Ratio of fund returns to turnover
Fund size	Total net asset value of portfolio
Fund turnover	Turnover ratio of fund
Control variables	
Fund expenses	Expense ratio of fund
Management fee	Management fee ratio of fund

While the management fee (charged by the fund manager) differs from fund to fund, it often depends on the value of assets being managed and can be 0.5 percent of the underlying asset.[9] Fund expenses refer to the cost of operating a mutual fund and are measured by its expense ratio. These expenses include taxes, legal expenses, accounting charges, marketing fees and auditing fees. Fund loads and redemption fees are also costs, but are not included in the expense ratio.

Table 2 reports the descriptive statistics for the sample. The values indicate that all the variables have a normal mean, median and standard deviation except fund size, the value of which is measured in millions and varies widely across funds. Size is measured by the total net asset value of the fund. The average total net asset value is US$ 2,495.32 million, with a median value of 396.15 and a standard deviation of 7,223.30, indicating that the data is highly dispersed. Fund returns measure the monthly return on the mutual fund. The mean value shows that, on average, the sample funds generate 0.004 percent in returns, with a median value of 0.01 percent and a standard deviation of 0.05.

[9] http://www.investopedia.com/terms/m/managementfee.asp

Table 2: Summary statistics

Variable	Mean	Median	SD
Fund returns	0.00401	0.01	0.05114
Liquidity	0.01698	0.01	1.78090
Fund turnover	0.03376	0.53	9.4201
Fund size (in US$ million)	2,495.32	396.15	7,223.30
Fund expenses	0.06880	0.01	2.7172
Management fee ratio	0.37090	0.58	14.776

Note: The expense ratio (the ratio of total investment to fund operating expenses) is usually lower than the management fee ratio due to reimbursements and waivers. The fund turnover is the ratio of the lowest aggregate purchase or sale of securities to total net assets (12-month average).
Source: Authors' calculations based on data from the CRSP.

4. Methodology

This section describes the study's hypotheses and empirical model.

4.1. Research Hypotheses

The literature does not provide a consensus on the relationship between liquidity and fund returns. Some studies find that this relationship is positive, while others suggest it is negative (see Wagner & Winter, 2013; Vidal-Garcia & Vidal, 2013; Narayan & Zheng, 2011). We propose that liquidity has a positive impact on mutual fund performance.

Similarly, the findings on the impact of turnover on performance are inconsistent, with some studies pointing to a positive relationship and others to a negative relationship (see Carhart, 1997; Wermers, 2000). When turnover is associated with transaction costs, this yields decreasing fund returns. However, when adjusted for market variations, it is associated with higher returns. We expect to find a positive relationship between fund turnover and performance.

Again, other studies have established a positive as well as negative relationship between fund size and performance (see Indro et al., 1999; Goel et al., 2012). Some studies find no relationship at all (see Johansson & Jacobsson, 2012). We propose that there is a positive relationship between fund size and performance.

4.2. Empirical Model

We employ the following multiple linear regression (MLR) model:

$$MFR_{it} = \beta_0 + \beta_1 Liq_{it} + \beta_2 Turn_{it} + \beta_3 Size_{it} + \beta_4 Fee_{it} + \beta_5 Exp_{it} + \varepsilon_{it} \quad (1)$$

Here, β_0 is the y-intercept and MFR_{it} is the return on mutual fund i at time t. β_1 to β_5 represent fund liquidity, turnover, size, management fees and expenses, respectively. ε_{it} is the error term, which is an independent, identically distributed random variable for fund i at time t.

Our empirical analysis uses panel data procedures. Although using panel data has several benefits, its drawbacks need to be addressed by using either a fixed effects (FE) or random effects (RE) model.[10] This choice is determined as follows. When the time variable T is high and the cross-section units variable N is low, there will be very little difference between the parameters whether we use FE or RE. However, if N is larger than T, both models will yield variations between the parameters (see Gujarati, 2003). Under the Hausman (1978) test, the null hypothesis is that there is no difference between FE and RE estimators. Based on the data, if the null hypothesis is rejected, we can use either FE or RE. If the value of the Hausman test statistic is $> x^2 < 0.05$, then an FE model is used. If its value is $> x^2 > 0.05$, an RE model is used.

5. Empirical Results

Table 3 shows the correlation among all the explanatory variables. Since there is no exact or strong correlation among the variables, the data is deemed free from multicollinearity problems. The results of the MLR model given in Equation (1) are presented in Table 4.

[10] The FE model allows the intercept to vary between entities and is used in case of correlation between the intercept and explanatory variables. In the RE model, the intercept is random and has a constant, stable mean. This is used if the intercept and explanatory variables are uncorrelated.

Table 3: Correlation among explanatory variables

Variable	Size	Liquidity	Expenses	Turnover	Management fee
Size	1.000				
Liquidity	0.001	1.0000			
Fund expenses	-0.008	-0.0010	1.000		
Fund turnover	-0.019	0.0006	0.006	1.000	
Management fee	0.001	-0.0046	0.008	0.001	1.000

Source: Authors' calculations based on data from the CRSP.

The results show that fund size, liquidity and turnover have a statistically significant impact on mutual fund performance. Liquidity has a positive, economically significant impact on fund performance and is highly significant at the 1 percent level. A 1 percent increase in liquidity increases performance by 0.28 percent, ceteris paribus. This result supports our hypothesis that liquidity has a positive impact on fund performance.

Table 4: Impact of explanatory variables on dependent variable (MLR)

Variable	Coefficient	Prob.
Constant	0.00370*	0.00
	(0.00010)	
Liquidity	0.00280*	0.00
	(0.00010)	
Fund turnover	0.01640*	0.00
	(0.00545)	
Fund size	0.00660*	0.00
	(0.00220)	
Fund expenses	-0.00840	0.87
	(0.05390)	
Management fee	-0.00180**	0.11
	(0.00117)	

Note: Fund returns = 0.0037 + 0.0028 (liquidity) + 0.016 (turnover) + 0.0066 (size) – 0.0084 (expenses) – 0.0018 (management fee) + u.
* = significant at 1% level, ** = significant at 5% level, *** = significant at 10% level. Thus, depending on the p-value, three variables are statistically significant.
Source: Authors' calculations based on data from the CRSP.

Fund turnover has an economically and statistically significant, positive impact on mutual fund performance at the 1 percent level. Ceteris paribus, a 1 percent increase in turnover increases fund performance by

1.64 percent. This supports our hypothesis as well as the argument that funds adjusted for market variations generate higher returns than those associated with a transaction cost. Fund size has a positive impact on performance and is highly significant at the 1 percent level. The latter rises by 0.0066 units following a one-unit increase in fund size, implying that larger funds yield higher returns. This result supports our hypothesis that fund size is positively correlated with performance.

The expense ratio has an economically significant, but statistically insignificant negative impact on fund performance. Thus, mutual funds with higher expenses do not perform as well. The management fee has a statistically and economically significant, negative impact on performance at the 5 percent level. With a one-unit decrease in the management fee, fund performance falls by 0.0018 units. A lower management fee, therefore, is associated with higher returns.

The Hausman test results show that the probability statistic (prob. > x^2 = 0.000) is significant, indicating that we should use an FE model (Table 5). Individual-specific effects are considered fixed in this case: assuming that they may influence the independent variables, the FE model removes time-invariant characteristics from the explanatory variables to assess the net effect of the predictors used. The RE model considers time-invariant individual factors to be random variables that are uncorrelated with the independent variables. This allows the results to be generalized across the population, whereas FE model results are restricted to the sample.

Table 5: Hausman test results: comparison of RE and FE models

Variable	FE	RE	Difference	SE
Liquidity	0.002598	0.002737	-0.000138	0.000023
Fund turnover	0.000033	0.000013	0.000020	0.001340
Fund size	0.001460	0.000090	0.001370	0.000123
Fund expenses	-0.005570	0.000118	-0.005450	0.000080
Management fee	-0.000038	0.000014	-0.000024	0.000029

Note: Since the probability of x^2 is significant, we use an FE model: x^2 (5) = 171.66 prob. > x^2 = 0.000.
Source: Authors' calculations based on data from the CRSP.

Table 6 gives the results of the FE model and shows that liquidity, size and turnover have a statistically and economically significant impact on mutual fund performance, while fund expenses and management fees

have an economically significant, but statistically insignificant impact on performance. Liquidity has a positive impact on the dependent variable and is highly significant at the 1 percent level. Ceteris paribus, a 1 percent rise in liquidity increases fund performance by 0.25 percent. In contrast to the MLR model, the FE model yields a small decrease (0.0002 units) in the economic significance of liquidity. The results imply that investors should focus on mutual funds with higher liquidity to obtain greater returns.

Table 6: Impact of explanatory variables on dependent variable (FE)

	Coefficient	**Prob.**
Constant	0.0006	0.17
	(0.0004)	
Liquidity	0.0026*	0.00
	(0.0001)	
Fund turnover	0.0034**	0.02
	(0.002)	
Fund size	0.0015*	0.00
	(0.0001)	
Fund expense	-0.0055	0.60
	(0.010)	
Management fees	-0.0038	0.24
	(0.0033)	

Note: Fund returns = 0.0006 + 0.0026 (liquidity) + 0.0034 (turnover) + 0.0015 (size) – 0.0055 (expenses) – 0.0038 (management fee) + u.
* = significant at 1% level, ** = significant at 5% level, *** = significant at 10% level. Thus, depending on the p-value, three variables are statistically significant.
Source: Authors' calculations based on data from the CRSP.

Fund turnover has a positive, statistically significant impact on performance at the 5 percent level. A 1 percent rise in turnover results in a 0.33 percent increase in fund performance, ceteris paribus. The turnover coefficient falls to 0.013 in the FE model. Thus, its economic significance decreases, but the variable remains statistically significant. The result suggests that funds adjusted for sectoral variations generate higher returns, implying that investors should favor those with a higher turnover.

Fund size has a highly significant, positive impact on mutual fund performance at the 1 percent level. With a one-unit rise in fund size, performance increases by 0.0015 units, ceteris paribus. In the FE case, the size coefficient decreases by 0.005 units. This relationship between fund size and performance suggests that larger funds yield higher returns.

Fund expenses remain statistically insignificant in the FE model, but the economic impact increases by 0.0029 units. The variable has a negative impact on fund performance: an increase of one unit in fund expenses leads performance to fall by 0.0055 units, ceteris paribus. The management fee variable becomes statistically insignificant in the FE model. Ceteris paribus, a one-unit increase in the management fee causes fund performance to fall by 0.0038 units. The variable's economic significance decreases by 0.0020 units in the FE model. Overall, the results suggest that investors should favor larger equity mutual funds with higher liquidity and turnover in the US, rather than considering factors such as advertisement and other fund promotion techniques.

6. Conclusion

This empirical study investigates the determinants of performance for a sample of US equity mutual funds over the period 1999–2012. We find that fund size, liquidity and turnover help explain fund performance. Each of these variables has an economically and statistically significant impact on performance in the MLR and FE models.

Fund liquidity has a statistically as well as economically significant, positive impact on fund performance at the 1 percent level in both models. With a 1 percent increase in liquidity, mutual fund performance increases by 0.28 percent. This implies that funds with higher liquidity generate greater returns. This relationship is consistent with Wagner and Winter (2013) and Dong et al. (2012) and indicates that both investors as well as policymakers have reason to favor mutual funds with higher liquidity.

Fund turnover has a statistically and economically significant, positive impact on mutual fund performance in both the MLR and FE models at the 1 and 5 percent level, respectively. Performance increases by 0.0164 units following a one-unit increase in turnover. Thus, mutual funds with a higher turnover produce higher returns, making them more attractive to investors as well as policymakers. This result is consistent with Wermers (2000) and Dahlquist, Engström and Söderlind (2000).

Fund size has an economically and statistically significant, positive impact on mutual fund performance at the 1 percent level. A one-unit increase in fund size raises performance by 0.0066 units. This indicates that larger funds perform better. This relationship is consistent with Tang et al. (2012) and Goel et al. (2012), but contradicts Otten and Bams (2002) and Johansson and Jacobsson (2012).

Fund expenses have an economically significant, but statistically insignificant, negative impact on fund performance. The management fee has an economically and statistically significant, negative impact on fund performance at the 5 percent level. This implies that fund expenses and management fees decrease returns. Thus, investors are more likely to select funds with lower expenses and management fees to obtain higher returns. This is consistent with Wermers (2000), Otten and Bams (2002) and Losen (2007).

This study could be extended by decomposing the dataset into subsamples, for instance, comparing fund performance during crisis and noncrisis periods. A comparative country study across the mutual funds sector in China and Europe could also be carried out, incorporating country-specific variables such as the strength of legal laws, investor protection, financial development and management structure.

A key limitation of the study is that it considers only three performance-related characteristics. Given the limited data available, we have not looked at factors such as the impact of idiosyncratic risk on mutual fund performance. Moreover, we have restricted the analysis to one country (the US), for which data was available. Finally, data limitations also mean that we have not accounted for categories such as growth-focused versus value-focused funds, aggressive versus nonaggressive funds or active versus passive funds.

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The Moderating Effect of Helping Behavior on the Relationship Between Ingratiation and Supervisor Satisfaction

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Abstract

This study investigates the combined effect of ingratiation and helping behavior on supervisor satisfaction in the workplace. Based on a sample of 168 supervisors and 453 employees working in Pakistan's hospitality sector, we find that the effect of ingratiation is insignificant at lower levels of helping behavior. However, the relationship between ingratiation and supervisor satisfaction becomes significant as helping behavior increases. This suggests that a combination of ingratiation and helping tactics is more effective in achieving supervisor satisfaction than relying on a single influence tactic.

Keywords: Helping behavior, influence tactics, ingratiation, supervisor satisfaction, Pakistan.

JEL classification: M19.

1. Introduction

Supervisor satisfaction refers to a supervisor's perception of how well an employee performs (Rich, 2008). As a key element of performance appraisal systems (Viswesvaran & Ones, 2000), it has received considerable attention in the literature on organizational psychology. However, our knowledge of the social influence mechanisms explaining supervisor satisfaction remains limited. Given the rising importance of social influence tactics such as impression management tactics, it is necessary to explore the social interaction mechanisms used to achieve higher levels of supervisor satisfaction. We attempt to fill this gap by examining what induces employees to use social influence tactics to achieve their desired level of supervisor satisfaction.

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Goffman's (1959) theory of impression management shows that individuals engage in social behaviors to control how others perceive them. An example of this is ingratiation, through which individuals make themselves more attractive to others (Jones, 1964). Ingratiation is distinct from other social influence tactics (and is appropriate to this study) because it is directed upward in the workplace hierarchy (Porter, Allen & Angle, 1981; Ralston, 1985). The literature indicates that employees in the services sector are highly likely to use ingratiation tactics to make a good impression on their supervisors (Cooper & Fazio, 1984; Judge & Bretz, 1994; Appelbaum & Hughes, 1998).

Some studies show that a combination of impression management tactics is more effective than a single tactic or the absence thereof. Proost et al. (2010) investigate the combined impact of ingratiation and self-promotion on employee evaluations. In a more recent study, Asadullah et al. (2016) examine the indirect effect of ingratiation on supervisor satisfaction through the medium of helping behavior across different levels of ingratiation. The effect of ingratiation on supervisor satisfaction can vary across different levels of helping behavior, which Organ (1988) describes as extra-role behavior that goes beyond an employee's formal job description. It is also an important characteristic of work environments that require a high level of interdependence among team members.

This study extends the findings presented by Proost et al. (2010) and Asadullah et al. (2016) by using the modprobe method to investigate the combined effectiveness of ingratiation and helping behavior on supervisor satisfaction. This entails reproducing the effect of ingratiation and helping behavior on supervisor satisfaction as a part of the moderation mechanism. We also use the modprobe results to compare the combined and separate effects of these variables on supervisor satisfaction. In this context, the study offers a number of valuable managerial implications and directions for future research.

2. Theoretical Framework and Hypothesis Testing

This section provides an overview of the literature on each variable, based on which we develop the study's hypotheses.

2.1. Ingratiation Behavior and Supervisor Satisfaction

Ingratiation is a social influence tactic (Appelbaum & Hughes, 1998) that is directed upward in the workplace hierarchy to control how one is

perceived by one's co-workers and supervisors (Goffman, 1959; Leary & Kowalski, 1990). The literature shows that ingratiation has several positive outcomes, including (i) promotability (Sibunruang, Capezio & Restubog, 2014; Thacker & Wayne, 1995), (ii) high performance ratings (Asadullah et al., 2016; Gordon, 1996), (iii) favorable interview evaluations (Proost et al., 2010) and (iv) hiring decisions (Gilmore & Ferris, 1989). This explains why employees ingratiate themselves with their supervisors. However, Thacker and Wayne (1995) argue that ingratiation can also have negative outcomes. This inconsistency in the literature needs to be explored.

We argue that employees engage in ingratiation to meet certain expectations. Under Vroom's (1964) expectancy theory, individuals engage in certain behaviors after evaluating their consequences. The balance theory (Wu et al., 2013) and principle of reciprocity (Jones, 1964) show that supervisors uphold a positive approach to balance their relationship with their employees. Integrating these three theories, we argue that employees ingratiate themselves with their supervisors, expecting to gain benefits in the form of a higher salary, promotion or other advantages. Supervisors reciprocate by rating their employees' performance more favorably (Folger & Cropanzano, 1998), thus balancing their social relations with the latter. Ingratiation is also used as an interpersonal influence tactic to induce others to respond favorably to one (Ferris et al., 2007). Based on this discussion, we hypothesize that:

- H1: There is a positive relationship between employee ingratiation and the performance rating assigned by his/her supervisor.

2.2. Helping Behavior and Supervisor Satisfaction

Helping behavior refers to extra-role behavior that goes beyond an employee's formal job description (Katz, 1964). It is central to modern organizational settings in which cooperation and teamwork are highly valued professional requirements. Employees engage in helping behavior by developing or maintaining a rapport with their colleagues, supervisors and/or customers (Van Dyne & LePine, 1998).

The literature indicates that helping behavior has positive outcomes such as personal development (Hansen, Larson & Dworkin, 2003) and psychological wellbeing (Brown et al., 2003; Sonnentag & Grant, 2012; Glomb et al., 2011). However, there is limited empirical evidence of the effect of helping behavior on supervisor satisfaction. Accordingly, this study investigates the extent to which employees use helping behavior as a

social influence tactic to maintain a favorable relationship with their supervisors and thus achieve a high level of supervisor satisfaction.

Rioux and Penner (2001) and Van Dyne and LePine (1998) find that helping behavior enables employees to create a positive impression on their supervisors, who in turn value this behavior. The leader–member exchange theory holds that those employees who enjoy a close relationship with their immediate supervisor are more likely to be favored in terms of personal and career-related benefits (Liden, Sparrowe & Wayne, 1997; Harris, Kacmar & Witt, 2005). Thus, greater cooperation with a supervisor enhances an employee's self-image (Yun, Takeuchi & Liu, 2007; Podsakoff et al., 2009). Additionally, greater cooperation among coworkers improves the quality of service (Susskind, Kacmar & Borchgrevink, 2007), thereby raising supervisor satisfaction in the form of higher performance ratings.

Although engaging in helping behavior may strengthen an employee's interpersonal relationship with his/her supervisor, not all such employees will necessarily be treated equally in turn (Kim, O'Neil & Cho, 2010). Supervisors are likely to value those employees who exhibit greater helping behavior than their peers. Thus, we hypothesize that:

- H2: There is a positive relationship between the helping behavior of an employee and the performance rating he/she is assigned by the supervisor.

As discussed earlier, ingratiation and helping behavior can have a significant impact on supervisor satisfaction when investigated separately. This study extends the relationship by asking how both variables interact with each other in predicting supervisor satisfaction and if ingratiation is still as effective a predictor at lower levels of helping behavior.

While both ingratiation and helping behavior are classified as soft-influence tactics (Kipnis & Schmidt, 1985), the latter – whether it is reactive or proactive – involves an element of exchange. Soft-influence tactics are more effective in situations that do not require an exchange or transaction (Barry & Shapiro, 1992). Eastman (1994) finds that ingratiation alone is not as effective in achieving an employee's objectives vis-à-vis his/her supervisor. Supervisors are more likely to favor ingratiating employees when they also believe that the latter is genuinely interested in helping (Farmer et al., 1997; Broll, Gross & Piliavin, 1974; Greenberg & Frisch, 1972; Nemeth, 1970).

Expectancy theory holds the same argument: individuals evaluate a situation cognitively and then exhibit certain behaviors. This implies that a supervisor will evaluate the motives of an employee who displays both ingratiating and helping behavior simultaneously. Thus, ingratiation will effectively predict supervisor satisfaction only at higher levels of helping behavior. Conversely, it will become an ineffective predictor at lower levels of helping behavior. Based on this discussion, we hypothesize that:

- H3: Helping behavior moderates the relationship between ingratiation and supervisor satisfaction such that the relationship is stronger when employee helping behavior is higher and weaker when helping behavior is lower.

3. Research Methodology

The data for this study was collected from a sample of front-service employees and their immediate supervisors who interact consistently with customers. We employed purposive sampling to obtain responses from key informants. Of an initial sample of 200 supervisors and 550 subordinates, 175 supervisors and 465 subordinates returned their survey questionnaires. After eliminating any incomplete questionnaires, the final sample comprised 168 supervisors and 453 employees drawn from hotels and restaurants in four cities: Multan, Lahore, Islamabad and Bahawalpur.

We asked respondents to consent to the survey in a covering letter that accompanied each questionnaire. Two separate questionnaires were developed for employees and supervisors, the first measuring the level of ingratiation and the second gauging the extent of proactive helping behavior and supervisor satisfaction. A unique code was assigned to each questionnaire to identify and match the supervisor's response to that of his/her employees. The measures used in this study are described below:

- *Ingratiation* is measured using nine items adapted from Kumar and Beyerlein (1991) and Westphal (1998) on a five-point Likert scale ranging from 1 ('not at all') to 5 ('to a very large extent'). The overall reliability (α) of the scale is 0.85.
- *Supervisor satisfaction* is measured using seven items adapted from Williams and Anderson (1991) on a five-point Likert scale ranging from 1 ('not at all') to 5 ('extremely'). The overall reliability (α) of the scale is 0.67.

- *Helping behavior* is measured using seven items adapted from Organ and Konovsky (1989) and Smith, Organ and Near (1983) on a five-point Likert scale ranging from 1 ('never') to 5 ('very frequently'). The overall reliability (α) of the scale is 0.90.
- The *control variables* include gender, age, education level, designation and experience, all of which could potentially affect our results.

4. Analysis and Results

This section provides an initial analysis of the data, followed by the results obtained.

4.1. Preliminary Analysis

Having tested the preliminary assumptions of the data, we carry out a confirmatory factor analysis (CFA) of the latent (independent, dependent and moderating) variables. The results demonstrate an adequate fit (CMIN/DF = 2.14, RMR = 0.079, CFI = 0.953, TLI = 0.945, RMSEA = 0.051). The loadings of the final CFA model are used to examine the convergent validity and discriminant validity of the scales. The values given in Table 1 indicate a satisfactory level of convergent and discriminant validity for all the scales used. The ratio of the chi-squared term to the degrees of freedom is less than 3, verifying the discriminant validity of the scales in line with Carmines and McIver (1981).

Table 1: Convergent and discriminant validity measures

	Convergent validity		Discriminant validity	
Variable	**CR**	**AVE**	**MSV**	**ASV**
Ingratiation behavior	0.88	0.60	0.13	0.08
Helping behavior	0.90	0.56	0.38	0.26
Supervisor satisfaction	0.51	0.38	0.38	0.21

Source: Authors' calculations.

Next, we use the Herman single-factor method (see Podsakoff & Organ, 1986) to assess the common method variance (CMV) by loading all the items on a single factor to carry out an exploratory factor analysis. The results show that 22.5 percent of the variance is explained by a single factor. Since this is less than the 40 percent benchmark, we can assume the data is not subject to CMV (see Podsakoff et al., 2003). We retest for CMV by connecting a common latent factor to the items in the CFA model and

restricting the value of the paths from observed to common latent variables to 1. This model explains 4 percent of the variance in the latent factor, indicating that CMV is absent in the data. Finally, we compute the mean, standard deviation and correlation among the variables used (Table 2).

Table 2: Mean, standard deviation and correlation

	Mean	SD	1	2	3	4	5	6	7	8	9
1	1.12	0.344	1.00								
2	2.53	0.806	-0.08	1.00							
3	2.59	1.086	0.16**	0.10*	1.00						
4	1.43	0.656	-0.13**	-0.28**	-0.09	1.00					
5	5.90	0.427	-0.03	-0.12*	-0.27**	0.09	1.00				
6	2.33	1.088	-0.13**	0.46**	0.07	-0.21**	-0.01	1.00			
7	2.03	0.806	0.08	0.26**	0.29**	-0.18**	-0.23**	0.21**	1.000		
8	3.55	1.064	-0.14**	-0.09	-0.13**	0.09*	0.02	-0.11*	-0.050	1.00	
9	3.84	1.045	-0.08	-0.07	-0.13**	0.15**	0.17**	0.04	-0.043	0.32**	1.00
10	3.89	0.715	0.18**	-0.04	0.02	0.05	-0.12*	0.02	0.043	0.32**	0.09

Note: ** = correlation is significant at the 0.01 level (2-tailed), * = correlation is significant at the 0.05 level (2-tailed).
SD = standard deviation. 1 = gender, 2 = age, 3 = education, 4 = work arrangement, 5 = job title, 6 = experience, 7 = firm size, 8 = helping behavior, 9 = ingratiation behavior, 10 = supervisor satisfaction.
Source: Authors' calculations.

4.2. Hypothesis Testing

Following Hayes and Matthes (2009), we apply the modprobe syntax in SPSS, introducing employee demographics as control variables, ingratiation as an independent variable, helping behavior as a moderator and supervisor satisfaction as the dependent variable. The statistical output of the modprobe syntax in Table 3 shows that ingratiation has an insignificant effect on supervisor satisfaction ($\beta = 0.0245$; $t = 0.6815$; $p > 0.05$). This statistical result does not support H1. However, helping behavior has a significant effect on supervisor satisfaction ($\beta = 0.2216$; $t = 6.4194$; $p < 0.01$), thus supporting H2. The results also demonstrate that the interaction term of ingratiation and helping behavior is significant ($\beta = 0.0688$; $t = 2.1034$; $p < 0.05$), thereby supporting H3.

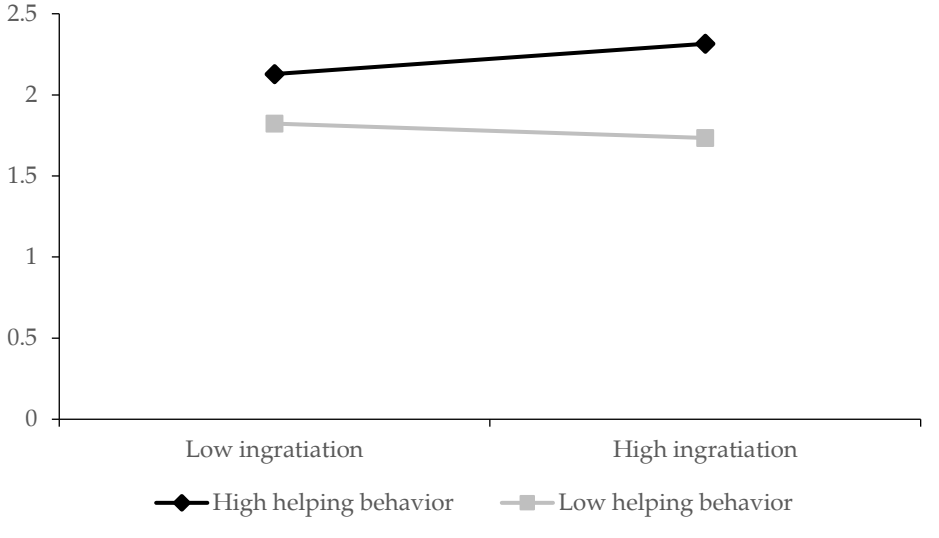
Table 3: Interaction effect of ingratiation and helping behavior on supervisor satisfaction (modprobe output)

Variable	β	SE	t	p
Constant	5.3796	0.5219	10.3073	0.0000
Gender	-0.2911	0.0961	-3.0288	0.0026
Age	-0.0561	0.0457	-1.2273	0.2204
Education	0.0438	0.0315	1.3916	0.1648
Experience	0.0436	0.0338	1.2904	0.1976
Ingratiation	0.0245	0.0359	0.6815	0.4959
Helping behavior	0.2216	0.0345	6.4194	0.0000
Interaction (IB*HB)	0.0688	0.0327	2.1034	0.0360

Source: Authors' calculations.

Figure 1 plots the statistical output to illustrate the interaction effect at a value of one standard deviation above the mean (high) and one standard deviation below the mean (low) of helping behavior (see Cohen et al., 2003). The figure shows that the effect of ingratiation on supervisor satisfaction is stronger when helping behavior is high (β = 0.3683) and weaker (β = 0.0932) when the latter is low (Table 4). Overall, the results support H2 and H3, but not H1.

Figure 1: Interaction effect of ingratiation and helping behavior on supervisor satisfaction



Note: Moderator = helping behavior (high and low).

Table 4: Conditional effect of focal predictor on moderator variable

ZHBM	B	SE	t	p	LLCI(b)	ULCI(b)
1	0.0932	0.0548	1.7001	0.0898	-0.0146	0.2010
2	0.1620	0.0828	1.9553	0.0512	-0.0008	0.3248
3	0.2308	0.1134	2.0351	0.0425	0.0079	0.4536
4	0.2995	0.1449	2.0674	0.0393	0.0148	0.5843
5	0.3683	0.1768	2.0831	0.0378	0.0208	0.7158

Note: Model fit: $R^2 = 0.1532$, F = 9.6132, df1 = 8.000, df2 = 425.000, $p < 0.01$, $n = 434$. Independent variable = IB, moderator = HB, outcome variable = SSM. Alpha level used for confidence intervals: 0.05, N = 453.
Source: Authors' calculations.

5. Discussion

Our first hypothesis was that ingratiation is positively associated with supervisor satisfaction. The absence of statistical support for this is unexpected and inconsistent with balance theory (Wu et al., 2013) and the principle of reciprocity (Jones, 1964), under which supervisors are expected to favor employees who display ingratiating behavior. However, the finding is consistent with studies such as Farmer et al. (1997), Broll et al. (1974), Greenberg and Frisch (1972) and Nemeth (1970). It implies that supervisors do not necessarily see ingratiation in a positive light and will not favor employees who engage in this behavior.

The second hypothesis proposed that helping behavior is positively related to supervisor satisfaction. Most studies support this idea at the level of individuals, groups and organizations (see Podsakoff, Ahearne & MacKenzie, 1997; Podsakoff et al., 2009). The result is also consistent with MacKenzie, Podsakoff and Fetter (1993) and Organ, Podsakoff and MacKenzie (2006) who note that supervisors favor employees who engage in organizational citizenship behavior. However, some studies argue that extra-role behavior is positively associated with work overload, job stress, work–family conflict (Bolino & Turnley, 2005) and slower career growth (Bergeron, 2007). In response to Spitzmuller and Van Dyne (2013), who question the outcomes of helping behavior, we provide empirical evidence of its positive association with supervisor satisfaction (a positive outcome).

Proost et al. (2010) and Kacmar, Delery and Ferris (1992) report that self-promotion tactics are more effective than ingratiation. While H1 and H2 support similar findings, the beta coefficient for H1 is very low and insignificant. This indicates that ingratiation is an ineffective means of

achieving supervisor satisfaction. The disparity is due to the different dependent variables used in both studies.

Our third hypothesis investigates the moderating effect of helping behavior on the relationship between ingratiation and supervisor satisfaction. The statistical support for this is in accordance with the expectancy theory, which states that individuals evaluate the outcome of a certain behavior cognitively. In this case, we find that supervisors evaluate employees' performance in terms of their helping behavior over and above ingratiation, which is not correlated with supervisor satisfaction in the absence of helping behavior. The relationship becomes significant when helping behavior (based on social exchanges among coworkers) is high. These findings also support the view that supervisors favor ingratiating employees only when they believe that the latter's helping behavior is genuine (see Farmer et al., 1997; Broll et al., 1974; Greenberg & Frisch, 1972; Nemeth, 1970).

Our results are in line with recent studies such as Sibunruang et al. (2014) and Proost et al. (2010), who find that a combination of influence tactics is more effective. We show that the combined effect of ingratiation and helping behavior is more effective than the individual impact of ingratiation on supervisor satisfaction, but less effective than that of helping behavior on supervisor satisfaction. This distinction arises due to the nature of combinations we investigate. Overall, we conclude that ingratiation when combined with other influence tactics is more effective than when it is employed alone.

6. Further Research and Practical Implications

This study offers several key directions for future research. The first is to replicate the study in different settings and investigate the individual as well as the interaction effect of influence tactics. The second is to extend the current study by examining the effectiveness of ingratiation by introducing the perceived intentions of the individual engaging in this behavior and his/her target. Third, we show that ingratiation is ineffective in the absence of helping behavior in terms of its effect on supervisor satisfaction. This result is different from that of previous studies due to the difference in dependent variables used. Accordingly, one could investigate the effect of ingratiation on other variables such as the gains accruing to the individual employee or to a group. Here, we have described helping behavior as a social influence tactic, but this could be extended by investigating the interaction between hard-influence and soft-influence tactics.

The study's results provide further insight into the value of ingratiation and helping behavior from an employee's point of view, suggesting that a combination of soft-influence tactics is more likely to achieve supervisor satisfaction than a single social-influence strategy. This is important because the outcome of ingratiation alone may not be what employees expect, leading them to waste time and energy on creating a certain impression and affecting their perceptions of organizational justice and the psychological contract.

Finally, our findings suggest that employees and their supervisors can be recruited, trained and evaluated based on those social interaction mechanisms that enable them to effectively evaluate and respond to soft social influence tactics. This implies that training sessions focusing on this aspect may be useful both for employees and supervisors.

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