

# **Expounding the Structure of Slyer Ways of Tunneling in Pakistan**

Vol. IV, No. II (Spring 2019) | Page: 329 – 343 | DOI: 10.31703/grr.2019(IV-II).35 p- ISSN: 2616-955X | e-ISSN: 2663-7030 | ISSN-L: 2616-955X

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Abstract

This study is aimed to expound the structure of slyer ways of tunneling in Pakistan. It also analyzes relationships among these factors. Design of study encompasses on review of contemporary literature, survey for collection of data, analysis, and modeling. Review of literature is used to prepare a list of ways of tunneling, ISM is affianced for modeling contextual relationships, and MICMAC for classification of factors. The results of the literature show that there are sixteen slyer ways of tunneling. The result of ISM reveals that there is an underlying structure having three levels. The third level is occupied by "purchasing un-necessary items" and "exchanging the assets at relatively lesser value" hence are the most critical factors. Findings of MICMAC affirm the result of ISM and pinpoint that the aforementioned factors have high driving power and are key factors. Tunneling is a sensitive topic of corporate governance and conducting research on this topic is worthwhile for all stakeholders.

Key Words: Corporate governance, ISM, MICMAC, Pakistan, stakeholders, tunneling.

#### Introduction

In the wake-up call of Corporate Governance (CG), the world has become conscious to ride the regime of good governance. There are a plethora of issues concerning successfully getting on board on CG (Dayanandan, 2013). The literature is rich in the role of the board of directors, auditors, management in general, CSR, whistleblowing and disclosures. A number of countries/national/international institutions are participating in this race (Arslan & Zaman, 2014). Pakistan is also striving to ride the train e.g. code of CG 2002, 2012, 2017 and 2019. Despite all these efforts, there are different aspects of CG that still need the attention of research (Lund-Thomsen, 2008). Tunneling is one of those issues that are relatively less explored and open for investigation (Johnson et al., 2000). Tunneling is the act of siphoning of funds of the companies for unwarranted purposes (Cheung et al., 2006). It deteriorates the faith of stakeholders in corporate businesses. There is plenty of examples of tunneling ranging from advance countries to underdeveloped nations. There are many examples of tunneling in Pakistan as well (Hussain & Safdar, 2018). In order to make the corporations a success story, these types of unwarranted practices need to be put to halt. It is imperative to investigate that what way the tunneling operates. What are the relations of different factors that make the tunneling possible? In view of the representation above this study has opted to investigate tunneling. Therefore, the objectives of the study are: i) to identify the slyer ways of tunneling, ii) to depict the underlying structure of the ways of tunneling, iii) to classify them on the basis of their drivingdependence power and iv) to discuss the implication of underlying structure. The study follows a novel qualitative approach i.e. ISM to accomplish these objectives. Preparing the list of cleverer and critical ways of tunneling discourse of literature is used as a method of exploration and the procedure of classical interpretive structural modeling coupled with MICMAC has been applied. This technique is considered superior to the statistical techniques and has the capacity to address better the issues like that of in hand (Chidambaranathan et al., 2009) ISM has the competence to develop a primary model of the issue (Avinash et al., 2018; Raj et al., 2008). The

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remaining part of this study is structured as contemporary literature on tunneling, methodology, results & discussion and conclusion.

# **Contemporary Literature on Tunneling**

There is an avalanche of literature on CG. The researchers, in the context of CG in general and regarding tunneling in specific, have reviewed hundreds of studies. In this context, the data basis like JSTOR, Wiley-Blackwell, Taylor & Francis, Emerald and ScienceDirect have been explored with the keywords viz tunneling, CG, Pakistan. The germane studies are reported to clasp the context. Du and He (2013) asserted that controlling shareholders are tilted towards self-dealing that ultimately results in value losses and depressed stock prices. It also revealed that controlling shareholders ultimately take away the firms from the majority public even by paying a nominal premium. Ma et al. (2013) argued that there is comparatively strong resistance against tunneling in the firms with founder managers because they are more concerned. It also revealed that the political connections of managers also have a role in tunneling because it is one of the motivating factors and makes the tunneling happen. Li (2010) bolstered that the Chinese legal framework does not provide protection to investors particularly in the case of shareholders of privately controlled public companies rather it facilitates tunneling literally at a minimal cost. It reached to the conclusion that mere devising and implementation of CG principles is not enough to put tunneling to halt. Atanassov and Mandell (2018) investigated the uses of the dividend model as the extraction of money from public firms. It proclaimed that weaker governed firms pay out more dividends as compared to that of better governed and market consider it as an act of tunneling and value of the firm in turn reduces. Aharony et al. (2010) delineated rather a modern tool of tunneling and asserted that holding companies deliberately do not return the loans to their newly listed subsidiary companies. It further argued that it is particularly true in the post-IPO period and earnings management through abnormal sales in the pre-IPO period. Wang and Xiao (2011) stated that incentive payment schemes to controlling shareholders are also considered as tunneling and there is hardly any relationship between these schemes and firm performance. Jiang et al. (2015) emphasized that mechanisms such as ownership structure, CG and institutional environments can restrain tunneling activities. It also asserted that operating performance and valuation of firms with non-operational fund occupancy problem improves CG regulations go into effect. It further argued that there is a severe issue of minority shareholder expropriation and the effectiveness of regulators' policy. Tareq et al. (2017) bolstered that the development of a new measure for discriminatory related party transactions is superior to existing measure as it is relatively lesser vulnerable to measurement error and has sound theoretical ground. El-Helaly (2018) established that audit, rules & regulations and CG slackens the negative outcomes of related-party transactions. Hu and Sun (2019) asserted that private firms and local governments tunneled more wealth from their subsidiaries than central government institutions. Furthermore, the dynamism of tunneling is negatively related to the institutional quality of the subnational regions controlled by private firms. Luo et al. (2012) argued that there is a nonlinear U-shaped relationship between the cash flow and controlling shareholders' private benefits. Zhang et al. (2017) gathered data from 167 foreign institutional investors in China during the period of 2003 to 2011 and found an inverted U-shaped relationship between foreign institutional investors trading turnover and controlling shareholders' tunneling. López-Iturriaga and Martín (2019) revealed that there is a positive relationship between political connections and share repurchases. Chen et al. (2014) posited that the presence of independent directors on board can restrain tunneling behavior by large shareholders. Chious et al. (2010) investigated the tunneling hypothesis and concluded that if there are fewer investment opportunities in the market, then there is a higher probability of expropriation. Chen et al. (2017) established that firm size is positively related to tunneling activities, whereas, the shareholding ratio of directors is negatively related. In fact, this leads to severe agency problems. Xie et al. (2012) concluded that firms undertaking asset/equity tunneling report higher conservatism than that of others. There is also a positive association between reported conservatism and private benefits gained by controlling stockholders. Fooladi and Farhadi (2019) argued that policymakers, regulators and standard setters are required to devise a framework for protecting the firm's wealth by way of restraining the power of related parties in order to limit the opportunities of tunneling available to them through loopholes of governance. Tang (2016) and Wan and Wong (2015) asserted that the firms use tax avoidance to facilitate expropriation and the magnitude of expropriation is more in state-owned enterprises. Huang (2019) delineated that tax reform

announcements resulted in a lower level of tunneling. Boateng and Huang (2017) clinched that the government as controlling shareholder reduces the effectiveness of multiple large shareholders and resultantly limits tunneling. Zhang and Huang (2013) concluded that controlling shareholders undertake more related party transactions at the expense of minority shareholders. Cheung et al. (2006) conducted a study in the context of tunneling based on the secondary data of the companies listed on the Stock Exchange of Hong Kong. It accounted for all highly relevant ways of tunneling. Its findings are fairly generalizable to the majority of the corporations. The present study extracted a total of sixteen (Table 1) wilier ways of tunneling from the above review of literature majorly from Cheung et al. (2006).

Table 1. List of Barriers

Sr.	Barriers
1	Purchase assets on high prices
2	Selling assets at low prices
3	Purchasing un-necessary items
4	Exchanging the assets at a relatively lesser value
5	Use of assets for personal purpose
6	Use of assets for family business
7	Siphoning out against fictitious assets
8	Charge personal expenses to business
9	Diverting profits to subsidiaries
10	Diverting business opportunities to subsidiaries
11	Diverting intellectual property to subsidiaries
12	Selling shares to family members
13	Investing funds in equities of associated
	companies
14	Giving personal loans to director or officers
15	Issuing rights to major shareholders
16	Booking personal losses in the company's accounts

# Methodology

The methodology of the study is arranged as philosophy & design of the study, a panel of experts, ISM, MICMAC and results & discussion.

## Philosophy & Design

It is a qualitative exploratory study envisaged on contemporary literature on tunneling, data collection by way of field survey. The population under study is corporations in Pakistan. We have opted purposive sampling design. The size of the sample consists of eleven experts (Ranjbar et al., 2012). The data has been collected through a matrix type questionnaire suitable for structural studies (Alawamleh & Popplewell, 2011; Trigunarsyah & Parami Dewi, 2015). The data collection method opted for this study is face to face interviews of experts (Li & Yang, 2014). The technique of data analysis and structuring the relations is Interpretive Structural Modeling (ISM), whereas, the technique of classification is Cross Impact Matrix Multiplication Applied to Classification (MICMAC).

### Panel of Experts

Being recognizant of the fact that quality prevails on quantity (Clayton, 1997; Shen et al., 2016), the study opted for a panel of experts on CG. It is also important to constitute a true representative of the panel of experts. The issue under investigation is highly technical and sensitive in nature, therefore, the panel of experts has carefully been recruited based on a pre-determined criterion. The criteria for recruitment of experts of panel includes: i)

experience (minimum ten years of experience as chief financial officer of a large company), ii) qualification (chartered accountant and/or master in finance), iii) presently working in some large size public limited listed companies and iv) well versed with principles of CG. The authors identified and approached more than twenty experts out of which sixteen agreed to participate in the study but eleven actually participated as respondents of the study (Clayton, 1997; Khan & Khan, 2013; Shen et.al., 2016). It took almost two months to identify, approach, interview and get the required data. The data was collected on a matrix type questionnaire. The questionnaire was completed by using VAXO (i.e.  $V: i \rightarrow j$ ,  $A: i \leftarrow j$ ,  $X: i \leftrightarrow j$  and  $O: i \leftrightarrow j$ ). The panel of experts was engaged for verification of factors, establishing the relationships among factors and reviewing the structural model for any inconsistencies.

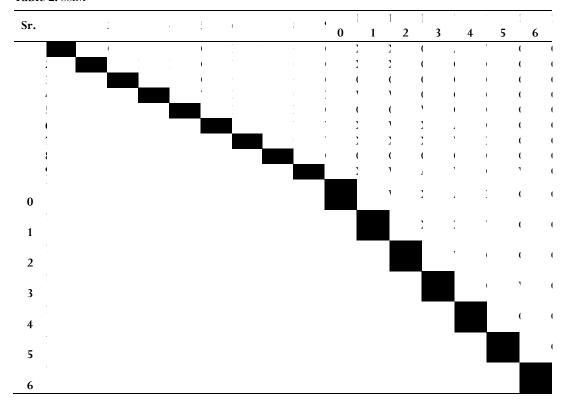
#### **ISM**

ISM is defined as a "process that transforms unclear and poorly articulated mental models of systems into visible, well-defined models useful for many purposes" (Sushil, 2012). It has the capability to impose a meaningful hierarchical structure on as less as five and as many as more than eighty elements. This study has sixteen factors under investigation which is an ideal range to apply this methodology (Sushil, 2017). Therefore, the classical procedure of ISM stated in Attri et al. (2013); Sushil (2017); Thakkar et al. (2008); Warfield (1973 & 1974) is applied.

*Identifying ways of tunneling:* As the first step towards ISM, the study has identified the aforementioned sixteen ways of tunneling (Table 1).

Formulation of Structural Self-Interaction Matrix: As a second step SSIM has been prepared by aggregating (Abdullah & Siraj, 2014; Cai & Xia 2018; Dhochak & Sharma, 2016; Li et al. 2019; Sushil, 2012) the data taken on questionnaire using *i* leads to *j* relationship (Table 2).

Table 2. SSIM



Creating an initial reachability matrix: As a third step, the SSIM is converted into an initial reachability matrix (Table 3).

Rules for reachability matrix:				
for i-j entry	1	0	1	0
for $j$ - $i$ entry	О	1	1	0

Table 3. Initial Reachability Matrix

Sr.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	0	0	0	0	1	1	0	0	1	1	0	0	1	0	0
2	0	1	1	1	0	1	1	0	0	1	1	0	0	0	0	0
3	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4	0	1	0	1	1	1	1	0	1	1	1	0	0	O	0	0
5	0	0	0	0	1	1	1	1	0	0	0	1	0	0	0	0
6	1	0	0	1	1	1	1	1	1	1	1	1	0	O	0	0
7	0	1	0	0	1	1	1	0	1	1	1	1	1	1	0	0
8	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
9	0	0	0	1	0	0	0	0	1	1	1	0	1	O	1	0
10	1	1	0	0	0	1	1	0	1	1	1	1	0	1	0	0
11	1	1	0	0	0	0	1	0	0	O	1	1	1	1	0	0
12	0	0	0	0	0	1	1	0	1	1	1	1	1	0	0	0
13	1	0	0	0	0	1	0	0	0	1	1	0	1	O	1	0
14	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

The initial reachability matrix has been checked for transitive relations using MS Excel and some of the *0s* have been replaced with *1\** that indicates the transitive relationship. This way the final reachability matrix has been prepared (Table 4).

Table 4. Final Reachability Matrix

Sr.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Driving
1	1	*	0	*	1*	1	1	1*	1*	1	1	1*	1*	1	0	0	13
2	1*	1	1	1	1*	1	1	1*	1*	1	1	1*	1*	1*	0	0	14
3	0	1	1	*	1*	1*	1	0	1*	1*	1*	1*	1*	1*	0	0	12
4	1*	1	*	1	1	1	1	1*	1	1	1	1*	1*	1*	1*	0	15
5	1*	*	0	*	1	1	1	1	1*	1*	1*	1	1*	1*	0	0	13
6	1	*	0	1	1	1	1	1	1	1	1	1	1*	1*	1*	0	14
7	1*	1	1*	1*	1	1	1	1*	1	1	1	1	1	1	1*	0	15
8	0	0	0	0		1*	1*	1	0	0	0	1*	0	0	0	0	5
9	1*	1*	0	1	1*	1*	1*	0	1	1	1	1*	1	1*	1	0	13
10	1	1	1*	1*	1*	1	1	1*	1	1	1	1	1*	1	1*	0	15
11	1	1	1*	1*	1*	1*	1	0	1*	1*	1	1	1	1	1*	0	14
12	1*	1*		1*	1*	1	1	1*	1	1	1	1	1	1*	1*	0	14
13	1	1*	0	1*	1*	1	1*	1*	1*	1	1	1*	1	1*	1	0	14

14	1*	1*	0	0	1*	1*	1	0	1*	1	1*	1*	1*	1	0	0	11
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Dependence	12	13		12	14	14	14	10	13	13	13	14	13	13	9	1	

Applying the rules of partitioning on the reachability matrix: As a fourth step, the final reachability matrix has been apportioned by applying the partitioning rules on binary matrices (Attri et al., 2013; Thakkar et al., 2008; Warfield, 1973) in Table 5-7.

Table 5. Iteration I

Sr.	Reachability Set	Antecedent Set	Intersection Set	Level
1	1,2,4,5,6,7,8,9,10,11,1	1,2,4,5,6,7,9,10,11,1	1,2,4,5,6,7,9,10,11	
	2,13,14	2,13,14	,12,13,14	
2	1,2,3,4,5,6,7,8,9,10,11,	1,2,3,4,5,6,7,9,10,11	1,2,3,4,5,6,7,9,10,	
	12,13,14	,12,13,14	11,12,13,14	
3	2,3,4,5,6,7,9,10,11,12,	2,3,4,7,10,11	2,3,4,7,10,11	
	13,14			
4	1,2,3,4,5,6,7,8,9,10,11,	1,2,3,4,5,6,7,9,10,11	1,2,3,4,5,6,7,9,10,	
	12,13,14,15	,12,13	11,12,13	
5	1,2,4,5,6,7,8,9,10,11,1	1,2,3,4,5,6,7,8,9,10,	1,2,4,5,6,7,8,9,10,	I
	2,13,14	11,12,13,14	11,12,13,14	
6	1,2,4,5,6,7,8,9,10,11,1	1,2,3,4,5,6,7,8,9,10,	1,2,4,5,6,7,8,9,10,	
	2,13,14,15	11,12,13,14	11,12,13,14	
7	1,2,3,4,5,6,7,8,9,10,11,	1,2,3,4,5,6,7,8,9,10,	1,2,3,4,5,6,7,8,9,1	
	12,13,14,15	11,12,13,14	0,11,12,13,14	
8	5,6,7,8,12	1,2,4,5,6,7,8,10,12,1	5,6,7,8,12	I
		3		
9	1,2,4,5,6,7,9,10,11,12,	1,2,3,4,5,6,7,9,10,11	1,2,4,5,6,7,9,10,11	
	13,14,15	,12,13,14	,12,13,14	
10	1,2,3,4,5,6,7,8,9,10,11,	1,2,3,4,5,6,7,9,10,11	1,2,3,4,5,6,7,9,10,	
	12,13,14,15	,12,13,14	11,12,13,14	
11	1,2,3,4,5,6,7,9,10,11,1	1,2,3,4,5,6,7,9,10,11	1,2,3,4,5,6,7,9,10,	
	2,13,14,15	,12,13,14	11,12,13,14	
12	1,2,4,5,6,7,8,9,10,11,1	1,2,3,4,5,6,7,8,9,10,	1,2,4,5,6,7,8,9,10,	
	2,13,14,15	11,12,13,14	11,12,13,14	
13	1,2,4,5,6,7,8,9,10,11,1	1,2,3,4,5,6,7,9,10,11	1,2,4,5,6,7,9,10,11	
	2,13,14,15	,12,13,14	,12,13,14	
14	1,2,5,6,7,9,10,11,12,13	1,2,3,4,5,6,7,9,10,11	1,2,5,6,7,9,10,11,1	
	,14	,12,13,14	2,13,14	
15	15	4,6,7,9,10,11,12,13,1	15	I
		5		
16	16	16	16	I

Table 6. Iteration II

Sr.	Reachability Set	Antecedent Set	Intersection Set	Leve l
1	1,2,4,6,7,9,10,11,12	1,2,4,6,7,9,10,11,12	1,2,4,6,7,9,10,11 ,12,13,14	II
2	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,3,4,6,7,9,10, 11,12,13,14	II
3	2,3,4,6,7,9,10,11,12 ,13,14	2,3,4,7,10,11	2,3,4,7,10,11	
4	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,3,4,6,7,9,10,11, 12,13	1,2,3,4,6,7,9,10, 11,12,13	
6	1,2,4,6,7,9,10,11,12 ,13,14	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,4,6,7,9,10,11 ,12,13,14	II
7	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,3,4,6,7,9,10, 11,12,13,14	II
9	1,2,4,6,7,9,10,11,12 ,13,14	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,4,6,7,9,10,11 ,12,13,14	II
10	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,3,4,6,7,9,10, 11,12,13,14	II
11	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,3,4,6,7,9,10, 11,12,13,14	II
12	1,2,4,6,7,9,10,11,12 ,13,14	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,4,6,7,9,10,11 ,12,13,14	II
13	1,2,4,6,7,9,10,11,12 ,13,14	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,4,6,7,9,10,11 ,12,13,14	II
14	1,2,6,7,9,10,11,12,1 3,14	1,2,3,4,6,7,9,10,11, 12,13,14	1,2,6,7,9,10,11,1 2,13,14	II

Table 7. Iteration III

Sr.	Reachability Set	Antecedent Set	Intersection Set	Level
3	3,4	3,4	3,4	III
4	3,4	3,4	3,4	III

Building ISM model: Based on the results of iterations by way of partitioning a model appearing on diagonal of the conical matrix is represented in form of a digraph (Warfield, 1973) by using Edraw Max (Figure 1). Since reporting of the conical matrix in the classical procedure of ISM is optional, therefore, the same has been skipped (Sushil, 2012)

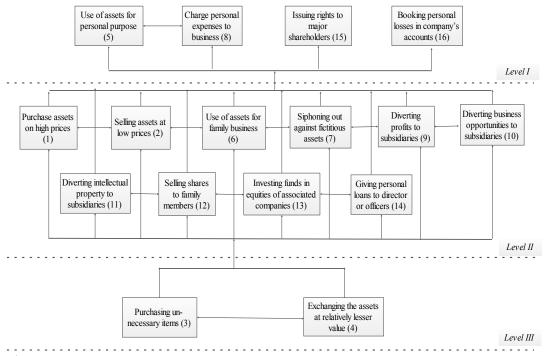


Figure 1. ISM

This model exhumes the underlying structure of slyer ways of tunneling. There are three levels of the model, top-level (*Level II*) occupied by factors listed at 5, 8, 15 & 16; whereas, second level (*Level III*) by 1, 2, 6, 7, 9, 10, 11, 12, 13 & 14; whereas, third level (*Level III*) by 3 & 4. The relationship at levels has been examined and reveals that factors 5 & 8 at *Level I* have two-way relationships but factors 15 & 16 neither have relationships between them and nor with 5 and/or 8. At *Level III*, all the factors are two-way related. At *Level III*, factors 3 & 4 are also two-way related. The factors that occupy the bottom of the model are critical factors.

Conceptual validation of model: The digraph was presented to the experts for checking the same for conceptual, theoretical and logical inconsistencies (Raeesi et al., 2013; Vasanthakumar et al., 2016). It was found appropriate; hence, no change was made to this scientifically driven model

# MICMAC Analysis

It is a structural methodology introduced by Godet (1986). We used it to affirm the result of ISM, to point out key factors and classify the factors into four clusters (independent, autonomous, linkage and dependent). This analysis provides valuable insights into the driving and dependence power of the factors. The Driving-dependence diagram is given in Figure 2.

# Figure 2. Driving-Dependence Diagram

In Figure 2 driving power is plotted on the y-axis, whereas, dependence on the x-axis. Factor numbers have been written on the coordinates of driving and dependence. The Cartesian Plane has been divided into four clusters by drawing the scale centric line. Factor number 3 falls in the independent cluster; 16 in autonomous; 8 & 15 independent and all others in the linkage.

15												4	10	7		
14													2,11,13	6,12		
13												1	9	5		
12			Ind	epen	dent	3						Z	inkage			
11								П					14			
10								П								
9																
8																
7																
6																
5			Aut	onon	ious			П		8		De	pendent			
4								П								
3								П								
2								П								
1	16							Н	15							$\vdash$
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

#### **Results and Discussion**

Driving

Results: Discourse of review of literature results into sixteen slyer ways of tunneling, whereas, result of ISM show that 'use of assets for personal purpose' (5), 'charge personal expenses to business' (8), 'issuing rights to major shareholders' (15) and 'booking personal losses in company's accounts' (16) occupy top of the model, therefore, are relatively less critical. 'Purchase assets on high prices' (1), 'selling assets at low prices' (2), 'use of assets for family business' (6), 'siphoning out against fictitious assets' (7), 'diverting profits to subsidiaries' (9), 'diverting business opportunities to subsidiaries' (10), 'diverting intellectual property to subsidiaries' (11), 'selling shares to family members' (12), 'investing funds in equities of associated companies' (13) and 'giving personal loans to director or officers' (14) occupy second level (middle of the model) and are moderate critical. 'Purchasing un-necessary items' (3) and 'exchanging the assets at relatively lesser value' (4) occupy the third level (bottom of the model) and are the most critical. Factors occupying the bottom are driving factors, therefore, they need to be addressed carefully by the regulators/managers. The cluster wise results of MICMAC are:

*Independent:* Independent cluster of MICMAC contains factors listed at serial number 3 (Table 1). It is an independent factor that has high driving but low dependence power. It is the key factor to be dealt with on top priority by the policymakers. Other factors are driven by this factor.

Autonomous: Factor listed at serial number 16 falls in this cluster. It has low driving and low dependence power relatively isolated and disconnected from the system. This factor can also be removed from analysis in future studies. This is not only evident from MICMAC but also from the ISM model. Factor number 16 is only connected with level to level arrow but isolated at the level.

Linkage: This cluster contains factors listed at serial number 1, 2, 4, 5, 6, 7, 9, 10, 11, 12, 13 and 14. These factors are agile and ambivalent by nature. Any action on them will affect other factors and resultantly/as feedback might affect themselves as well. Therefore, they need extra care while dealing with. They are the linking factors having high dependence and high driving power at the same time.

Dependent: Factors listed at serial number 8 and 15 are dependent on others. Factor number 15 has low driving power whereas factor number 8 has moderate driving power. This factor is also affirmed by the ISM model since both of these factors occupy top of the model. Summary of the results is given Table 8.

**Table 8. Summary of the Results** 

	of Literature Review ed by Experts	I	Results of	MICMAC A	analysis	ISM Results	Comments
No.	Barrier	Drivin g	Depend ence	Effectiven ess	Cluster	Level	- Comments
1	Purchase assets on high prices	13	12	1	Linkage	II	
2	Selling assets at low prices	14	13	1	Linkage	II	
3	Purchasing un-necessary items	12	6	6	Independ ent	III	Key factor
4	Exchanging the assets at relatively lesser value	15	12	3	Linkage	III	
5	Use of assets for personal purpose	13	14	-1	Linkage	I	
6	Use of assets for family business	14	14	0	Linkage	II	
7	Siphoning out against fictitious assets	15	14	1	Linkage	II	
8	Charge personal expenses to business	5	10	-5	Depend ent	I	
9	Diverting profits to subsidiaries	13	13	0	Linkage	II	
10	Diverting business opportunities to subsidiaries	15	13	2	Linkage	II	
11	Diverting intellectual property to subsidiaries	14	13	1	Linkage	II	
12	Selling shares to family members	14	14	0	Linkage	II	
13	Investing funds in equities of associated companies	14	13	1	Linkage	II	
14	Giving personal loans to director or officers	11	13	-2	Linkage	II	
15	Issuing rights to major shareholders	1	9	-8	Depend ent	I	
16	Booking personal losses in the company's accounts	1	1	0	Autono mous	I	

# Discussion

The objective of the study is to exhume the cleverer ways of tunneling in Pakistani corporations. It is a seminal and important study because it addresses a hot issue of CG. In this context, sixteen factors have been detected from contemporary literature which was subsequently ratified by eleven experts. The data was collected from these experts by way of a face-to-face interview and a novel methodology (ISM coupled with MICMAC) has been

applied. There are numerous studies on different aspects of CG in general and particularly on CSR, the role of directors, the role of auditors, disclosure requirements, transparencies, etc. but there is literally dearth of studies on tunneling. The researchers found few studies directly relevant to the issue under consideration and drawn a contrast as Table 9.

Table 9. The contrast of Present Study with Contemporary Literature

Study	Focus	Country	Factors	Result	Methodology
Current	Tunneling	Pakistan	16	Purchasing un-necessary items and exchanging the assets at a relatively lesser value	ISM, MICMAC
Xie et al., 2012	Assets and equity tunneling	Hong Kong	11	Firms doing assets/equity tunneling report higher conservatism as compare to their rivals	Pooled cross- sectional regression
Cheung et al., 2006	Tunneling, propping, and expropriation- connected transactions	Hong Kong	12	Could not find evidence that if there are connected transactions then there must be tunneling, propping, and expropriation	Multivariate analysis by way of using ordinary least squares with regression

Although the literature is rich in studies on a different aspect of tunneling. But one can hardly find any study using ISM as a research methodology in order to investigate the underline structure of slyer ways of tunneling. Most studies found pertaining to China, Malaysia and Hong Kong. There is a dearth of studies on other Asian countries. Most of the studies used descriptive statistics and different forms of regression analysis to investigate this issue. These statistical analyses used huge data but give limited insights. Our study is different from contemporary literature which uses a limited amount of qualitative data and gives rather more insights into the issue.

# Conclusion

The main objective of the study is to expound the structure of slyer ways of tunneling in Pakistan. Since CG is current in recent topics and its issues like tunneling, whistleblowing and insider trading are hot topics to be researched. Therefore, it is vital to scientifically investigate the tunneling. There is scanty literature on tunneling worldwide whereas scarce in Pakistan. Hence, it is a unique study of its kind. The design of the study encompasses on review of contemporary literature, a survey of data collection, analyses and structure modeling. Review of literature revealed the slyer ways, ISM is used to impose on hierarchy on the structure on them, whereas, MICMAC to classify them for rather deeper analysis. The results of the review show that there are sixteen major slyer ways (Table 1). ISM shows that the underlying structure has three different levels that prioritize these factors

like 5, 8, 15 & 16 least important/critical as they occupy top of the model; 1, 2, 6, 7, 9, 10, 11, 12, 13 & 14 are moderate critical because they occupy middle of the model; 3 & 4 are the most critical as they occupy bottom of the model. Results of the MICMAC reveal that 3 is independent; 16 is autonomous; 8 & 15 are dependent; whereas 1, 2, 4, 5, 6, 7, 9, 10, 11, 12, 13 & 14 are linking. The key factor is purchasing un-necessary items (3). It warrants the immediate attention of regulators and needs careful handling. This study provides a lot of information to the stakeholders, understanding to discerners and has contributed a list of slyer ways of tunneling, ISM model and driving-dependence diagram towards literature. It also contributed by way of hierarchical structure and the links among the factors. This study is useful for regulators to address the issue in the legal framework, for management to be conscious enough to put the tunneling to halt, for the shareholders to be vigilant and prudent, for the society at large to benefit out of understanding provided by the study and for academia to design the future studies using the framework contributed by the way of ISM model and MICMAC diagram. This study also has some limitations. Firstly, it is a sensitive issue and the data has been collected form chief financial officers of the companies since they are the people sitting on the helm of affairs, there might be a certain bias in the data, therefore future studies may use some indirect/disguised form of data collection. Secondly, this study conducted in Pakistan, therefore the result can only be generalized keeping in view the context of the study and similar future studies should be conducted in other countries as well. Thirdly, it is an exploratory study using ISM that expounds the relationships theoretically but does not quantify them or statistically test them, therefore future studies should be designed to quantify the links and to statistically validate the model.

# References

- Abdullah, M. R. T. L., & Siraj, S. (2014). Interpretive Structural Modeling of MLearning Curriculum Implementation Model of English Language Communication Skills for Undergraduates. *Turkish Online Journal of Educational Technology-TOJET*, 13(1), 151-161.
- Aharony, J., Wang, J., & Yuan, H. (2010). Tunneling as an incentive for earnings management during the IPO process in China. *Journal of Accounting and Public Policy*, 29(1), 1-26.
- Alawamleh, M., & Popplewell, K. (2011). Interpretive structural modeling of risk sources in a virtual organisation. *International Journal of Production Research*, 49(20), 6041-6063.
- Arslan, M., & Zaman, R. (2014). Constraints and Barriers in Corporate Governance and Managerial Efficiency: A Comparative Analysis. *Constraints*, 4(18), 83-94.
- Atanassov, J., & Mandell, A. J. (2018). Corporate governance and dividend policy: Evidence of tunneling from master limited partnerships. *Journal of Corporate Finance*, 53, 106-132.
- Attri, R., Dev, N., & Sharma, V. (2013). Interpretive structural modelling (ISM) approach: An overview. Research Journal of Management Sciences, 2319, 1171.
- Avinash, A., Sasikumar, P., & Murugesan, A. (2018). Understanding the interaction among the barriers of biodiesel production from waste cooking oil in India-an interpretive structural modeling approach. *Renewable Energy*, 127, 678-684.
- Boateng, A., & Huang, W. (2017). Multiple large shareholders, excess leverage and tunneling: Evidence from an emerging market. *Corporate Governance: An International Review*, 25(1), 58-74.
- Cai, Y., & Xia, C. (2018). Interpretive Structural Analysis of Interrelationships among the Elements of Characteristic Agriculture Development in Chinese Rural Poverty Alleviation. Sustainability, 10(3), 786.
- Chen, W., Li, S., & Chen, C. X. (2017). How much control causes tunneling? Evidence from China. *China journal of accounting research*, 10(3), 231-245.
- Chen, Y., Wang, Y., & Lin, L. (2014). Independent directors' board networks and controlling shareholders' tunneling behavior. *China Journal of Accounting Research*, 7(2), 101-118.
- Cheung, Y.-L., Rau, P. R., Stouraitis, A. (2006). Tunneling, propping, and expropriation: Evidence from connected party transactions in Hong Kong. *Journal of Financial Economics*, 82(2), 343-386.
- Chidambaranathan, S., Muralidharan, C., & Deshmukh, S. G. (2009). Analyzing the interaction of critical factors of supplier development using Interpretive Structural Modeling-an empirical study. *The International Journal of Advanced Manufacturing Technology*, 43(11-12), 1081-1093.
- Chiou, J. R., Chen, Y. R., & Huang, T. C. (2010). Assets expropriation via cash dividends? Free cash flow or tunneling. *China Journal of Accounting Research*, *3*, 71-93.
- Clayton, M. J. (1997). Delphi: a technique to harness expert opinion for critical decision-making tasks in education. *Educational Psychology*, 17(4), 373-386.
- Dayanandan, R. (2013). Good governance practice for better performance of community organizations-myths and realities. *Journal of Power, Politics & Governance*, 1(1), 10-26.
- Dhochak, M., & Sharma, A. K. (2016). Using interpretive structural modeling in venture capitalists' decision-making process. *Decision*, 43(1), 53-65.
- Du, J., & He, Q. (2013). Tunneling and the decision to go private: Evidence from Hong Kong. *Pacific-Basin Finance Journal*, 22, 50-68.
- El-Helaly, M. (2018). Related-party transactions: A review of the regulation, governance and auditing literature. *Managerial Auditing Journal*, 33(8/9), 779-806.
- Fooladi, M., & Farhadi, M. (2019). Corporate governance and detrimental related party transactions: Evidence from Malaysia. Asian Review of Accounting, 27(2), 196-227.
- Godet, M. (1986). Introduction to la prospective: Seven key ideas and one scenario method. *futures*, 18(2), 134-157.
- Hu, H. W., & Sun, P. (2019). What determines the severity of tunneling in China? Asia Pacific Journal of Management, 36(1), 161-184.

- Huang, W. (2019). Ownership, tax and intercorporate loans in China. International Journal of Accounting & Information Management, 27(1), 111-129.
- Hussain, S., & Safdar, N. (2018). Tunneling: Evidence from Family Business Groups of Pakistan. *Business and Economic Review*, 10(2), 97-121.
- Jiang, G., Rao, P., & Yue, H. (2015). Tunneling through non-operational fund occupancy: An investigation based on officially identified activities. *Journal of Corporate Finance*, 32, 295-311.
- Johnson, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2000). Tunneling. The American Economic Review, 90(2), 22-7
- Khan, S., & Khan, M. S. A. (2013). Conceptualized Model of Green It Purchasing Enablers-An Application of Delphi Technique and Interpretive Structural Modeling. Business Sciences International Research Journal, 1(1), 24-37.
- Li, G. (2010). The pervasiveness and severity of tunneling by controlling shareholders in China. China Economic Review, 21(2), 310-323.
- Li, G., Huang, D., Sun, C., & Li, Y. (2019). Developing interpretive structural modeling based on factor analysis for the water-energy-food nexus conundrum. *Science of The Total Environment*, 651, 309-322.
- Li, M., & Yang, J. (2014). Analysis of interrelationships between critical waste factors in office building retrofit projects using interpretive structural modelling. *International Journal of Construction Management*, 14(1), 15-27.
- López-Iturriaga, F. J., & Martín, D. J. S. (2019). The payout policy of politically connected firms: Tunnelling or reputation? The North American Journal of Economics and Finance, 50, 101025.
- Lund-Thomsen, P. (2008). The global sourcing and codes of conduct debate: Five myths and five recommendations. *Development and Change*, 39(6), 1005-1018.
- Luo, J. H., Wan, D. F., & Cai, D. (2012). The private benefits of control in Chinese listed firms: Do cash flow rights always reduce controlling shareholders' tunneling? Asia Pacific Journal of Management, 29(2), 499-518.
- Ma, L., Ma, S., & Tian, G. (2013). Political connections, founder-managers, and their impact on tunneling in China's listed firms. *Pacific-Basin Finance Journal*, 24, 312-339.
- Raeesi, R., Dastrang, M., Mohammadi, S., & Rasouli, E. (2013). Understanding the interactions among the barriers to entrepreneurship using interpretive structural modeling. *International Journal of Business and Management*, 8(13), 56.
- Raj, T., Shankar, R., & Suhaib, M. (2008). An ISM approach for modelling the enablers of flexible manufacturing system: The case for India. *International Journal of Production Research*, 46(24), 6883-6912.
- Ranjbar, M. S., Azami, A., & Afraze, A. (2012). Analysis of interaction among effective factors on corporate entrepreneurship. Asia Pacific Journal of Innovation and Entrepreneurship, 6, 9-31.
- Shen, L., Song, X., Wu, Y., Liao, S., & Zhang, X. (2016). Interpretive Structural Modeling based factor analysis on the implementation of Emission Trading System in the Chinese building sector. *Journal of Cleaner Production*, 127, 214-227.
- Sushil, A. (2017). Modified ISM/TISM Process with Simultaneous Transitivity Checks for Reduced Direct Pair Comparisons. *Global Journal of Flexible Systems Management*, 18(4), 331-351.
- Sushil, S. (2012). Interpreting the interpretive structural model. *Global Journal of Flexible Systems Management*, 13(2), 87-106.
- Tang, T. Y. (2016). Privatization, tunneling, and tax avoidance in Chinese SOEs. Asian Review of Accounting, 24(3), 274-294.
- Tareq, M., Houqe, M. N., van Zijl, T., Taylor, D. W., & Morley, C. (2017). Discriminatory related party transactions: A new measure. *International Journal of Accounting & Information Management*, 25(4), 395-412.
- Thakkar, J., Kanda, A., & Deshmukh, S. G. (2008). Interpretive structural modeling (ISM) of IT-enablers for Indian manufacturing SMEs. *Information Management & Computer Security*, 16(2), 113-136.
- Trigunarsyah, B., & Parami Dewi, A. A. D. (2015, May). Using a design—build system: An interpretive structural model. In *Proceedings of the Institution of Civil Engineers-Municipal Engineer*, 169(1), 3-12.

- Vasanthakumar, C., Vinodh, S., & Ramesh, K. (2016). Application of interpretive structural modelling for analysis of factors influencing lean remanufacturing practices. *International Journal of Production Research*, 54(24), 7439-7452.
- Wan, Y., & Wong, L. (2015). Ownership, related party transactions and performance in China. Accounting Research Journal, 28(2), 143-159.
- Wang, K., & Xiao, X. (2011). Controlling shareholders' tunneling and executive compensation: Evidence from China. Journal of Accounting and Public Policy, 30(1), 89-100.
- Warfield, J. N. (1973). Binary matrices in system modeling. IEEE Transactions on Systems, Man, and Cybernetics, 5, 441-449.
- Warfield, J. N. (1974). Toward interpretation of complex structural models. *IEEE Transactions on Systems, Man, and Cybernetics*, 5, 405-417.
- Xie, Y., Zheng, L., & Lau, H. A. (2012). Reporting incentives for accounting conservatism, evidence from asset and equity tunneling. *Pacific Accounting Review*.
- Zhang, T., & Huang, J. (2013). The value of group affiliation: evidence from the 2008 financial crisis. *International Journal of Managerial Finance*, 9(4), 332-350.
- Zhang, X., Yang, X., Strange, R., & Zhang, Q. (2017). Informed trading by foreign institutional investors as a constraint on tunneling: Evidence from China. Corporate Governance: An International Review, 25(4), 222-235.