

ปัจจัยด้านกระบวนการของคณะกรรมการบริหาร  
ที่เป็นบัพปัจจัยเชิงสาเหตุของสมรรถนะของคณะกรรมการบริหาร  
The Board Process Factors Antecedents of Board Performance

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บทคัดย่อ

วัตถุประสงค์หลักคือเพื่อตรวจสอบความสัมพันธ์ที่มีนัยสำคัญระหว่างองค์ประกอบด้านการดำเนินการของคณะกรรมการบริหารและสมรรถนะของคณะกรรมการบริหาร เพื่อจุดประสงค์นี้ จึงมีการพัฒนาสมมติฐานที่ระบุว่าตัวแปรต่างๆ เช่น บรรทัดฐานความพยายาม ความขัดแย้งทางปัญญา และการใช้ทักษะและความรู้เป็นตัวแปรเชิงประจักษ์สำหรับกระบวนการของคณะกรรมการบริหาร และการคิดแบบติดกลุ่มมีความเกี่ยวข้องในเชิงบวกกับการตรวจสอบของคณะกรรมการบริหาร การสร้างเครือข่ายความสัมพันธ์ และบทบาทการบริการของสมรรถนะในประเทศไทย ความสัมพันธ์นี้ถูกทดสอบโดยใช้วิธีกำลังสองน้อยที่สุดบางส่วน ดังนั้น จึงพบการเชื่อมโยงที่มีนัยสำคัญระหว่างตัวแปรทั้งสองซึ่งสอดคล้องกับผลการวิจัย ซึ่งพบหลักฐานสนับสนุนแนวคิดที่ว่าสมรรถนะการปฏิบัติงานของคณะกรรมการบริหารได้รับอิทธิพลอย่างมีนัยสำคัญจากตัวแปรกระบวนการของคณะกรรมการบริหาร นอกจากนี้ งานตรวจสอบ งานสร้างเครือข่ายความสัมพันธ์ และงานบริการได้รับผลกระทบแตกต่างกันไปตามกระบวนการของคณะกรรมการบริหาร อนึ่ง ลักษณะของอุตสาหกรรมและบริษัทยังส่งผลอย่างมากต่อสมรรถนะการปฏิบัติงานของคณะกรรมการบริหาร ในลักษณะเดียวกันกับ 325 ตัวอย่างที่เก็บจากบริษัทในประเทศไทยและ 384 ตัวอย่างจากกรรมการบริหาร ดังนั้นสมรรถนะของคณะกรรมการบริหารและกระบวนการของคณะกรรมการบริหารจึงถูกพบว่ามีความสัมพันธ์กันในแง่ของความขัดแย้งทางปัญญา การใช้ทักษะและความรู้ และปัจจัยที่กำหนดแต่ละตัวของบรรทัดฐานความพยายาม เมื่อได้รับข้อมูล สมาชิกในกลุ่มมักจะหลีกเลี่ยงการถกเถียงใดๆ ที่เหนือกว่า และให้อำนาจในการโน้มน้าวใจของเพื่อนร่วมงาน และไม่พยายามที่จะยกประเด็นของพวกเขา

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สิ่งนี้อธิบายว่าเหตุใดผู้กำหนดนโยบายจึงใช้แนวทางที่ไม่มีประสิทธิภาพขณะทำการตัดสินใจ ทำให้  
บูรณาการกระบวนการเหล่านั้นซึ่งเสริมสร้างซึ่งกันและกันในกลุ่ม นอกจากนี้ เขายังอ้างถึงตัวอย่างบางส่วน  
เช่น ความล้มเหลวในการพิจารณาความเสี่ยงที่เกิดจากการเลือกทางเลือกที่ชอบ การสำรวจวัตถุประสงค์และ  
ทางเลือกที่ไม่สมบูรณ์ ความลำเอียงที่เลือกในระหว่างการประมวลผลข้อมูล การค้นหาข้อมูลที่ไม่มี  
ประสิทธิภาพ ความล้มเหลวในการทบทวนทางเลือกที่ถูกปฏิเสธในตอนแรก และความล้มเหลวในการ  
ดำเนินการตามแผนฉุกเฉิน

**คำสำคัญ:** สมรรถนะของคณะกรรมการบริหาร, กระบวนการของคณะกรรมการบริหาร,  
บรรทัดฐานความพยายาม, ความขัดแย้งทางปัญญา, การใช้ทักษะและความรู้

## ABSTRACT

The main objective is to investigate that if a significant relationship exists among the board's process factors and the board performance. For this purpose, a hypothesis was developed stating that variables like, effort norms, cognitive conflict, and use of skills and knowledge are the manifest variables for the board process, and the group think is positively related with board monitoring, networking and service roles of performance in Thailand. This relationship was tested using PLS. Thus, significant association was found among the two constructs which is also consistent with findings, in which the found supporting evidence for the idea that the board's task performance is significantly influenced by the board's process variables. In addition, each particular monitoring, networking and service tasks are differently affected by board processes. Furthermore, industry and firm characteristics also significantly affect the board's task performance. In a similar vein, collected 325 samples from Thailand companies and 384 from the directors. Thus, board performance and board process are found to be related in terms of cognitive conflict, use of skills and knowledge, and individual parameters of effort norms. When information is received, the group members tend to avoid any superior debate and give in to their peers' persuasive power and do not attempt to raise their point. This explains why policymakers use inefficient approach while taking decisions. suggested to integrate those processes which reinforce each other in a group. Besides, he also cited a few examples, such as, failure to consider risks arising from the selection of preferred choices; incomplete survey of objectives and alternatives; selective bias during information

processing, inefficient search of information, failure to review alternatives that were rejected initially; and failure of executing contingency plans.

**Keywords:** Board Performance, Board Process, Effort Norms, Cognitive Conflict,  
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## 1. Introduction

In this modern era, capital market integration has brought together large corporations which makes it necessary to remove the control of wealth owners from their firms. It thus allows the US investors to become large stakeholders in African and Asian companies without being physically present to invest in that country. In addition, these corporations can also out-source skilled labor across the countries, thereby allowing the world to become a global village (Krawczyk, 2019). Extensive research has been done on corporate governance which mainly emphasized the protection of outside shareholders. Therefore, governance rules which took centuries to develop seems to be applicable in present contemporary literature under various contexts and perspectives (Erlmann, 2020). In this regard, principal-agent model is the dominant theory for shareholder governance. This model considers the corporate governance problem as a self-interested managerial behavior, where principal objectives are not clearly shared by the agent. The corporation managers may behave selfishly and influence the firm's decisions at the cost of investors outside the firm, making it difficult to verify the integrity of the agents which thus lead to the agency problems (Parker, Dressel, & Chevers, 2018).

In a similar vein, scholars who are in support of Anglo-American governance have highlighted that adequate protection is needed to be provided to the outside investors. Consequently, the agency cost is incurred to the principal if it attempts to identify the invested interests of its agent (Parker et al., 2018). However, in this regard, most research outcomes are mainly based on control mechanism and the agent's rule-based formal incentives. Contrarily, the stakeholder theory advocates that a firm's objective is not just to gain shareholder's

wealth rather it aims to become more equitable and socially efficient. The supporters of stakeholder theory also argue that the stakeholder model recognizes the well-being of other groups who are associated for longer period of time, such as, suppliers, employees, local community, customers, and lenders. These stakeholders interact with each other and develop trust, which is mutually beneficial for the firm and the stakeholders and also encourage profitable investments. They further argued that successful industrial economies, such as, Germany and Japan, only allow pervasive involvement of extensive stakeholders with the firm and have widely defined corporate goals as compared to their shareholders' profit.

There is considerable amount of literature available on both these perspectives concerning corporate governance. With regards to finance literature outgrowth, in which the classification of countries were made in terms of their corporate law quality for the protection of shareholders, and the corporate governance quality indices were constructed for publicly traded firms in US, that were reported to be in relation with organizational performance (Erlmann, 2020). These studies provide intellectual support to the commercial and academic governance ranking services around the globe. Such as, several scholars are of the view that providing adequate protection to the investor may have a significant influence on the capital market development, performance, economic growth and firm value. Despite the improvements in corporate governance both at country and firm levels, the corporate catastrophe cases of WorldCom, Enron, HealthSouth, and Parmalat have exposed the misfortunes of millions of vendors, employees, shareholders, stakeholders, and customers. Other similar cases in Australia includes One. TeL, HIH Insurance, Harris Scarfe, and Tyco. This situation of governance issues has been creating serious concerns among the private and public firms, academicians, national regulatory authorities and international organizations. Therefore, based on their intellectual capacities, several solutions have been documented by the scholars and international organizations to address the prevailing poor governance issues. Such as, the IMF has demanded countries to include measures for governance improvement in their debt relief program. Meanwhile, Corporate Governance Principles were issued by the Organization of Economic Cooperation and Development (OECD) to assist both non-member and member countries to bring improvement in their governance framework.

## 2. Literature Review

Existing literature concerning the board's characteristics lack information about the actual board behavior. Basically, this area has been neglected by the scholars and is regarded as a black box. Thus, the conflicting assumptions about board structure and board performance approach prove that board structure-performance relationship assumptions are needed to be restudied. was the first one who demanded to conduct more process-based studies to analyze the behavior and outcomes of board. Such type of studies is needed and encouraged as they offer implications for the practitioners and academics. For operationalizing board process, the work i.e., what is a process analysis, provides insights and analyzes the performance and nature of process research in a firm setting. It has been observed that the process research mainly emphasized on the identification of dynamic capabilities of organizational life and human conduct, to catch their capabilities, and implant these capabilities into activities in various layers over time. Correspondingly, he clearly emphasized the significance of context and time to develop understanding not only about outcomes and process, rather how these processes shape each outcome differently. praised work for their commendable achievement of academic aims and objectives, and because their work has left a strong impact on the organization's policy level (Tetteh, 2017). work also supported the about board dynamics, and is considered as a remarkable outcome, since intangible matters like this cannot easily be addressed both methodologically and theoretically. observed that explaining board dynamics is a relatively greater challenge in context to academics, as the agency theory perspective and its collective strength is generally embedded in the concept of corporate governance (Erlmann, 2020; Parker et al., 2018).

For this purpose, they used a qualitative method which is somehow uncommon to be adopted in management research. In addition, also stated that an active stance has been taken for describing the role of directors and how they perform their role instead of adopting a static checklist of their responsibilities. This led to the description of behavior in the form of three couplets, which describe the effective NED conduct and support the idea to develop accountability for explaining board operations. In study, they suggested that significant efforts must be made to ensure that any study initiated to explain meaning and action is required to give more attention to its context. Since each context involves various elements which a board generally operates with, and these elements significantly influence the conduct and role of

directors, boards, and the criteria on the basis of which they are being judged for being collectively or individually effective (Cucari, Esposito, & Orlando, 2018).

Thus, there are three key concerns which gave rise the need to analyze board process. Firstly, more attention has been started to direct by the board on the way it operates. However, the continuously increasing institutional investors' power, competitiveness in current time period, and the media are demanding the board to become more active in their company affairs (Loon & Aalbers, 2017). Thus, in order to be more effective, the board is expected to rely on the company's internal processes particularly the behavioral processes. It has been observed that controlling and checking the potential of top executives is one of the key roles of the board. Thirdly, the inconsistent, contradictory and mixed research findings about board structure have made these findings inconclusive and also aggravated the need to carry out an in-depth study to understand company performance and board process (Tabassum & Singh, 2020). The strengthening of effort norms for the board processes improves awareness and willingness of directors to contribute towards the board performance. study has proved that task-oriented cognitive conflicts enable directors to improve their roles and perform in a better manner. Thus, the greater the knowledge and skills among the board members, the better will be the strategic planning outcomes and more service resulting from board activities.

For the process model, the agency theory serves as a theoretical foundation which analyzes the interaction among the group members and are considered as the apex of a firm's decision control system (Parker et al., 2018). Thus, the major emphasis of research must be on the group level competencies instead of individual competencies, which enables to ascertain the level of synergy and interaction among them. Majority of the existing prior studies explain the process model and board performance relationship in terms of variables, such as, effort norms, cognitive conflict, groupthink and use of skills and knowledge (Chang, Milkman, & Chugh, 2019; Du & Xu, 2018; Tabassum & Singh, 2020).

## **2.1 Board Performance and Cognitive Conflict**

The term cognitive is defined as 'the mental processes for developing the understanding and knowledge'. In a business context, conflict is described as 'the disagreement between directors related to the issue or role-oriented differences in judgment'. Correspondingly, during a conflict or disagreement, the board must explain, modify and justify its position regarding the issues that are affecting the organization (Klein, Mahoney, & McGahan,

2019). This situation often acts as a reminder for the board and management regarding their role and power, and also emphasizes the significance of considering the interests of other shareholders. This process will consequently improve the board's monitoring role. According to the previous reports, the directors' contemplation must bring about better outcomes in the form of better counseling and guidance to the top management and the CEO. Putting differently, before taking effective decision, disagreement or agreements may occur among the board members when multiple intellectual viewpoints are expressed by the board members during the board meetings (Neill, Hoffart, & McLarnon, 2017). Similarly, it has been opined in study that task oriented cognitive conflicts enable directors to improve their roles. Thus, in order to measure cognitive conflict and its degree between the board members, three variables were adopted, i.e. 'before final decision making (Du & Xu, 2018; Intezari & Gressel, 2017), whether the board considers different viewpoints of members'; and 'whether candid and open discussions are encouraged'. However, for affective conflict, they included 'less interaction among members' and 'there is personality among directors' as the variables. From the results, they found that the emergence of a conflict is likely to affect the board's strategic role which would lead to careful evaluation and measures taken by the board. In addition, it will also result in taking quality decision making, which would particularly be useful under volatile conditions (Intezari & Gressel, 2017; Joshi, Bollen, & Hassink, 2018). On the contrary, personal differences arising as a result of affective conflict were found to have detrimental effect on board decisions. In addition, they also explained the rationale that why positive relationship exists between board's strategic role and conflict, and what is the reason that conflict does not have any influence on its monitoring role.

Furthermore, during the face-to-face interviews, it has been observed that the controlling nature of board members seldom cause organizational conflicts, however, unlike service and monitoring roles, the strategic role of board is found to be unclear (Joshi et al., 2018). It is due to the fact that according to the theory, strategic direction is the role of the board, and strategic management and implementation is considered as the management's role. However, personal conflicts and debate are common among the board members.

H1: CC has significant impact on MONIT.

H2: CC has significant impact on NTW.

H3: CC has significant impact on SERVC.

## 2.2 Board Performance and Effort Norms

Effort norm is defined as ‘the shared belief of group on each individuals’ expected level of effort towards their role’. It has been reported by those norms are generally symbolized as the expected behavior that are likely to have a strong effect on the behavior of each member. Therefore, to measure the effort norms, Wan and Ong adopted two variables, i) meeting intensity, which refers to the outcome of total number of board meetings conducted in a year and assessing productive amount of time per meeting (Neill et al., 2017). Initially, the required information was obtained from listed companies’ annual reports, followed by conducting a survey to collect the relevant information (Dawd, Burton, & Dunne, 2018); and ii) second measure is concerned with qualitative statement that is referred as the type of effort norms which are generally used to differentiate from the former one (Chang et al., 2019). Thus, the authors have adapted five statements in their research, which include, i) before meetings, the information is carefully checked by the board members; ii) they actively take part in meetings; iii) they take responsibility of their needs and work (Jenkins, 2009); iv) enjoy their work; and v) feel satisfied after completing it well. The findings suggest that although extensive research has been taking place for several decades concerning the relationship of company performance with board structure, but majority of these studies found contradictory, inconsistent or mixed findings (Tabassum & Singh, 2020). In addition, they also proclaimed that lack of significance given to the board structure act as a hurdle in implementing board reforms around the globe, for instance, more debate and preparations for meetings, more usage of skills of each other, and less personal conflicts.

Furthermore, the corporate governance code is described as a set of company guidelines which cannot be considered as a suitable fit for all system. Hence, the involvement of numerous intervening processes for determining a strong relationship decreases the susceptibility of obtaining a universal effect of board structure on its performance (Tabassum & Singh, 2020). Similarly, Tabassum and Singh (2020), the effort norm is also discovered as a manifest variable for the board process that affect performance. For instance, strong efforts are suggested in study as these efforts strengthen the board members’ individual effort, which in turn bring improvement in the groups’ monitoring role. Generally, periodic meetings are conducted by the directors to address any firm issue. Simply put, directors are required to dedicate some quality time from their tight and busy schedule to achieve organizational goals of meeting customer demands. According to, strong effort norms are likely to improve each



director's individual effort (Chang et al., 2019). To further support this point, it has been emphasized by that it appears as a situation when less interaction among the board members will not let the board achieve its desired level. It implies that from a group of board members, free riders can easily be identified as decisions are generally taken by the active members of the board which stand out (Merendino, Dibb, & Meadows, 2018).

H4: EFN has significant impact on MONIT

H5: EFN has significant impact on NTW.

H6: EFN has significant impact on SERVC

### **2.3 Board Performance and Use of Skills and Knowledge**

Knowledge and skills are the significant contributors in decision making processes and their execution (Intezari & Gressel, 2017). The significance of knowledge cannot be denied in the companies' strategy development processes, in which individuals tend to establish interconnections among the structure, strategies and environment of the company. It is a process through which coordination is established among the contributions of the directors. Although, possessing certificate profiles do not ensure board's service delivery. supported this point by asserting that board's effectiveness can be ensured by integrating and extracting individual skills and knowledge into the internal processes (Du & Xu, 2018; Zona, 2016). For instance, assigning particular tasks and activities to each director using division of labor rule; taking into account the responsibilities and expertise of each director while delegating their tasks; and enable smooth information flow between them. In the similar context, sharing of knowledge among management and board members, among board members, and among external consultants and board members lead to network development which allows easy access to markets, knowledge, technologies and resources. Besides, it also enables knowledge sharing among the members which thus facilitates in the board's decision-making process (Intezari & Gressel, 2017). Alternatively, board of directors are required to be well-informed regarding new technology and regulations, so they could use them while taking decisions. Therefore, the board's strategic oversight capability acts as a firm's critical process. It has also been reported by the author that this variable is used to determine 'whether the CEO is held accountable based on the performance indicators (Tabassum & Singh, 2020). Furthermore, the sub-scales of knowledge aim to estimate if the context or the environment

where a firm operates is scanned by the board to identify any potential risks involved. In addition, it also ensures the confidence of board members regarding the accuracy of company's environmental liabilities.

Therefore, their study used the following measures: 1) task delegation among members of the board, indicating that responsibilities and knowledge are well matched; division of labor clearly exists among directors; and smooth and quick flow of information takes place among the members of the board. Findings of their work indicate that using skills and knowledge in board processes significantly improves the task performance of the board. In addition, they also reported that skills and knowledge are found to be positive associated to the board's service task performance, networking performance, and its monitoring performance (Tabassum & Singh, 2020; Zona, 2016). Besides, found that networking performance is higher particularly in case of regulated industries. Furthermore, in context to networking performance, found a positive influence of knowledge and skills on board's task performance. Another notable finding is that the process of integrating knowledge and skills is related to the board's task performance. It indicates that in the way individual expertise and skills of board directors are integrated into the processes is one of the key factors which determine the effectiveness of the board, particularly during episodic decision making when the group members are faced with complex roles and tasks (Intezari & Gressel, 2017). declare that individual contributions of directors would not be well integrated if the board's outcome is comparatively less in relation to sum of its parts.

H7: KNS has significant impact on MONIT.

H8: KNS has significant impact on NTW.

H9: KNS has significant impact on SERVC.

## **2.4 Board Performance and Groupthink**

Groupthink is a term which defined in the as 'a certain pattern of thought having characteristics like compliance with group ethics and values, forced manufacture of consent and self-deception'. However, defined it as 'a thinking process in which people engage with each other in a cohesive group with deep involvement, and the need for harmony and consensus affect their level of motivation to appraise other alternative options in a realistic manner' (Aw & Ayoko, 2017). Furthermore, groupthink has been modeled by Janis as an

antecedent of certain conditions that may result in seeking consentience, which in turn leads to various consequences, with a meagre chance of obtaining successful outcome. Groupthink is mostly identified when a problem surface.

In addition, groupthink is ‘the deterioration of reality testing, moral judgment, and mental efficiency arising from in-group pressures’ (Jaber, 2017). Simply put, groupthink usually takes place when an individual’s decision-making capabilities and thought process get impaired due to pressure from the group members. Generally, when information is received, the group members tend to avoid any superior debate and give in to their peers’ persuasive power and do not attempt to raise their point. This explains why policymakers use inefficient approach while taking decisions. suggested to integrate those processes which reinforce each other in a group. Besides, he also cited a few examples, such as, failure to consider risks arising from the selection of preferred choices; incomplete survey of objectives and alternatives; selective bias during information processing, inefficient search of information, failure to review alternatives that were rejected initially; and failure of executing contingency plans. further emphasized that critical evaluators must be assigned by the groups to avoid seeking groupthink for creating alternatives options and reviewing their decisions (Packer & Ungson, 2017). Thus, opines in support of the above discussion that diligent and higher participation level during the board meetings can effectively minimize the consequences of groupthink (Neill et al., 2017). For this purpose, a corporate governance model was developed by which assesses the informal and formal systems and articulates the board’s decision-making measures. Multiple regression analysis was performed in his study, and the results suggested that groupthink and values have significantly and highly predicted the decision-making construct, in presence of knowledge as the third independent construct. Moreover, findings have also reported a dominating impact of groupthink and values on knowledge while predicting the dependent variable, i.e., decision-making. Thus, it implies that a significant amount of variation in decision-making construct is explained by the groupthink and values.

H10: GRPT has significant impact on MONIT.

H11: GRPT has significant impact on NTW.

H12: GRPT has significant impact on SERVC.

### 3. Research Methodology

For current research, the sample size chosen to conduct survey is 384. Therefore, we distributed 384 questionnaires to the targeted sample. In an attempt to obtain greater response, multiple emails and several phone calls were made as a reminder for the respondents (Babagana, Mat, & Ibrahim, 2019; Hafeez, Basheer, & Rafique, 2018). Thus, from a total of 325 cases in the SPSS dataset, no missing values were reported and yielded 84.6% response rate. Although, for missing values, there is no acceptable range or percentage mentioned in the literature, however, Henseler, Hubona, and Ray (2016) suggest that less than or equal to 5% missing rate is considered as insignificant in making reliable and valid statistical inference. In the assessment of PLS-SEM path model, the first step is to determine the outer model, followed by the estimation of the inner model in the second step. The outer model estimation is commonly known as the measurement model, which is measured in terms of assessing the constructs validity and reliability, whereas, the inner model is also known as the structural model, which is measured in terms of coefficient of determination, effect sizes, the significance of path coefficients, and predictive relevance test. According to Henseler et al. (2016), assessing model validity through PLS path modeling is found as unsuitable in latest research. Therefore, in order to estimate the PLS-SEM path, we employed a two-step process in this study to estimate the PLS-SEM path and report the findings.

### 4. Research Results

There are certain criteria which need to be determined to assess the measurement model, namely, the convergent validity, content validity, discriminant validity, internal consistency reliability and the individual item reliability (Hair, Hult, Ringle, & Sarstedt, 2016; Henseler et al., 2016; Ong & Puteh, 2017). According to Shuhaiber (2018), it is recommended to make two or more groups to categorize a large number of indicators into separate constructs, which thus enables to observe the potential effect of these indicators.

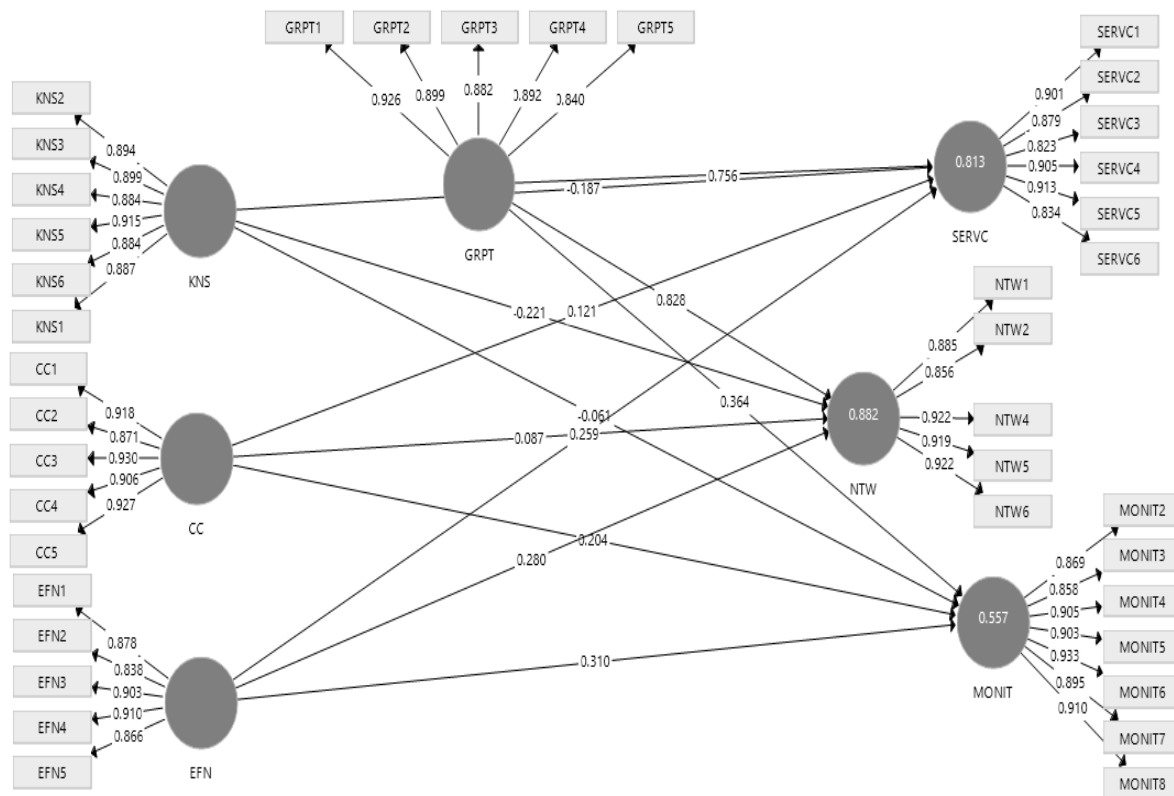


Figure 1 Measurement Model

Table 1 Cross Loadings

	CC	EFN	GRPT	KNS	MONIT	NTW	SERV
CC1	<b>0.918</b>	0.860	0.616	0.831	0.660	0.635	0.625
CC2	<b>0.871</b>	<b>0.776</b>	<b>0.532</b>	<b>0.781</b>	<b>0.569</b>	<b>0.542</b>	<b>0.559</b>
CC3	<b>0.930</b>	0.836	0.616	0.822	0.622	0.656	0.637
CC4	<b>0.906</b>	<b>0.838</b>	<b>0.576</b>	<b>0.816</b>	<b>0.578</b>	<b>0.609</b>	<b>0.631</b>
CC5	<b>0.927</b>	0.854	0.610	0.813	0.620	0.666	0.649
EFN1	0.796	<b>0.878</b>	0.602	0.777	0.583	0.654	0.619
EFN2	0.766	<b>0.838</b>	0.552	0.786	0.601	0.605	0.628
EFN3	0.797	<b>0.903</b>	0.638	0.808	0.633	0.685	0.642
EFN4	0.815	<b>0.910</b>	0.666	0.831	0.640	0.687	0.676
EFN5	0.852	<b>0.866</b>	0.595	0.800	0.597	0.594	0.623
GRPT1	0.571	0.616	<b>0.926</b>	0.636	0.617	0.838	0.811
GRPT2	0.598	0.622	<b>0.899</b>	0.624	0.652	0.858	0.791

Table 1 (Cont.)

	CC	EFN	GRPT	KNS	MONIT	NTW	SERV
GRPT3	0.581	0.626	<b>0.882</b>	0.598	0.579	0.818	0.807
GRPT4	0.599	0.646	<b>0.892</b>	0.633	0.578	0.836	0.782
GRPT5	0.530	0.577	<b>0.840</b>	0.572	0.548	0.763	0.742
KNS1	0.824	0.813	0.600	<b>0.887</b>	0.589	0.598	0.603
KNS2	0.764	0.794	0.641	<b>0.894</b>	0.557	0.607	0.578
KNS3	0.798	0.817	0.600	<b>0.899</b>	0.573	0.572	0.589
KNS4	0.752	0.799	0.600	<b>0.884</b>	0.590	0.602	0.587
KNS5	0.834	0.858	0.669	<b>0.915</b>	0.599	0.675	0.678
KNS6	0.809	0.800	0.589	<b>0.884</b>	0.606	0.608	0.599
MONIT2	0.507	0.541	0.545	0.507	<b>0.869</b>	0.566	0.552
MONIT3	0.541	0.574	0.588	0.551	<b>0.858</b>	0.612	0.585
MONIT4	0.603	0.649	0.634	0.614	<b>0.905</b>	0.663	0.637
MONIT5	0.587	0.611	0.573	0.545	<b>0.903</b>	0.613	0.631
MONIT6	0.636	0.663	0.630	0.662	<b>0.933</b>	0.678	0.683
MONIT7	0.686	0.676	0.630	0.633	<b>0.895</b>	0.676	0.660
MONIT8	0.626	0.632	0.598	0.582	<b>0.910</b>	0.631	0.620
NTW1	0.572	0.622	0.823	0.587	0.575	<b>0.885</b>	0.785
NTW2	0.532	0.601	0.800	0.553	0.640	<b>0.856</b>	0.783
NTW4	0.669	0.683	0.847	0.661	0.662	<b>0.922</b>	0.870
NTW5	0.637	0.704	0.848	0.623	0.644	<b>0.919</b>	0.838
NTW6	0.667	0.698	0.858	0.654	0.673	<b>0.922</b>	0.875
SERV1	0.611	0.637	0.781	0.588	0.594	0.811	<b>0.901</b>
SERV2	0.651	0.617	0.757	0.592	0.615	0.779	<b>0.879</b>
SERV3	0.533	0.578	0.728	0.554	0.546	0.754	<b>0.823</b>
SERV4	0.585	0.649	0.819	0.612	0.631	0.854	<b>0.905</b>
SERV5	0.628	0.675	0.796	0.638	0.651	0.833	<b>0.913</b>
SERV6	0.576	0.653	0.774	0.584	0.630	0.813	<b>0.834</b>
KNS1	0.824	0.813	0.600	0.887	0.589	0.598	<b>0.603</b>

This approach demands that the groups of indicators are both theoretically and conceptually understandable and are also conceptually associated. Since all indicator loadings in this research are reported to exceed the cross-loading values, therefore, it implies the achievement of adequate discriminant validity, which is sufficient to carry out the statistical data analysis. Afterwards, for all the constructs, the outer loadings were observed to determine the individual item reliability.

Measuring the items internal consistency reliability is an important criterion in measurement model assessment, which is defined as to which extent all scale items measure the same concept of that particular scale (Huang, Ma, & Meng, 2018). In this regard, the Cronbach alpha and the composite reliability (CR) are the most widely used estimators to measure the instruments' internal consistency reliability, particularly in organizational research (Mikalef & Pateli, 2017; Naala, Nordin, & Omar, 2017; Shuhaiber, 2018). However, for present study, CR coefficient is employed since it seems to be most suitable in this context (Hair et al., 2016; Shuhaiber, 2018).

**Table 2** Reliability

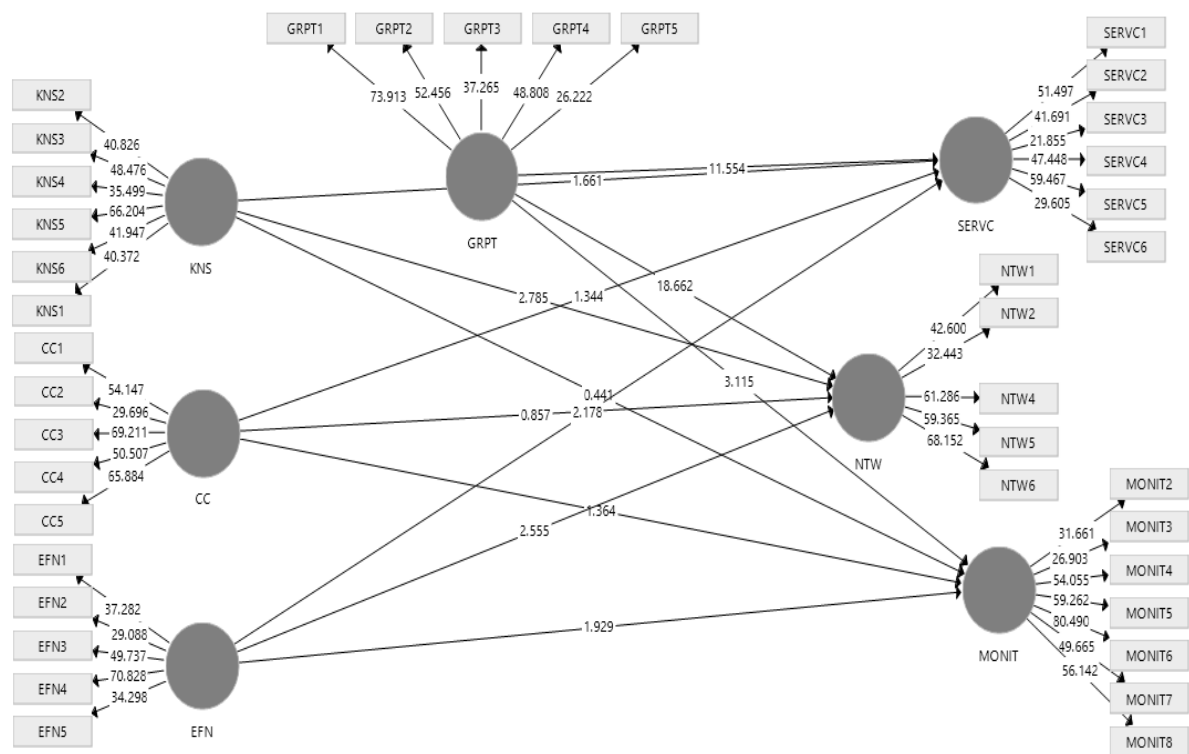
	Cronbach's Alpha	rho_A	CR	(AVE)
CC	0.948	0.951	0.960	0.829
EFN	0.926	0.928	0.944	0.773
GRPT	0.933	0.934	0.949	0.789
KNS	0.950	0.951	0.960	0.799
MONIT	0.959	0.961	0.966	0.803
NTW	0.942	0.943	0.956	0.812
SERV	0.939	0.941	0.952	0.768

Once the reliability of the measures is achieved, the convergent and discriminant validities were determined to confirm the validity of the constructs. Thus, the convergent validity is defined by Hair et al. (2016) as to what extent items of a particular construct are actually representing their respective construct, and thus also correlates to same constructs' other items. According to Shuhaiber (2018), estimation of average variance extracted (AVE) for all the constructs is an effective way to assess the convergent validity. In addition, convergent validity of adequate level is said to be achieved when AVE turns out to be equal or above 0.50 for all the constructs (Hatamifar, Darban, & Rezvani, 2018; Ramayah, Cheah, & Memon, 2018).

**Table 3** Validity

	CC	EFN	GRPT	KNS	MONIT	NTW	SERV
CC	0.901						
EFN	0.815	0.879					
GRPT	0.649	0.696	0.888				
KNS	0.792	0.811	0.690	0.894			
MONIT	0.670	0.695	0.670	0.655	0.896		
NTW	0.684	0.735	0.827	0.684	0.709	0.901	
SERV	0.682	0.725	0.886	0.679	0.698	0.822	0.877

According to a definition, discriminant validity is the extent to which a construct is not correlated with the model's other latent constructs (Hair et al., 2016; Hameed, Nawaz, Basheer, & Waseem, 2019; Henseler et al., 2016), in addition, this particular construct only signifies its respective construct. Discriminant validity can be achieved by comparing the correlations between the latent constructs and the AVE square roots for each construct (Ong & Puteh, 2017).



**Figure 2** Structural Model



**Table 4** Direct results

	(O)	(M)	(STDEV)	( O/STDEV )	P Values
CC -> MONIT	0.204	0.202	0.150	1.364	0.086
CC -> NTW	0.087	0.097	0.102	0.857	0.196
CC -> SERVC	0.121	0.125	0.090	1.344	0.090
EFN -> MONIT	0.310	0.322	0.161	1.929	0.027
EFN -> NTW	0.280	0.279	0.110	2.555	0.005
EFN -> SERVC	0.259	0.261	0.119	2.178	0.015
GRPT -> MONIT	0.364	0.362	0.117	3.115	0.001
GRPT -> NTW	0.828	0.821	0.044	18.662	0.000
GRPT -> SERVC	0.756	0.747	0.065	11.554	0.000
KNS -> MONIT	-0.061	-0.066	0.137	0.441	0.330
KNS -> NTW	0.221	0.222	0.079	2.785	0.003
KNS -> SERVC	0.187	0.183	0.112	1.661	0.048

The next step after verifying the validity of the constructs is the structural model assessment of PLS-SEM path model. A bootstrapping method was chosen to be performed in this study, to measure the significance of path coefficients using 5000 resamples (Hair et al., 2016; Henseler et al., 2016; Mikalef & Pateli, 2017).

Coefficient of determination is calculated as a key measure for structural model assessment in PLS-SEM (Hair et al., 2016; Hair, Matthews, Matthews, & Sarstedt, 2017; Shuhaiber, 2018), which is also referred as the R-square value.  $R^2$  explains that how much variance in the model's dependent variable is explained by the independent latent constructs (Akter, Fosso Wamba, & Dewan, 2017).

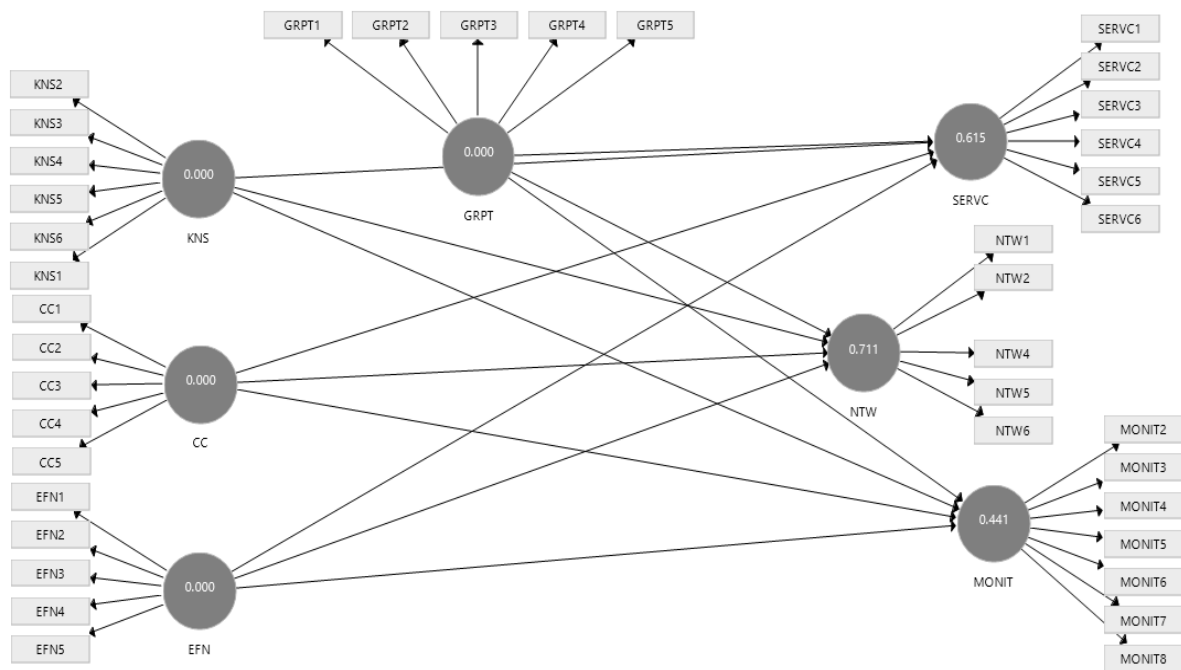
**Table 5** Mediation

	R Square
MONIT	0.557
NTW	0.882
SERV	0.813

Moreover, predictive relevance test is a criterion that is used to measure the model's predictive relevance by calculating the Hatamifar et al. (2018)  $Q^2$  value. This value explains the predictive relevance of the cross-validated PLS path model. In order to obtain  $Q^2$  value of latent variables, a blindfolding method is used. Therefore, it is suggested that a model with higher  $Q^2$  value for latent variables, is expected to have higher significance.

**Table 6** Blindfolding

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
MONIT	1519.000	849.460	0.441
NTW	1085.000	313.440	0.711
SERV	1302.000	500.907	0.615



**Figure 3** Q-SQUARE

$Q^2 > 0$  is the threshold level for the  $Q^2$  value, which indicates that the model has some predictive relevance and if  $Q^2 < 0$  then it shows no predictive relevance. Thus, we used a blindfolding procedure in this study to measure the model's predictive relevance. Although, this procedure is applicable only to those endogenous latent variables who have reflective measurement model operationalization.

## 5. Conclusion and Discussion

The main objective is to investigate that if a significant relationship exists among the board's process factors and the board performance. For this purpose, a hypothesis was developed stating that variables like, effort norms, cognitive conflict, and use of skills and knowledge are the manifest variables for the board process (Chang et al., 2019), and the group think is positively related with board monitoring, networking and service roles of performance (Du & Xu, 2018; Zona, 2016) in Thailand. This relationship was tested using PLS. Thus, significant association was found among the two constructs which is also consistent with findings, in which the found supporting evidence for the idea that the board's task performance is significantly influenced by the board's process variables. In addition, each particular monitoring, networking and service tasks are differently affected by board processes. Furthermore, industry and firm characteristics also significantly affect the board's task performance. In a similar vein, collected 212 samples from Thailand company and 299 from the directors. Thus, board performance and board process are found to be related in terms of cognitive conflict, use of skills and knowledge, and individual parameters of effort norms (Chang et al., 2019; Zona, 2016). Hence, also incorporated variables, like effort norms, groupthink, use of knowledge and skills, and cognitive conflict as the strong measures of the board process (Du & Xu, 2018). In addition, for the performance role construct (endogenous variable), board's service role, networking role and monitoring role were proposed as the indicator variables and were proved as the strong board performance measures, since only three items were retained to achieve the required model.

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