

ความไม่สมมาตรของข้อมูล แผนการจ่ายค่าตอบแทนแบบจูงใจ  
ความผูกพันต่อองค์กรอย่างยั่งยืน และประสิทธิภาพการบริหารจัดการ:  
หลักฐานเชิงประจักษ์จากกิจการในนิคมอุตสาหกรรมแห่งประเทศไทย

INFORMATION ASYMMETRY, INCENTIVE-BASED COMPENSATION PLANS,  
SUSTAINABLE ORGANIZATIONAL COMMITMENT AND MANAGERIAL  
PERFORMANCE: EMPIRICAL EVIDENCE FROM INDUSTRIAL ESTATE  
AUTHORITY OF THAILAND

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บทคัดย่อ

วัตถุประสงค์หลักของงานวิจัยนี้ คือ เพื่อตรวจสอบอิทธิพลของความไม่สมมาตรของข้อมูล แผนการจ่ายค่าตอบแทนแบบจูงใจ ความผูกพันต่อองค์กรอย่างยั่งยืน ที่มีต่อประสิทธิภาพการบริหารจัดการ เนื่องจากเป็นที่รู้กันดีว่ากิจการในภาคอุตสาหกรรมมีข้อมูลทางบัญชีและการเงินที่มีความซับซ้อน ความรับผิดชอบงานหลายชั้น การตัดสินใจถูกกระจายไปยังผู้บริหารระดับกลางและระดับล่างแทนผู้บริหารระดับสูงและผู้ถือหุ้น ความไม่สมมาตรของข้อมูลเกิดขึ้นเมื่อกิจการมีผู้ได้บังคับบัญชาที่มีข้อมูลส่วนบุคคลหรือครอบครองข้อมูลที่เป็นความลับในงานที่พวกเขารับผิดชอบมากกว่าผู้บริหารระดับสูง การมีอยู่ของข้อมูลส่วนบุคคลของผู้ได้บังคับบัญชาเป็นภาพของความไม่สมมาตรของข้อมูล การศึกษาครั้งนี้มีข้อสันนิษฐานว่าผู้ได้บังคับบัญชามีข้อมูลส่วนตัวเกี่ยวกับการทำงานที่รับผิดชอบมากและถ้ามีการแบ่งปันข้อมูลจะเป็นผลให้กิจการได้รับข้อมูลเพิ่มเติมและได้ข้อมูลที่เป็นประโยชน์ต่อการตัดสินใจของผู้บริหารระดับสูงในอนาคต ข้อมูลถูกรวบรวมจากการสำรวจจำนวน 270 กิจการ นอกจากนี้ 270 กิจการยังถูกจัดเป็น 2 กลุ่มได้แก่ กลุ่มสถานการณ์ความไม่สมมาตรของข้อมูลสูงและกลุ่มสถานการณ์ความไม่สมมาตรของข้อมูลต่ำเพื่อเปรียบเทียบและยืนยันผลการวิเคราะห์ข้อมูล ผลการศึกษาพบว่าความไม่สมมาตรของข้อมูล แผนการจ่ายค่าตอบแทนแบบจูงใจ ความผูกพันต่อองค์กรอย่างยั่งยืนมีผลกระทบทางบวกต่อประสิทธิภาพการบริหารจัดการ ผลจากการแบ่งกลุ่มทำผลการวิเคราะห์ข้อมูลจากการแบ่งกลุ่มเปรียบเทียบและยืนยันว่าความไม่สมมาตรของข้อมูล แผนการจ่ายค่าตอบแทนแบบจูงใจ ความผูกพันต่อองค์กรอย่างยั่งยืนมีผลกระทบทางบวกต่อประสิทธิภาพการบริหารจัดการในกลุ่มสถานการณ์ความไม่สมมาตรของข้อมูลสูงเช่นกัน

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**คำสำคัญ:** ความไม่สมมาตรของข้อมูล แผนการจ่ายค่าตอบแทนแบบจูงใจ ความผูกพันต่อองค์กรอย่างยั่งยืน และประสิทธิภาพการบริหารจัดการ

### Abstract

The main purpose of this study is to examine the influences of information asymmetry, incentive-based compensation plans and sustainable organizational commitment on managerial performance. It is well known that Information asymmetry happens when the firm has subordinates who have more private information or possess confidential information about their work environment and responsibility function than their top managers. The existence of a subordinate's private information is an illustration of information asymmetry. This study posits a positive assumption that subordinates have more private information about their responsible work and share it as result to provide the firm receive the additional information and the useful information for decision making of top managers in the future. The data were collected from a survey of 270 firms. Moreover, 270 firms are classified into two groups: high and low information asymmetry groups to compare and confirm the result of regression. The results find that information asymmetry, incentive-based compensation plans, and sustainable organizational commitment have a positive effect on managerial performance. The robust test of comparison between both groups confirms that information asymmetry, incentive-based compensation plans, and sustainable organizational commitment have a positive effect on managerial performance in the group of high information asymmetry situation as well.

**Keywords:** Information Asymmetry, Incentive-Based Compensation Plans, Sustainable Organizational Commitment, Managerial Performance

### Introduction

Financial fraud has become a serious issue for years and attracted the public, press, investors, the financial community, and regulators because of high profile reported fraud at large firms (Abbas, 2017; Rezaee, 2005; Vlad, Tulvinschi & Chirita, 2011). Fraud in financial reporting is based on the conscious intent of the perpetrator (executives, auditors, employees, etc.) to wrongfully present the reality. Moreover, opportunities for financial fraud arise because of information asymmetry lead to lack of transparency between third parties (Ndofor, Wesley & Priem 2013). The information asymmetry situation often occurs in the industry have high complexities and has likely that top managers committing financial reporting fraud and increase the likelihood of financial fraud (Ndofor, Wesley & Priem, 2013). In this study, information asymmetry is the firm's subordinates (middle manager or head of operations) have more private information or possesses confidential information about their task area and responsibility function than their top managers or their superiors, are assumed to use their private information to make decisions in their self-interests. The existence of private

information is an illustration of information asymmetry. Consequently, it is argued that when information asymmetry is high, dysfunctional behaviors are more likely to occur than when information asymmetry is low based on agency theory. Agency theorists posit that the principal can minimize moral hazard problems by developing an incentive-based compensation, which aligns the interests of principal and agent. A fundamental objective of an incentive-based compensation is to motivate individuals to exert effort to improve job performance. Moreover, the positive assumption believes when subordinates share the additional information for reducing the information asymmetry problem and increasing the useful information to make a decision of their top managers or superiors. Therefore, the firms have useful information to back up organizational management and performance lead to generate firm value.

The previous literature review by Chong & Eggleton (2007) found that information asymmetry and organizational commitment have a positive effect on managerial performance. Joe (2010) found that information asymmetry improves decision-making quality and job self-efficacy of the members of the organization. Sprinkle (2000) also found that the reliance on an incentive-based compensation scheme improves individuals' performance by motivating them to increase both the duration and intensity of their effort. Chong & Law (2016) suggest that the reliance on a high budget-based incentive compensation scheme was found to lead to a higher trust-in supervisor, which in turn resulted in higher organizational commitment and improved the subordinate's job performance. Tolentino (2013) found that organizational commitment correlates significantly with job performance because of the high commitment of employees with strong organizational will work harder in order to contribute to organizational performance. Thus, under the circumstances discussed above and the agency theory can conclude that there is the possible relationship among the subordinate's information asymmetry, the reliance on incentive-based compensation plans, sustainable organizational commitment and managerial performance. The differences between the study of Chong & Eggleton (2007) and this study are this study considers that high information asymmetry as the positive assumption due to subordinates have more private information about their responsible work as result to provide the firm receives the additional information and the useful information for decision making of top managers in the future but the results of Chong & Eggleton (2007) show that the information asymmetry has a direct negative impact on managerial performance. Besides, the other studies support the positive assumption as well.

The key gap is the high information asymmetry situation is considered in the positive assumption that subordinates (middle manager or head of operations) have more private information about their responsible work as result to provide the firm receive the additional information and the useful information for decision making of top managers in the future. As a result, the firms use their subordinate's useful information integrate with the executive's existing information to back up organization management and to improve managerial

performance lead to generate firm value eventually. When firm's subordinates have the private information or possess confidential information, the reliance on incentive-based compensation and sustainable organizational commitment, the firm will receive benefit both directly (managerial performance) and indirectly (job performance). Incentive-based compensation cost that is paid to motivate agency or subordinate who has high private information to improve their effort aligns to the interests of principal or their superior. The previous empirical studies still lack this gap and lack the separation of the information asymmetry situation in order to confirm such the relationship. Therefore, the key question of this study is How do information asymmetry, incentive-based compensation plans, and sustainable organizational commitment affect managerial performance?

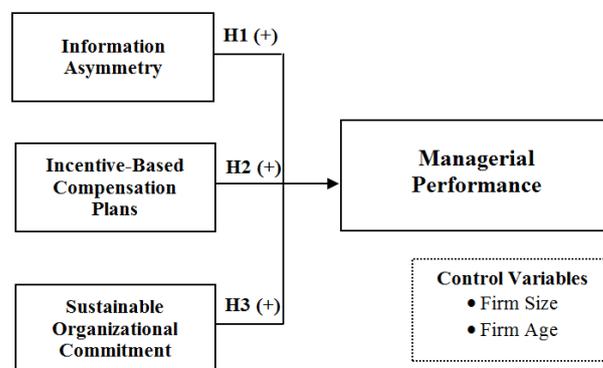
As a result, the key objective of this study is to examine the effect of information asymmetry, incentive-based compensation plans, and sustainable organizational commitment. The firms in the Industrial Estate Authority of Thailand are chosen as the population because these industrial firms have a complex financial and accounting information, a variety of cost accounting system, multi-layered responsibilities, and the sub-decision-making authority depends on the middle manager or first-line supervisor. This study considers that these firms have many subordinates and a variety of functions. They have private information or possesses confidential information about their task area and response function. The chief financial officers or accounting manager is the key informant.

## **Literature Review and Hypotheses Development**

### **Theoretical Foundation and Conceptual Framework**

The theoretical relationship among information asymmetry, incentive-based compensation plans, sustainable organizational commitment, and managerial performance are explained by the agency theory. Jensen & Mackling (1976) developed this theory to describe the relationship between two parties as principals (stakeholders or top manager) and agents (subordinate). Both have the relationship in reciprocal contractual view. Jensen & Mackling (1976) indicate that principals are responsible for supporting money or other resources for operating in the firm and then they expect to receive the maximum return from their resources invested with the firm as well. Furthermore, principals hire agents to perform some services and delegate their decision making authority to agents and then agents receive wages or salary as a reward. Thus, both parties have a conflict of interest or an agency problem. The agency problem is divided as two issues: (a) adverse selection is the condition that principals cannot ensure the agents' ability to manage, and (b) moral hazard is the condition that principals cannot ensure agents' behavior about working at maximum effort and at maximum principals' benefits. These problems occur because both parties have information asymmetry. Agents have more information than principals while principals cannot observe agent's optimistic behavior all the time. Therefore, principals suspect whether agents work to maximize the

principal's wealth. Markl-Davis & Brennan (2007) further clarified that agency theory can split the behavior of agents (or subordinate) into two aspects, consisting of negative and positive assumptions. The negative assumption believes that agents (subordinates) who has opportunistic behavior from information asymmetry problem to providing the incorrect information to stakeholders and to benefit for themselves. In consequence, this negative assumption would have a more serious negative impact on organizational performance. Conversely, the positive assumption believes that agent (or subordinate) provide the additional information for reducing the information asymmetry problem and increasing the useful information to make a decision of stakeholders. As a result, the firm has useful information to back up organization management and to improve managerial performance lead to generate firm value eventually. The conceptual model is presented in Figure 1.



**Figure 1:** The Conceptual Model of the Effect of the Antecedents on Managerial Performance

## Antecedents of Managerial Performance

### 1. Information Asymmetry

Information asymmetry is defined as the firm's subordinates (middle manager or head of operations) have more private information or possesses confidential information about their task area and responsibility function than their top managers. Fraud in financial reporting is based on the conscious intent of the perpetrator (executives, auditors, employees, etc.) to wrongfully present the reality (Ndofor, Wesley & Priem 2013). This is because the subordinates (middle manager or head of operations), who possess private information about their task environment than their superior, are assumed to use this private information to make decisions in their self-interests. The existence of private information is an illustration of information asymmetry. Consequently, it is argued that when information asymmetry is high, dysfunctional behaviors are more likely to occur than when information asymmetry is low based on agency theory. On the other hand, the positive assumption in agency theory believes that subordinates (middle manager or head of operations) have more private information about their responsible work as result to provide the firm receive the additional information

and the useful information for decision making of top managers in the future. As a result, the firms use their subordinate's useful information integrate with the executive's existing information to back up organization management and to improve managerial performance lead to generate firm value eventually. The previous literature review by Chong & Eggleton (2007) found that information asymmetry and organizational commitment have a positive effect on managerial performance. Joe (2010) found that information asymmetry improves decision-making quality and job self-efficacy of the members of the organization. In summary, it has the likelihood of high information asymmetry to increase managerial performance. Hence, the hypothesis is proposed as follows:

**Hypothesis 1: Information asymmetry has a positive effect on managerial performance.**

## **2. Incentive-Based Compensation Plans**

Incentive-based compensation plans is defined as the extent to which pay incentives (such as bonus or profit sharing) are used as the compensation strategy or scheme in an organization (Balkin & Gomez-Mejia, 1990; Chong and Law, 2016). Opportunities for financial reporting fraud arise because of information asymmetry between subordinates and their shareholders or their superiors (Ndofor, Wesley & Priem, 2013). It is imperative that the firm must find a way to obtain valuable and unique local information from subordinates willingly. Agency theory posits that the principal can minimize moral hazard problems by developing an incentive-based compensation scheme which aligns the interests of principal and agent, in this study is the interests of subordinates and their superiors. A fundamental objective of incentive-based compensation plans is to motivate individuals to exert effort to improve performance (Sprinkle, 2000). The previous literature review supports the view that reliance on incentive-based compensation scheme has a positive effect on individual performance by stimulating a higher level of subordinates' effort (Chong & Eggleton, 2007). Chong & Law (2016) found that the reliance on a high budget-based incentive compensation scheme leads to a higher trust-in supervisor, which in turn resulted in higher organizational commitment and improved subordinate job performance. Hence, the hypothesis is proposed as follows:

**Hypothesis 2: Incentive-based compensation plans has a positive effect on managerial performance.**

## **3. Sustainable Organizational Commitment**

Sustainable organizational commitment is defined as the subordinate's expressive belief and attitude about the acceptance of the firm's goals and values, together with they are willing to work based on their organizational targets and plans under desiring and intending to remain with the organization forever without various rewards (Jaramillo, Mulki & Marshall,

2005; Lata, 2017; Porter et al., 1974). Organizational commitment is a key factor to increase organizational competitiveness due to high performance is driven by commitment. In the previous literature review on organizational commitment and managerial performance, Elizur & Koslowsky (2001) found that the employee commitment of the organizational goals and objectives improve the overall organization performance. Individuals with high organizational commitment are characterized by a strong belief in, and acceptance of, the organization's goals and values, and a willingness to exert considerable effort on behalf of the organization (Angel & Perry, 1981; Porter et al., 1974). Tolentino (2013) found that organizational commitment correlates significantly with job performance because of the high commitment of employees with strong organizational will work harder in order to contribute to organizational performance. There is a positive relationship between the individual's beliefs about the expectations and behaviors associated with their work role and managerial performance (Hall, 2008). Chong & Eggleton (2007) indicate that the managers who have a low level of organizational commitment are motivated to pursue self-interest, but managers who have a high level of organizational commitment are motivated to pursue an organizational interest. In summary, organizational commitment has the potential likelihood to encourage managerial performance, Hence, the hypothesis is proposed as follows:

**Hypothesis 3: Sustainable organizational commitment has a positive effect on managerial performance.**

#### **Managerial performance as a dependent variable**

In this study, managerial performance is defined as the firm's goal achievement and higher firm performance of planning, investigating, coordinating, evaluating, supervising, staffing, negotiating, representing, and an overall assessment of performance.

### **Research Methods**

#### **Sample Selection and Data Collection Procedure**

The 5,362 firms, which are chosen as the population of this study from the database of the Industrial Estate Authority of Thailand (<http://www.ieat.go.th/online-service/industrial-list>) because these industrial firms have a complex financial and accounting information, a variety of cost accounting system, multi-layered responsibilities, the sub decision-making authority depends on middle manager or first-line supervisor and competitive turbulence. It is necessary to have the accounting information to manage firm performance. The unit of analysis is firm and key informant is the chief financial officers (CFO) or accounting manager. The sample is selected by using a random sampling procedure followed by the Taro Yamane equation under the 95% confidentiality. 372 samples are appropriate sample size (Yamane, 1973). This study assumes a required sample size as 20 percent, and to maximize the response rate to 100 percent, this

study systematically confines 1,860 (372x5) firms as a sampling frame. The 1,860 firms were systematically selected from the database. Data were collected by questionnaire mail survey. The questionnaires are directly distributed to 1,860 firms. Time of data collection is approximately ten weeks. The first five weeks, questionnaires were answered and returned to the researcher. After the first five weeks, to increase the response rate, a follow-up letter and online questionnaire were sent to firms and e-mails of the firms. Thus, a total of received questionnaires are 278 responses. However, there are only 270 complete and usable questionnaires. Thus, 270 firms were used for data analysis, and the effective response rate was 14.51%. Moreover, the non-response bias is tested for generalization based on Armstrong & Overton (1977) to test the significant differences of the demographic of firm characteristics between 135 early respondents (the first group) and 135 late respondents (the second group). The result of t-test comparison provides the evidence that there are no statistically significant differences between the two groups at a 95% confidence level. Thus, it can show that non-response bias.

#### **Variables Measurement**

To measure each construct in the conceptual model, all variables are anchored by a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), excluding control variables. Additionally, all constructs are developed for measuring from the definition of each construct and examining the relationship between the theoretical framework and previous literature reviews. Thus, the variables measurement of a dependent variable, independent variables, and control variables are described as follows:

##### **Dependent Variable**

Managerial performance is measured by using an eight-item scale which involves these attributes reflect the goal achievement of planning, investigating, coordinating, evaluating, supervising, staffing, negotiating and representing, and also includes an overall assessment of performance. The construct of this variable is developed by a new scale based on its definition.

##### **Independent Variables**

This study has three independent variables; including 1) information asymmetry is measured by using a five-item scale and 2) incentive-based compensation is measured by using a five-item scale and 3) organizational commitment is measured by using a seven-item scale. The construct of variables is developed by a new scale based on their definition.

##### **Control Variables**

Control variables in this study include firm age and firm size because they may influence the relationships between independent variables and a dependent variable. Firm age refers to the firm's experience which is measured by the period of time in operating the business (0 = less than 10 years, 1 = equal to or more than 10 years). Firm size is measured by the authorized capitals of the firm, that is a dummy variable (0 = less than or equal to 100,000,000,000 baht, 1 = more than 100,000,000,000 baht).

### Reliability and Validity

The questionnaire has seven parts. Part one asks about the personal information has seven 7 items: gender, age, marital status, educational level, working experience, average revenues per month, and the working position. Part two asks about the information and details of the firms such as the type of business, the period of time in operating, authorized capitals, the total assets of the firm, the number of employees, average revenues per year, and the level of information asymmetry situation. Part three to part six asks about information asymmetry, incentive-based compensation, organizational commitment, managerial performance. The last part is the recommendations and suggestions. Three academic experts who have experience in this area reviewed the instrument to ensure that the questionnaires use suitable wordings, and all constructs are adequate to cover the content of the variables. Then, the pre-test is conducted with the first 30 returned questionnaires. The range of factor loadings by EFA and CFA is between 0.586-0.914. These values are greater than the cut-off score of 0.4 to indicate acceptable construct validity (Hair et al., 2010). Moreover, the results of Cronbach's alpha coefficients are 0.786-0.955 which exceed the acceptable cut-off score. The recommendation of Cronbach's alpha coefficient should be equal to or greater than 0.70 to indicate that the measured items are similar enough to be considered acceptable (Nunnally and Bernstein, 1994). It ensures that validity and reliability of the questionnaires (Table 1).

**Table 1** The result of Validity and Reliability Testing

Variables	n	Validity (Factor Loadings)	Reliability (Cronbach's Alpha)
Information Asymmetry (IAS)	30	0.586-0.853	0.786
Incentive-Based Compensation Plans (IBC)	30	0.786-0.903	0.919
Sustainable Organizational Commitment (SOC)	30	0.758-0.863	0.918
Managerial Performance (MPF)	30	0.804-0.914	0.955

### Statistical Techniques

The Ordinary Least Squared Regression (OLS) is used to test all hypotheses. OLS is how to appropriate to examine the relationship between a dependent variable and independent variables which are based on data qualified as interval and categorical scales (Hair et al., 2010). The regression equation is a linear combination of the independent variables that are the best for explaining and predicting the dependent variable. As a result, all proposed hypotheses are transformed into a statistical equation as shown:

$$\text{Equation1: MPF} = \alpha_1 + \beta_1 \text{IAS} + \beta_2 \text{IBC} + \beta_3 \text{SOC} + \beta_4 \text{FS} + \beta_5 \text{FA} + \varepsilon$$

$$\text{Equation2: MPF} = \alpha_2 + \beta_6 \text{IAS} + \beta_7 \text{IBC} + \beta_8 \text{SOC} + \beta_9 \text{FS} + \beta_{10} \text{FA} + \varepsilon$$

$$\text{Equation 3: MPF} = \alpha_3 + \beta_{11} \text{IAS} + \beta_{12} \text{IBC} + \beta_{13} \text{SOC} + \beta_{14} \text{FS} + \beta_{15} \text{FA} + \varepsilon$$

**Research Finding**

Table 2 presents the descriptive statistics and correlation matrix for all variables. The Pearson correlation coefficient of all variables is between = 0.014-0.892. Although a multicollinearity problem exists when inter-correlation between independent variables exceeds 0.80 (Hair et al., 2010), but correlation analysis is employed to investigate initially. Meanwhile, VIF is more related to the statistical testing of interrelationships among independent variables in each equation. With respect to potential problems relating to multicollinearity, variance inflation factor (VIF) is used to provide information on the extent to which non-orthogonality among independent variables inflates standard errors. Table 3 shows that the maximum value of VIF is 4.682 (Equation 1), 2.278 (Equation 2) and 4.101 (Equation 3), which is lower than the cut-off score of 10 thus multicollinearity problems are irrelevant (Hair et al., 2010). Thus, the VIF ensure the non-existence of multicollinearity problems.

**Table 2** Descriptive Statistics and Correlation Matrix

Variables	Mean	SD	MPF	IAS	IBC	SOC	FS	FA
Managerial Performance	<b>3.98</b>	<b>0.89</b>	1					
Information Asymmetry (IAS)	<b>3.80</b>	<b>1.05</b>	0.806**	1				
Incentive-Based Compensation Plans (IBC)	<b>3.80</b>	<b>1.03</b>	0.834**	0.802**	1			
Sustainable Organizational Commitment (SOC)	<b>4.02</b>	<b>0.86</b>	0.892**	0.795**	0.864**	1		
Firm Size (FS)	n/a	n/a	0.102	0.042	0.091	0.147*	1	
Firm Age (FA)	n/a	n/a	0.062	0.013	0.014	0.109	0.315*	1

\*\* Correlation is significant at the 0.01 level (2-tailed), \* Correlation is significant at the 0.05 level (2-tailed).

**Table 3** Results of Regression Analysis

Independent Variables	Dependent Variable
	Managerial Performance (MPF)
Information Asymmetry (IAS)	<b>0.220***</b>
H1	<b>(0.046)</b>
Incentive-Based Compensation Plans (IBC)	<b>0.147***</b>
H2	<b>(0.056)</b>
Sustainable Organizational Commitment (SOC)	<b>0.591***</b>
H3	<b>(0.056)</b>

**Table 3** Results of Regression Analysis (Cont.)

Independent Variables	Dependent Variable Managerial Performance (MPF)
<b>Control variables:</b>	
Firm Size (FS)	-0.008 (0.055)
Firm Age (FA)	-0.010 (0.060)
<b>Adjusted R<sup>2</sup></b>	<b>0.823</b>
<b>Maximum VIF</b>	<b>4.682</b>

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10, Beta coefficients with standard errors in parenthesis

Table 3 shows the regression analysis results of hypothesis 1. Firstly, the result shows that information asymmetry positively affects managerial performance ( $\beta_1 = 0.220$ ,  $p < 0.01$ ). This result indicates and supports that the industrial firms that are chosen as samples have the problem of information asymmetry situation, and this problem has an effect on managerial performance as well (Ndofor, Wesley & Priem, 2013). It is consistent with Joe (2010) who found that information asymmetry improves decision-making quality and job self-efficacy of the members of the organization. Chong & Eggleton (2007) found that information asymmetry has a positive effect on managerial performance. **Thus, Hypothesis 1 is supported.**

Secondly, the finding of hypothesis 2 shows that in incentive-based compensation plans positively influence managerial performance ( $\beta_2 = 0.147$ ,  $p < 0.01$ ). Accordingly, an incentive-based compensation scheme motivates individuals to exert effort to improve performance (Sprinkle, 2000). Besides, the reliance on incentive-based compensation positively affects individual performance by stimulating a higher level of subordinates' effort (Chong & Eggleton, 2007). Moreover, Chong & Law (2016) find that the reliance on a high budget-based incentive compensation improved job performance. **Thus, Hypothesis 2 is supported.**

Thirdly, the finding of hypothesis 3 shows that sustainable organizational commitment has a positive effect on managerial performance ( $\beta_3 = 0.591$ ,  $p < 0.01$ ). This is consistent with the study of Tolentino (2013) who found that organizational commitment correlates significantly with job performance because of the high commitment of employees with strong organizational will work harder in order to contribute to organizational performance. Chong & Law (2016) who found that the reliance on the incentive compensation scheme leads to a higher organizational commitment and improved subordinate job performance. There is a positive relationship between an individual's beliefs about the expectations and behaviors associated with their work role and managerial performance (Hall, 2008). **Thus, Hypothesis 3 is supported.**

Besides, this study separates the 270 firms into 2 groups by the level of information asymmetry situation in the questionnaire (Part two), including, the high information asymmetry

situation is 166 firms and the low information asymmetry situation is 104 firms to compare and confirm the results of the robust test. These results of the influences of information asymmetry, incentive-based compensation plans and sustainable organizational commitment on managerial performance show in table 4.

**Table 4** The Robust tests of Regression Analysis

Independent Variables	Dependent Variable	
	Managerial Performance (MPF)	
	High group (n=166)	Low group (n=104)
Information Asymmetry (IAS)	<b>0.432***</b> (0.087)	<b>0.236***</b> (0.093)
Incentive-Based Compensation Plans (IBC)	<b>0.198***</b> (0.074)	0.141 (0.092)
Sustainable Organizational Commitment (SOC)	<b>0.409***</b> (0.075)	<b>0.672***</b> (0.096)
<b>Control variables:</b>		
Firm Size (FS)	-0.010 (0.055)	-0.069 (0.118)
Firm Age (FA)	-0.065 (0.059)	-0.069 (0.127)
<b>Adjusted R<sup>2</sup></b>	<b>0.759</b>	<b>0.628</b>
<b>Maximum VIF</b>	<b>4.101</b>	<b>2.278</b>

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10, Beta coefficients with standard errors in parenthesis

Table 4 shows the robust results of the group of high information asymmetry situation (n=160) and confirm that information asymmetry, incentive-based compensation plans and sustainable organizational commitment positively influence managerial performance ( $\beta_6=0.432$ ,  $p<0.01$ ), ( $\beta_7=0.198$ ,  $p<0.01$ ) and ( $\beta_8=0.409$ ,  $p<0.01$ ) respectively. **Thus, Hypotheses 1, 2 and 3 are supported again from the robust test of the high information asymmetry situation.** Secondly, the findings from the group of low information asymmetry situation (n=104) indicate that information asymmetry and sustainable organizational commitment have a positive influence on managerial performance ( $\beta_{11}=0.236$ ,  $p<0.01$ ) and ( $\beta_{13}=0.672$ ,  $p<0.01$ ) respectively, but incentive-based compensation plans does not have a positive influence on managerial performance. It is generally known that in the low information asymmetry situation, the few problems of information asymmetry in firms. It may not affect managerial performance. The results are based on the expectation that assumes that organizations with the low information asymmetry situation, but the high organizational commitment, the organization does not need incentive-based compensation plans because it does not affect managerial performance and the

organization loses its budget without any benefit. **Thus, Hypotheses 1 and 3 are supported again.**

### Conclusion

The investigation of the influences of information asymmetry, incentive-based compensation plans, and sustainable organizational commitment on managerial performance is the purpose of this study. In Thailand's industry context, the results indicate that information asymmetry, incentive-based compensation plans, and sustainable organizational commitment have a positive effect on managerial performance. The first robust test confirms that information asymmetry, incentive-based compensation plans, and sustainable organizational commitment positively influence managerial performance in the high information asymmetry situation. The second robust test confirms that information asymmetry and sustainable organizational commitment have a positive influence on managerial performance, but incentive-based compensation plans does not affect managerial performance in the low information asymmetry situation. The results of the study are in accordance with agency theory that the principal can minimize moral hazard problems by developing an incentive-based compensation, which aligns the interests of principal and agent. The higher managerial performance of agency or subordinate occurs when they have private information asymmetry, incentive-based compensation, organizational commitment. Meanwhile, in the low information asymmetry situation, incentive-based compensation is useless because the increase of managerial performance is affected by the high organizational commitment and private information asymmetry.

### Research implication

This study contributes to theoretical implications including, 1) the study expands to the previous literature on the existence of private information is an illustration of information asymmetry in the positive assumption that believes that subordinates have more private information about their responsible work as result to provide the firm receive the additional information and the useful information for decision making of top managers in the future. Secondly, this study confirms the prior research about the link between information asymmetry, incentive-based compensation plans and sustainable organizational commitment on managerial performance in industrial complex firms. Thirdly, this study extends the holistic view of the information asymmetry situation that organizations do not need to use incentive-based compensation plans because it does not improve managerial performance and as result to organizations does not lose its budget to motivation without any benefit. For managerial implications, this study has potential implications for top managers or principal can minimize improve managerial performance through the subordinate's private information asymmetry problems, incentive-based compensation plans, and sustainable organizational commitment. Secondly, top managers or principal should encourage sustainable organizational commitment

more than incentive-based compensation because it has a direct effect performance in all situations.

### Limitations and Future Research Directions

The first limitation is the results lack confirm again such as focus groups of the key informant. Secondly, data collected from Thai-Industrial firms cannot explain comprehensively the context of other sections. The future research may investigate the reduction approach of information asymmetry between the holding company and its subsidiaries. The future research should use mix method between qualitative and quantitative research to gain the most precise analytical results.

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