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Coercive, Normative and Mimetic Pressures as Drivers of Environmental Management Accounting Adoption

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Abstract: This paper explores the impact of institutional pressures on the adoption of environmental management accounting (EMA). EMA has been recognized as a valuable mechanism to deal with environmental issues. This paper uses institutional theory to explain the drivers of EMA adoption in Pakistan. Data were collected from the manufacturing sector in Pakistan through a questionnaire-based survey. The study concludes that coercive, normative and mimetic pressures have a significant and positive impact on the adoption of EMA.

Keywords: environmental management accounting; institutional pressures; PLS-SEM; Pakistan

1. Introduction

The world today is facing the adverse impacts of climate change and environmental degradation. These negative impacts are largely the result of industrial expansion and a sole focus on economic development. There are recent calls for sustainable development, meaning a development that focuses on environmental protection and social development in addition to economic growth. Pressure is mounting on firms to respond to these calls and to behave in a more sustainable manner [1]. As a result, firms are giving due attention to social and environmental considerations in their decision making. At present, the conventional and traditional accounting systems have failed to uphold and provide environmental information in their financial accounting [2]. This means that environmental information is missing from various decision making techniques and models, necessitating a new field of environmental management accounting (hereafter EMA) to address these issues [3].

The main aim of EMA is to provide environmental information (monetary and physical) in order to increase the efficiency of natural resources and to reduce the impact on the environment [4,5]. EMA provides clear foresight of environmental costs that are missing from overhead accounts in traditional management accounting. EMA extends support to top management for effective decision making concerning environmental issues [6,7]. The adoption and implementation of EMA has implications for costing strategies, pricing mechanism and decision making for the production and reduction of hazard and waste disposal [5,8]. The ultimate outcome of the adoption and implementation of EMA is an improvement in environmental and firm performance. Despite this, the implementation of EMA is low and very few organizations are using it for decision making [9]. In this context, there is a need to explore the drivers of the adoption of EMA due to its significance. The research is more significant in the context of developing countries, as a majority of the research in this area

focused on developed countries [10–13]. Finally, a majority of the research uses legitimacy theory and stakeholder's theory to explain the adoption of EMA while there is limited use of institutional theory [14]. In order to address these gaps, this paper aims to explore the drivers of EMA adoption in Pakistan using institutional theory. More specifically, this paper empirically examines whether coercive, mimetic and normative pressures impact significantly on EMA adoption.

This paper aims to promote the adoption of EMA practices. At present, few companies are using EMA, which is widely promoted by professional accounting institutions. By understanding the institutional drivers of EMA adoption, policy makers can create an enabling environment to increase the adoption of EMA by companies. Using institutional theory as a conceptual model, this research investigated the influence of various institutional pressures on the adoption of EMA. Consequently, this paper provides evidence on the role of various institutional pressures on EMA adoption with the potential to contribute to sustainable development [15,16]. Data were collected from the manufacturing sector in Pakistan through a questionnaire-based survey. When companies adopt and benefit from EMA, it results in better environmental performance. Consequently, companies can address environmental concerns via various mechanisms because EMA is the main driver for environmental and economic benefits [17,18]. The rest of the paper is organized as follows. Section 2 provides a literature review and develops various hypotheses for the paper. Section 3 discusses the material and methods, followed by data analysis in Section 4. The last two sections provide conclusions and a discussion.

2. Theoretical Background and Hypothesis

2.1. Institutional Theory on EMA Research

Institutional theory suggests that companies' social, environmental and economic performances are greatly affected by the institutional environment in which a company operates. The theoretical framework assumes that organizations are embedded in a web of values, norms, rules and beliefs that guide their behavior and practices. These cultural elements (institutions) are in fact social constructions that stabilize over time and offer legitimate scripts for action. Managers conform to institutions—i.e., become isomorphic with their institutional context in order to increase chances of firms' survival, as by conforming to social expectations they gain legitimacy, which is the central tenet of institutional thinking [17,19]. Inside the companies, the institutional field enables the activities that have a dominant impact on social, environmental and economic values [20]. Companies promote EMA practices to address environmental issues arising inside and outside organizations. These environmental issues affect the environmental safeguards of society. Moreover, it can influence a company's ecological and environmental reputation. Institutional pressure could affect companies' performance [19]. However, institutional pressures vary in nature and may be classified as coercive, normative and mimetic pressures. In addition, these pressures may originate from different stakeholders, such as government organizations, suppliers, customers and non-governmental organizations [19].

2.2. Stakeholder Theory on EMA Research

Stakeholder theory suggests that companies engage their stakeholders to ensure sustainable performance and strengthen their relationship with stakeholders to ensure a competitive advantage in the market [21]. Moreover, stakeholder theory assumes that stakeholder engagements can affect cost savings and environmental impact, reduce environmental uncertainties and improve performance. Applying stakeholder theory, various authors have suggested that reducing environmental uncertainties can benefit companies like better product and services management, attain and retain quality employees, enhance companies' reputation, enhance customer loyalty, sustain competitive advantages and reduce risk [22–25]. Better utilization of EMA practices can reduce environmental uncertainties. These reductions can further improve the use of tangible and intangible assets that contribute to organizations in terms of environmental protection and economic performance [26].

2.3. Environmental Management Accounting (EMA)

EMA is defined as “the environmental performance and economic performance through the development and implementation of appropriate environmental related accounting systems and practices” [6]. EMA is different from other conventional accounting approaches with respect to the identification of environmental information, measurement of environmental data and interpretation of environmental information in financial statements. It brings aspects of the environment into consideration. EMA adoption can reduce costs and guide companies towards a better environmental and financial performance [6,27]. Furthermore, EMA adoption can reduce the burdens of environmental regulation and improve organizational image from the environmental perspective [28,29]. EMA deals with environmental information that has environmental impact and enhances a company’s environmental performance [30]. EMA can be divided into two areas, the first being the monetary aspects of EMA and the second the physical aspect of EMA. The monetary aspects of EMA are based on a firm’s activities related to environmental impact, and can be expressed in monetary units. These monetary units provide information that is useful for the management for decision making. The physical aspect of EMA is based on the natural environmental information expressed in physical units [6]. These two information systems ensure that top management can make better decisions to ensure better environmental and economic performance [31].

2.4. Institutional Pressures and EMA Adoption

Institutional theory provides an explanation of the behaviors and actions of an organization. These behaviors and actions may include their energy consumption behavior, ecological practices and environmental management practices [17]. Institutional theory assumes that companies are widely affected by the external environment, actions and behaviors like law and regulation, values and norms, and culture and expectations [19,32]. Companies are widely affected by changes in the external environment and they must adapt to these changes to ensure sustainability [19]. Companies can be affected detrimentally if they ignore these changes [33]. Therefore, it is essential for companies to acknowledge these external changes and implement EMA practices to handle environmental problems [34]. Besides, institutional pressures can regulate how organizations adopt shared notions and routines. There are three types of institutional pressures that influence organizational behaviors in various ways. These are coercive pressure, mimetic pressure and normative pressure [19]. First, coercive pressure is created by strong stakeholders like government organizations, non-governmental organizations, customers and suppliers [19,32]. In environmental management research, coercive pressure is widely discussed because it is mainly exerted by government organizations. Coercive pressure arises when stakeholders impose intense pressures like rules and regulation, sanctions and punishments. Second, normative pressure arises from expectations, values and norms and standards within the company culture [35]. These pressures push companies to adopt new actions and behaviors [33]. Third, mimetic pressure is caused by uncertain situations faced by companies. These pressures arise when companies react to stimuli created by the internal and external environments [36].

2.4.1. Coercive Pressure and EMA Adoption

Coercive pressure is exerted by external stakeholders like government authorities and non-governmental organizations, and this forces companies to implement different environmental regulations and standards [37]. These environmental regulation and standards are compulsory and mandatory for the companies. According to institutional theory, coercive pressure can shape the environmental protection and legislative mandates of the organizations [20]. According to institutional theory, coercive pressure mainly deals with multifactor complexities such as internal behaviors [37]. In developing countries, coercive pressure may come from international buyers (e.g., the European Union), foreign investors, professional associations and transnational institutions [20]. In Europe and North America, coercive pressure can play a vital role in the implementation of EMA. Coercive

pressures were found to affect companies' environmental performance [19,38]. These compulsory and mandatory regulations are imposed by government authorities. Every organization is bound to follow these regulations subject to serious sanctions and punishments imposed by these authorities [39]. Many government authorities encourage and set favorable conditions for companies to implement EMA. In addition, when companies face coercive pressures, EMA adoption helps companies to improve environmental performance and garner government support and economic benefits. EMA adoption helps companies build their social reputation. Therefore, companies are implementing EMA practices when faced with coercive pressures [20].

2.4.2. Normative Pressure and EMA Adoption

Normative pressure comes from suppliers, customers, associations like companies' trade unions, the media and other social entities. Trade unions and other associations are usually considered the basic entities that create normative pressures [19,38]. In developing countries, normative pressure is considered a driving factor influencing norms and the sense of responsibility, because normative pressures affect social compliant behaviors and actions. In Europe and North America, normative pressure extends into cooperative relationships across different organizational networks and endures in the external environment. These pressures ensure that customers and suppliers operating in the external environment and organizations operate in a social compliant manner, thus encouraging the adoption of EMA. Members of trade unions are affected by a company's culture and performance. In addition, companies implement strategies that are non-detrimental to unions, since unions can affect resources, knowledge and organizational culture. With EMA adoption, companies can manage public perception through communication and management practices. If companies do not manage public perception and resist trade unions, the companies' image and reputation can be affected. Companies with damaged reputations can suffer external loss and also lose competitive advantage [37]. Hence, EMA adoption influences companies' image, reputation and competitive advantage.

2.4.3. Mimetic Pressure and EMA Adoption

Mimetic pressure arises when companies engage in competition seeking superior performance [19,38]. EMA adoption can be costly but beneficial. It is important for companies to respond to their competitors' actions and behaviors. If their competitors are using EMA, companies should follow suit. In developing countries, mimetic pressure encourages better environmental management in foreign and multinational organizations. In Europe and North America, mimetic pressure is considered the best tool to ensure superior performance, since companies can respond to international demands by adopting or utilizing green technology or resources. Strong mimetic pressures can influence governments and stakeholders to ensure companies adopt advance environmental management and technologies like foreign-owned and subsidiaries of multinational companies, thus generating superior performance in local organizations. In addition, companies responding to mimetic pressures can obtain economic benefits by being more competitive. Hence, EMA adoption, although costly, allows companies to respond to mimetic pressures and can bring competitive advantage [19,38].

2.5. Research Conceptual Framework

Hypothesis 1. *There is a positive relationship between coercive pressure and EMA adoption in Figure 1.*

Hypothesis 2. *There is a positive relationship between normative pressure and EMA adoption.*

Hypothesis 3. *There is a positive relationship between mimetic pressure and EMA adoption.*

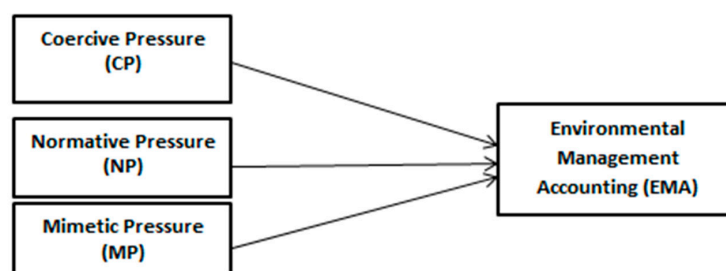


Figure 1. Research conceptual framework.

3. Material and Methods

This research uses quantitative methods and is positivist in nature. The population for this research comprised all of the manufacturing companies in the province of Punjab, Pakistan. The manufacturing sector was selected due to it having a big impact on the environment [40,41]. Additionally, Punjab has the largest number of manufacturers in Pakistan. Punjab is also facing many environmental issues; therefore, the research anticipates that there are various institutional pressures for companies to adopt environmental practices in Punjab. These pressures make EMA adoption extremely relevant to manufacturing companies in Punjab. The list of the manufacturing companies was obtained from the Securities and Exchange Commission of Pakistan. For the adequacy of the sample of the study, G*Power software, which is considered the most powerful analysis program for a variety of statistical tests in the behavioral as well as social sciences, was used to calculate the sample size. Based on the calculations of G*power 3.1.9.2, the required minimum sample should exceed 146 respondents with the setting proposed by Cohen: $f^2 = 0.15$ (effect size); $\alpha = 0.05$ (error type one); and $\beta = 0.20$ (error type two). As a result, five hundred (500) manufacturers were randomly selected from the list provided by the Security and Exchange Commission of Pakistan. After selecting the organizations, questionnaires were distributed to their managers (especially finance managers). Several follow-up emails and phone calls were made to get their responses. Two hundred and seventy (270) questionnaires were returned; thirty (30) questionnaires were incomplete and were removed. Two hundred and forty (240) questionnaires were used for data analysis with a response rate of 48% (240/500). The demographic analyses of the respondents are presented in Table 1.

Table 1. Demographic analysis.

Demographic Constructs		Frequency	Percentage (%)
Gender	Male	214	89.16
	Female	26	10.83
Age	21 to 30	34	14.16
	31 to 40	74	30.83
	41 to 50	130	54.16
	Above 50	2	0.833
Working experience	1–5 years	-	-
	6–10 years	20	8.33
	11–15 years	40	16.66
	More than 15 years	180	75.00
Education	Undergraduate	40	16.67
	Post Graduate (Certification)	200	83.33
Industry Type	Chemical and Fertilizer	65	27.08
	Textile	77	32.08
	Oil and Refinery	12	5.00
	Food and Beverages	86	35.83
Total		240	100

Measurement of Variables

All of the variables were measured on 5-point Likert scales. Various constructs, their operationalization and adaptation are summarized in Table 2. Institutional pressure variables were measured by questions that were adapted from [17,37,42,43]. In this research, three types of institutional pressures are discussed, namely coercive pressure, normative pressure and mimetic pressure. Coercive pressure is exerted by external stakeholders like government authorities and non-governmental organizations forcing companies to implement different environmental regulations and standards [37]. Normative pressure comes from suppliers, customers, associations like companies' trade unions, the media and other social entities. Mimetic pressure arises when companies engage in competition seeking superior performance [19]. This research evaluates the institutional responses to coercive, normative and mimetic pressure in light of adoption of EMA.

EMA adoption is measured using measures adapted from [27,28,44]. EMA adoption can reduce the burdens related to adopting environmental regulations and improve a company's image from the environmental perspective [28,29]. EMA deals with the environmental information that has environmental impact and can enhance a company's environmental performance [30]. EMA adoption measures companies' ability to adopt new and cleaner production processes. It encourages companies to modify these processes and to recycle whilst helping to protect the environment from harmful and hazardous material. New recycling technology and methods of material recovery can also be used in production. These technologies protect the environment from pollution and hazardous materials.

Table 2. Research instruments.

Constructs	Operationalization	Adapted From
Coercive Pressure	<ol style="list-style-type: none"> 1. Our firm tries to reduce the threat from the environmental regulations by implementing environmental management accounting; 2. Environmental regulations are important for our firm to implement environmental management accounting; 3. The local government has set strict environmental standards, which our firm needs to comply with; 4. Several penalties have been imposed on firms that violate environmental standards and regulations. 	Adapted from the scales of several authors [17,37,42,43]
Normative Pressure	<ol style="list-style-type: none"> 1. The increasing environmental consciousness of consumers has spurred our firm to implement environmental management accounting; 2. Being environmentally responsible and disclosure of environmental information is a basic requirement for our firm to be part of this industry; 3. Nongovernmental organizations around our firm expect all firms in the industry to implement environmental management accounting; 4. Stakeholders may not support our firm if our firm does not implement environmental management accounting. 	Adapted from the scales of several authors [17,37,42,43]
Mimetic Pressure	<ol style="list-style-type: none"> 1. The leading companies in our industry set an example in the field of implementing environmental management accounting; 2. The leading companies in our industry are well-known for implementing environmental management accounting; 3. The leading companies in our industry are intending to reduce their impacts on the environment by implementing environmental management accounting; 4. The leading companies in our industry have obtained competitive advantages by implementing environmental management accounting. 	Adapted from the scales of several authors [17,37,42,43]

Table 2. Cont.

Constructs	Operationalization	Adapted From
Environmental Management Accounting	<ol style="list-style-type: none"> 1. Our firm's accounting system records all physical inputs and outputs (such as energy, water, materials, wastes, and emissions); 2. Our firm's accounting system can carry out product inventory analyses, product improvement analysis and product environmental impacts analyses; 3. Our firm uses environmental performance targets for physical inputs and outputs; 4. Our firm's accounting system can identify, estimate and classify environmental-related costs and liabilities; 5. Our firm's accounting system can create and use environmental-related cost accounts; 6. Our firm's accounting system can allocate environmental-related costs to products. 	Adapted from the scales of several authors [27,28,44]

4. Data Analysis

4.1. Assessment of Model Using PLS-SEM

Structural equation modelling (SEM) is a second generation multivariate analysis technique which is used to examine the relationship between constructs. PLS-SEM 3.2 software was used for primary data analysis. [45]. PLS-SEM examines the data collected and the relationship between hypotheses. There are two types of data in primary research, namely the measurement model analysis and the structural model analysis. In the measurement model, the reliability and validity of the data are examined. There are several tools used to examine the measurement model, namely Cronbach's alpha, average variance extracted and composite reliability. The validity of the model is examined by cross-loading and factor loading [46]. In addition, the structural model examines the strength and level of significance of the hypothesis. It examines the level of significance and the relationship of hypotheses with path coefficients [46–48].

4.2. Measurement Model Assessment

A measurement model is used to examine the appropriateness between theory and data. It tests the relationship between observed and unobserved variables. In addition, the measurement value determines the reliability of the scale and validity of each constructs. The reliability and validity of the constructs represent the nature of the relationship in the conceptual framework. There are two types of measurement models used in PLS-SEM, namely reflective and formative measurement [46]. Reflective measurement describes observed variables as dependent and being able to substitute each other based on previous research, while formative measurement describes observed variables as being triggered by latent variables that can be explained sufficiently by theory [49]. In addition, the measurement model is categorized by four measures in Table 3, namely internal consistency (composite reliability), indicator reliability, convergent validity and discriminant validity [50]. The reliability of the tests is assessed by alpha, compound reliability and the average variance extracted (AVE) of the Cronbach's alpha. Average variance extracted (AVE) is defined as the grand mean value of the squared loadings and equivalent to the communality of a construct The reliability of the data is assessed through the values of Cronbach's α , composite reliability and AVE [46]. The constructs are considered reliable if their respective values are as follows: Cronbach's $\alpha \geq 0.70$ [51], composite reliability ≥ 0.70 [49] and AVE ≥ 0.50 [50]. Factor loadings and cross loadings are used to examine the validity of the data at indicator level [46]. The indicators are considered as valid when the value of the factor loading is ≥ 0.60 [50].

Table 3. Cross loading. Heterotrait-monotrait ratio (HTMT). CP: coercive pressure; EMA: environmental management accounting; MP: mimetic pressure; NP: normative pressure.

	CP	EMA	MP	NP
CP1	0.834	0.409	0.482	−0.039
CP2	0.823	0.403	0.528	−0.074
CP3	0.827	0.483	0.510	−0.005
CP4	0.828	0.470	0.578	0.016
EMA1	0.304	0.784	0.376	−0.197
EMA2	0.478	0.854	0.468	−0.111
EMA3	0.493	0.853	0.362	−0.148
EMA4	0.453	0.868	0.420	−0.156
EMA5	0.417	0.847	0.379	−0.152
EMA6	0.480	0.737	0.449	−0.094
MP1	0.523	0.359	0.830	0.024
MP2	0.598	0.436	0.808	−0.040
MP3	0.474	0.356	0.829	−0.015
MP4	0.478	0.459	0.809	−0.043
NP1	0.021	−0.091	−0.019	0.763
NP2	−0.038	−0.130	−0.014	0.892
NP3	−0.025	−0.115	0.009	0.914
NP4	−0.035	−0.201	−0.046	0.858

The authors of [46] suggested another way to assess discriminant validity through the multi-trait and multi-method matrix, namely the Hetero-trait Mono-trait Ratio (HTMT). There are two ways of using the HTMT approach to assess the discriminant validity. First, when using it as a criterion, if an HTMT value is greater than 0.85, then there is a problem with discriminant validity. The second way is by using the statistical test for HTMT inference. When the confidence interval of HTMT values for the structural paths includes 1, it indicates a lack of discriminant validity. If the interval's range excludes 1, it suggests that the constructs are empirically distinct. Table 5 shows the HTMT results.

The loading of each item is examined to measure the reliability of the model. The loading of each items should have a value of at least 0.70. Therefore, the index reliability can be satisfied [50]. As mentioned in Table 4, all the loadings met the required criteria. The Cronbach's alpha and composite reliability should have a value of at least 0.6 [50]. According to Table 4, both the Cronbach's alpha and the composite reliability meet the required criteria, and as a result, internal consistency is considered satisfactory. AVE is applied to assess the convergent validity, which can be accepted if AVE shows a value of more than 0.5 [50]. According to Table 4, the AVE ranges from 0.671 to 0.737, meeting the required criteria. Table 5 shows the HTMT results.

Table 4. Results of validity and reliability analysis.

Constructs	Item	Factor Loading	Cronbach's Alpha (CA)	Composite Reliability (CR)	Average Variance Extracted (AVE)
Coercive Pressure (CP)	CP1	0.834	0.848	0.897	0.686
	CP2	0.823			
	CP3	0.827			
	CP4	0.828			
Normative Pressure (NP)	NP1	0.763	0.887	0.918	0.737
	NP2	0.892			
	NP3	0.914			
	NP4	0.858			
Mimetic Pressure (MP)	MP1	0.830	0.838	0.891	0.671
	MP2	0.808			
	MP3	0.829			
	MP4	0.809			
Environmental Management Accounting (EMA)	EMA1	0.784	0.906	0.927	0.681
	EMA2	0.854			
	EMA3	0.853			
	EMA4	0.868			
	EMA5	0.847			
	EMA6	0.737			

Table 5. Means and discriminant validity (heterotrait-monotrait ratio (HTMT)).

	CP	EMA	MP	NP
Coercive Pressure (CP)	———			
Environmental Management Accounting (EMA)	0.601			
Mimetic Pressure (MP)	0.747	0.561		
Normative Pressure (NP)	0.056	0.177	0.042	———

4.3. Structural Model Assessment

The structural equation model is used to examine the specification of each construct estimates by theory. The structural equation model is evaluated using different criteria, namely path co-efficient (β), co-efficient of determination (R^2), predictive relevance (Q^2), predictive accuracy (f^2) and predictive relevance (q^2). In addition, the structural model tests the proposed hypotheses through the path coefficients, t values and p values. The magnitude and sign of path coefficients represent the strength and direction of association, respectively. A significant relationship exists between the variables if they have a ≥ 0.20 score of path coefficient [50]. The statistical results show that all direct hypotheses were significant (see Table 6).

Table 6. Predictive accuracy of the model.

Constructs	R^2 Value	Interpretation
Environmental Management Accounting (EMA)	0.353	Moderate

Predictive accuracy is measured by R2, which measures the combined effects of exogenous and endogenous variables on each other. In PLS-SEM, the predictive accuracy is measured by R2. The value of R2 ranges from 0 to 1. The greater the value of R2, the greater is the predictive accuracy of the model, while the lower the value of R2, the lower is the predictive accuracy of the model [50]. Meanwhile, the values of 0.25, 0.50 and 0.75 show weak, moderate and substantial predictive accuracies of the model, respectively [50]. The predictive accuracy of the model is assessed using R2 and the magnitude of exogenous and endogenous variables are examined by R2 [50]. R2 is widely used to examine the predictive accuracy in the model [50]. R2 values have different criteria; if the values are 0 and 1 then it shows that the predictive accuracy of the model is strong [51]. If the values are 0.25, 0.50 and 0.75 then the predictive accuracy of the model is weaker in Table 7 [50].

Table 7. β , standard deviation, t-values, p-values.

Hypotheses	Relationships	β	Standard Deviation	t-Values	p-Values	Assessments
H1	CP -> EMA	0.366	0.081	4.486	0.000	Supported
H2	NP -> EMA	−0.153	0.049	3.126	0.002	Supported
H3	MP -> EMA	0.263	0.084	3.127	0.002	Supported

** $p < 0.01$, * $p < 0.05$.

Hypothesis testing is measured using the path co-efficient value (β); if the value of co-efficient (β) is statistically significant then the hypothesis is accepted. In this research, three hypotheses (H1, H2 and H3) were tested, and they were found to have a positive relationship with EMA. According to PLS-SEM, if the t-value > 1.96 (for a 2-tailed test), which is equivalent to $p < 0.05$, then a hypothesis is accepted [50]. For the first hypothesis H1, coercive pressure was positively associated with EMA ($\beta = 0.366$, $t = 4.486$). Hence, hypothesis H1 was statistically significant and accepted. For the second hypothesis H2, normative pressure was positively associated with EMA ($\beta = -0.153$, $t = 3.126$). Hence, hypothesis H2 was statistically significant and accepted. For the third hypothesis H3, mimetic pressure was positively associated with EMA ($\beta = 0.263$, $t = 3.127$). Hence, hypothesis H3 was statistically significant and accepted.

Figure 2 below describes the relationship between the independent variables coercive pressure, normative pressure and mimetic pressure and the dependent variable EMA. The relationship of coercive pressure with EMA was positive and significant since the p value was less than 0.05. The relationship of normative pressure with EMA was negative but significant, whereas the relationship of mimetic pressure was positive with EMA and significant for all of them. The p-values for this relationship were lower than 0.05 and the t-values of coercive pressure, normative pressure and mimetic pressure were 4.486, 3.126 and 3.127, respectively. The beta coefficients of coercive pressure, normative pressure, and mimetic pressure were 0.366, −0.153 and 0.263, respectively. All the relationships were significant and supported.

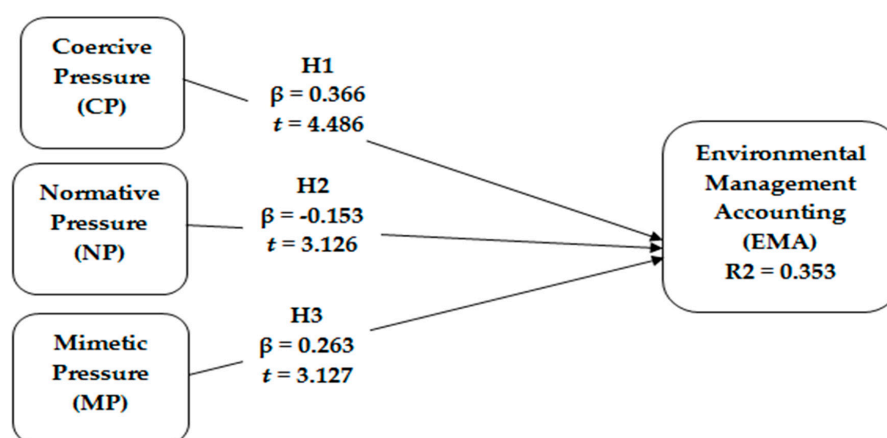


Figure 2. Structural model.

5. Discussion

This research explores the effects of institutional pressures on EMA adoption. Based on the data analysis, this paper concludes that all three institutional pressures (coercive, normative and mimetic) have positive and significant influence on the adoption of EMA. These findings suggest that firms under higher coercive pressure, normative pressure and mimetic pressure are more likely to implement EMA to obtain legitimacy and maintain good relationships with their stakeholders. Meanwhile, the regression analysis suggested that coercive pressure has the largest influence on EMA implementation, which means that coercive pressure that comes from standards and regulations designed by governments could exert stronger influence on EMA implementation than normative pressure. This may be due to the fact that governments play an important role in protecting the environment and have a significant effect on firms' pro-environmental behavior and decision making. Hence, the adoption of EMA is attractive and can be beneficial to many firms. The other reason is that EMA adoption is still at a primary stage, many firms do not know how to implement EMA in practice, and there are limited numbers of firms that have successfully implemented EMA. Furthermore, this research also discovered the effects of institutional pressure on implementation of EMA. The findings show that the effect of coercive pressure, normative pressure or mimetic pressure on EMA implementation has increased. This is because institutional pressures strongly influenced EMA implementation. When top managers perceived the benefits of implementing EMA, they were more likely to support it. With institutional pressures, the implementation of EMA is easier, especially in obtaining resources such as investments, employees and techniques. Firms facing institutional pressures tend to have stronger abilities and impetus to implement EMA. Hence, when faced by coercive pressure from powerful governments and partners and normative pressure from industry associations, trade associations, media and other social actors, firms facing high institutional pressures are more likely to implement EMA. This allows them to conform to coercive and normative pressures to maintain good relationships with stakeholders and obtain legitimacy and reputation. Otherwise, they would be punished by governments, isolated by their stakeholders and lose external resources and market share [20,39]. Institutional pressure positively effects the implementation of EMA. Prior research showed that mimetic pressure plays a significant role when the behavioral processes are highly complex and difficult to understand and adopt [33]. Hence, the effect of mimetic pressure is reduced when firms' implementation of EMA is high. In other words, the positive impact of institutional pressure depends on the level of implementation of EMA.

6. Conclusions, Implications and Limitations

EMA is an effective tool to overcome environmental impacts and reduce the negative impact of environmental practices. In this research, coercive, normative and mimetic pressures were found to encourage EMA adoption. This implies that organizations are relationship oriented and they respond to various pressures to maintain good relations with stakeholders and seek social legitimacy.

This paper argues that institutional theory provides a better explanation of EMA practices. Instead of the technical rationality for introducing EMA practices, managers introduce EMA because of social compliance and institutionalizing norms, values and taken-for-granted assumptions. The results suggest various implications for practitioners and policy makers. In order to encourage EMA adoption and to improve environmental performance, the role of institutions should be strengthened so as to provide stimuli for organizational action. Institutional pressures stimulate organizational norms, beliefs and culture to create an atmosphere supporting environmental protection whilst encouraging the introduction of environmental practices. In addition, institutional pressure helps organizations implement environmental management.

This research has certain limitations. Firstly, this research is based on cross-sectional data; the data collection of this research was based on causal relationships between independent and dependent variables. Causal relationship data may not entirely represent the proposed model. Secondly, primary data collection was used, only one respondent was selected for each organization, and individual perceptions were not representative of the whole organization. Future research should include multiple levels of management, employees and front liners to examine the different perceptions and points of view. In addition, future research should attempt to examine data from various countries and regions to investigate the different role of EMA adoption in these areas.

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