Implications of Global Risks to Asean Development

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Received October 26, 2019
Revised 4 February, 2020
Accepted February18, 2020

Abstract

Past analyses have yielded the determinants of development, while the obstacles of development have been overlooked. Thus, the aim of this study was to empirically analyze the correlation between global risks (environmental, economic, social and political risks) and various aspects of development. The units of analysis in this research included the member nations of the Association of Southeast Asian Nations (ASEAN) due to their potential growth compared to other regions. This study applied one statistical model by using multivariate multiple regression (MMR) which was composed of three equations in MMR given the dimensions of development: growth of the gross domestic product (GDP), human development, and the happiness index. According to the aggregate findings that provided the panel data across ASEAN members from 2000 to 2018, the results showed that global risks can significantly explain the variation of the dimensions of development. To be more precise, global risks are negatively associated with the aspects of development in terms of growth (GDP), human well-being and the happiness level. The most negative impacts on the aspects of development were found to be inflation (economic risk) and unemployment (social risk), respectively. With such importance, risk mitigation strategies are thus clarified through the content analysis. Ultimately, apart from the mitigation of global risks, in this empirical analysis, it is illustrated that to sustain development, institutional factors as well as central governance toward political stability from the central governments play an important role.

Keywords: Global Risks, ASEAN, Development, Multivariate Multiple Regression

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Introduction

Based on GDP growth, the ASEAN economy has been continually performing in a strong direction. In 2016, ASEAN GDP growth accounted for 4.8%, which was expected to decrease to only 4.5 (AIMD & CRD, 2017: 3). Compared to other regions, the ASEAN economy is performing better (Figure 1) as a result of significant support from stronger private consumption and investment and was expected to growth at 4.8 in 2017 according to the Asian Development Bank (ADB). To be precise, growth due to private consumption will be supported by public spending, substantially on infrastructure projects as well as the attention paid to the fourth industrial revolution.

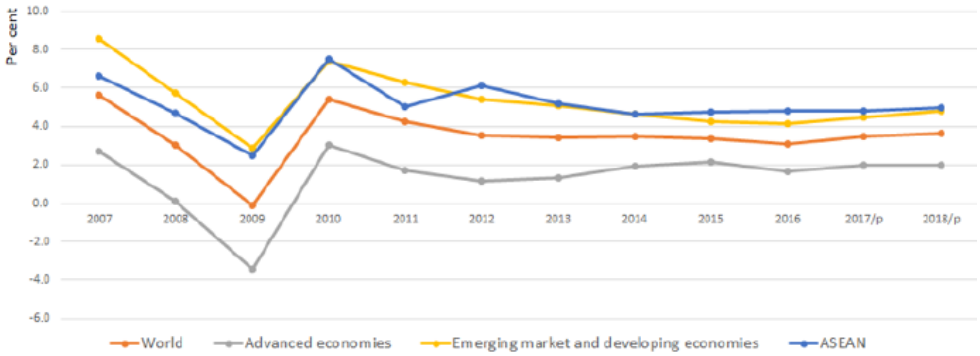

Figure 1: GDP Growth
Source: (AIMD & CRD, 2017: 3).

The upward trend in the ASEAN economic outlook in 2017 was however overestimated for several reasons, for example the economic adverse events resulting from trade policy adjustments and monetary policy that caused the volatility capital outflow (AIMD & CRD, 2017: 3). Apart from such economic uncertainties, one noticeable factor is concerned with neglect of the risks, particularly in the entering into the fourth industrial revolution. While many studies have demonstrated the positive effects of the fourth industrial revolution, especially in terms of stimulating GDP growth, Jermsittiparsert and Sae-Lim (2019) focused on the opposite view by proposing the risks regarding the fourth industrial revolution, which include income inequality, high rates of unemployment, cybersecurity, and so on.

Equally important, most previous articles have mentioned and studied the determinants of growth and development (Edward & Ramayah, 2016; Mundula & Salustri, 2012) while leaving out the details of the obstacles to achieving them. As described, global risks can possibly reduce global GDP growth as well as that of ASEAN. As seen in Table 1, growth forecasts have been equally moderated since June 2018 (AIMD & CRD, 2018: 3) with Brunei and Thailand being the only countries experiencing an increase in GDP in 2019, while the others are declining. OECD (2019: 1) indicates that, compared to China and India, the GDP growth of ASEAN is lower than it should be. It is of course driven by several factors, both in aggregation and in individual countries. To narrow the scope, the author summarized the issue of global risks as a set of predictor variables.

Table 1: Real GDP, Growth Rate (%)

	2016	2017	2018f	2019f
Global	3,3	3,7	3,7	3,7
Advanced Economies	1,7	2,3	2,4	2,1
Emerging and developing economies	4,4	4,7	4,7	4,7
ASEAN	4,8	5,3	5,1	5,2
Brunei Darussalam	(2,5)	1,3	2,0	2,0
Cambodia	6.9	6.8	7.0	7.0
Indonesia	5.0	5.1	5.2	5.3
Lao PDR	7.0	6.9	6.6	6.9
Malaysia	4.2	5.9	5.0	4.8
Myanmar	5.9	6.8	6.6	7.0
Philippines	6.9	6.7	6.4	6.7
Singapore	2.4	3.6	3.1	2.9
Thailand	3,3	3,9	4,5	4,3
Viet Nam	6,2	6,8	6,9	6,8

Source: (AIMD & CRD, 2018: 3)

Therefore, the first objective of this study was to empirically investigate the implications of global risks in the context of ASEAN development not limited to only GDP growth. Most of the research done in this area focuses on GDP as the aspect of development and growth; however, this research study also includes other dimensions. To be precise, the development aspects should not be limited to GDP growth (Raworth, 2017). Correspondingly, studies should examine other indicators of human well- being in nations in the process of analysis. Costanzw, Hart, Posner, and Talberth (2009) critiqued the inappropriate use of Gross Domestic Product (GDP) as a measure of national well-being. GDP is not then an interchangeable term with development. Furthermore, the second objective was to propose several risk mitigation strategies for ASEAN policy makers.

The contribution of this paper is to make policy makers aware of global risks. They often ignore these risks and consider only the positive side of globalization. In the era of the arrival of the fourth industrial revolution, governments should evaluate both sides of the effects of advanced technology and innovation. Additionally, another benefit of this research was the effort to quantify national well- being in terms other than that of the GDP.

Theoretical and Empirical Framework

A. Determinants of Development in ASEAN

The Association of Southeast Asian Nations (ASEAN) was formed in the late sixties with the aim to address political, security and cooperative issues. The Asian Development Bank Institute (ADBI) (2014) proposed three key challenges for the year 2030: 1) enhancing macroeconomic and financial stability, 2) supporting equitable growth, and 3) promoting competitiveness and innovation. ASEAN member nations believe that in order to promote development, they need to endorse innovative policies, such as the concept of the fourth industrial revolution.

The holistic view of the economic development in ASEAN has gradually recovered following the financial crisis in 1998 due to the export demand, competitive exchange rates and investment (especially

FDI). As this is important, the ASEAN region therefore has been one of the main actors in the world economic growth during the past decade, and since then, there have been numerous studies related to the development of ASEAN. Mundula and Salustri (2012) and ADB (2010) indicated that ASEAN growth depends on "labor increasing returns to scale (as an example, due to the increasing amount of FDI hosted by the region)". Apart from such mentioned indicators, such research studies have also found the positive correlations between the capability of the public and private institutions and the growth of ASEAN.

Another view of development mostly correlates with financial indicators since, however, most of the previous studies defined growth and development as interchangeable terms. FarahEffera, Affandi, and Mahmood (2014) employed the fixed effect regression with panel data. Their study showed that share investment as well as inflation impacts growth. Thanh (2015: 42) argued that the relationship between economic growth and inflation is nonlinear. This study concluded that inflation and economic growth have a statistically significant negative relationship, especially when the inflation rate is above the threshold level of 7. 84% , above which inflation starts impeding economic growth in the ASEAN-5 countries. Also, this study recommended that the central banks, the monetary policy makers, "could stimulate economic growth by declining inflation when it is above or even near estimated thresholds".

Next, later literature proposed the distinction between growth and the aspects of development. Most of these articles had converged themes regarding the aspects of lifting nations out of the poverty and better enhanced quality of life, as well as the improving of the literacy rate (PricewaterhouseCoopers, 2018; Jenmana, 2018). As mentioned, previous studies proposed the determinants of ASEAN growth and development; yet, few studies have examined the negative effects on them, which was the current author's intention.

B. Paradigm Shift of Development

Traditionally, growth and GDP were considered interchangeable. Consequently, scholars interpreted countries' development through the GDP growth rate. As a matter of fact, GDP is a function of economic progress mentioned in Figure 2 (Costanzw, Hart, Posner, & Talberth, 2009), which is typically measured by adding up national consumption expenditures, government expenditures, and net exports as well as net capital formation. To simplify, GDP is an explanation of the flows between consumers and producers as seen in Figure 2.

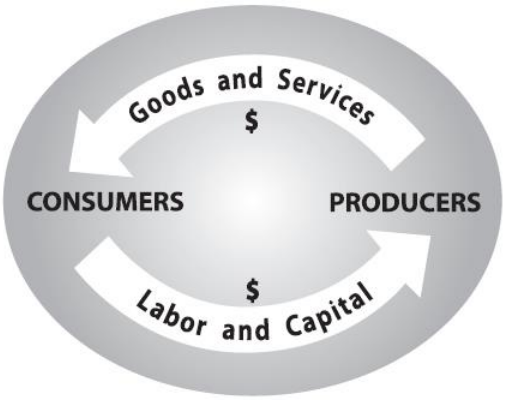

Figure 2: Traditional View of Economic Activities
Source: (Costanzw, Hart, Posner, and Talberth, 2009: 3)

As mentioned above, it would be a straightforward measure if it reflected the development aspects of countries regarding economic activities, yet, it may be questionable regarding the issue of the coverage. The World Economic Forum (WEF), the International Organization for Public-Private Cooperation, thus proposed seven pillars of inclusive growth and a development framework composed of education and skills, basic services and infrastructure, corruption and rents, economic activities, asset building and entrepreneurship, employment and fiscal transfers (WEF, 2017: viii). With such pillars, countries' development could incorporate human development into the measurement framework. In addition, GDP growth cannot directly quantify the income distribution, which is the reason that the GDP growth and equality in some countries are inversed. In summary, GDP growth is not necessarily representative of the level of development.

To support the above findings, Barro (1997) emphasized the causality between GDP and human development. The results from across 98 countries found the significantly positive correlation between initial human capital proxied by 1960 school enrollment rates and GDP. Countries with higher human capital also experience lower fertility rates and higher ratios of physical investment to GDP. This work, accordingly, insisted that human capital should be included in the assessment of the countries' development.

Human Development

Globally, better indicators for the development terms are needed. Previous researchers concluded that the usage of GDP as a measure of citizen well-being is inappropriate (Costanzw, Hart, Posner, and Talberth, 2009). As described in Figure 2, development cannot be quantified from such traditional economic activities.

The United Nations Development Program (UNDP) (1990) defined human development as "the process of enlarging people's choices ...to live a long and healthy life, to be educated, to have access to resources needed for a decent standard of living,. . [to have] political freedom, guaranteed human rights and personal self-respect." Based on this definition, the dimensions of the defined human development would cover the development aspects rather than that of GDP growth. Since 1990, the UNDP has included the Human Development Index (HDI) in its annual human development report. The aim of this report is to indicate how well economic growth and human development enhances a country's well-being. The latest HDI has captured several indices accounting for health outcomes, educational achievements, human securities, work and employment, national income, human rights and perceptions of well-being (UNDP, 2018). Regarding ASEAN, the HDI has been classified as at the medium level as seen in Figure 3.

The study of the relationship between human capital and development is not new. Isola and Alani (2015) examined the correlation between them and found that education and health indices of human capital development were significantly related to the economic growth in Nigeria. Boztosun, Ulucak, and Aksoylu (2016: 101) also insisted that throughout the period of 1961-2011 in Turkey, the relationship between human capital and economic growth was displayed by the co-integration and causality tests. Accordingly, human development should include the development conceptual framework.

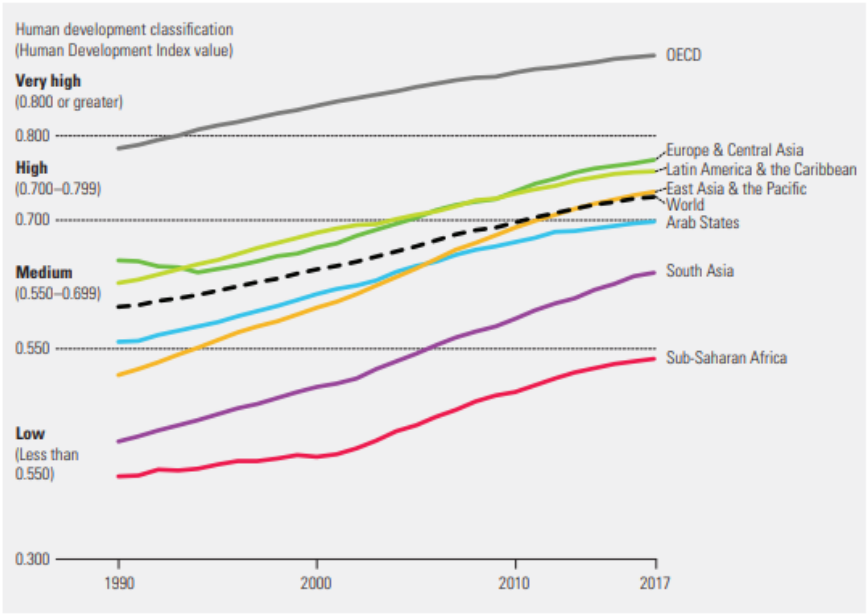

Figure 3: Human Development Index values, by country grouping, 1990–2017
Source: UNDP, 2018

Happiness Research

Apart from economic and human development, the new paradigm of development has shifted towards soft- side indicators. Statistically, the World Economic Forum (WEF) stated that it is estimated that 700 million people have mental disorders and 30 percent of women experience intimate partner violence (WEF, 2019: 36). With regard to this, the consideration of mental indicators within the happiness level is compulsory. Empirical research studies on life satisfaction in the field of psychology since the 1970s have accounted for more than 8,000 publications (Veenhiven, 2015), whereas there is a lack of development researchers who attempt to incorporate the happiness indicators into their works.

Happiness is a subjective term that could be defined as one that depends on people's attitudes, preferences and particular situations. Most of the social science research studies measure happiness indicators as primary data using specific questionnaires by asking respondents about their attitudes based on his/her situations. Blais, Boucher, Sabourin, and Vallerand (1990) proposed a motivational model toward people's relationships. They believed that the happiness level of human beings relies on his/her partner and family relationships, while more recent publications have added more indicators when measuring the happiness level, for example, sex and money (Blanchflower & Oswald, 2003). Obviously, the results indicated that sexual activities are associated positively in happiness equations. As noted above, previous studies collected the primary data on happiness from people's attitudes. In this way, different research studies have measured happiness indicators using a variety of very distinctively different methods and criteria. Having a lack of reference, this paper then adopted the collection of secondary data on happiness from the Happiness Research Institution in Copenhagen, Denmark, where experiences are the happiest in the world (Wiking, 2019). This institution issues the annual world happiness report, which ranks 156 countries according to how happy their citizens perceive themselves to be. The operationalization in this report uses a scale from 0 to 10 based on their 'life ladder' with a focus on the technologies, social norms, conflicts and government policies that have driven

those changes that are directly related to the field of development.

C. Principles of Risk

Risk is a multi-faceted term, which has been defined differently by several theories. Rosa (1998) stated that "risk has been defined in a number of ways, which are mostly never wholly true or false but it varies from the contents". According to the Oxford dictionary, 'risk' refers to 1) a situation concerning exposure to danger, 2) the possibility that undesirable events will occur, and 3) the sources of danger. The previous paradigm of risk defined its meaning as a negative event, in contrast to the modern view of risk that has shifted to consider risk as an "opportunity" (Sae-Lim, 2018).

Practically, apart from the multi-faceted definition of risk, there are also several types of risk. Different frameworks such as the COSO ERM (Enterprise Risk Management), ISO 31000, Principles and Guidelines on Implementation, the BS 31100 Code of Practice for Risk Management, the FERMA Risk Management Standard, and the OCEG Red Book 2.0 (GRC Capability Model), and many others that also categorize the various types of risk differently (Saardchom, 2013: 33). The most well-known risk management standard, the "COSO ERM", divides types of risk into strategic, operational, reporting (which is concerned with financial risks) and compliance risks (COSO, 2004). In a similar manner, Marchetti (2012: 30) considered additional types of risk, which were composed of external, financial, operational, strategic, regulatory, and information risks. All of these standards consider risks at an enterprise or firm level.

As described, risk management is mostly implemented as a local situation. By this, it means that only organizations or firms at an individual level, are concerned with and adopt risk strategies. Therefore, the concept of risk as a global term is neglected. Organizations as an open system will not be able to achieve their vision if they do not take the global issues into account. For this reason, WEF has its mission to engage the foremost political, business and other leaders to shape global and regional planning as well as that of industries. One well-known empirical report produced by WEF is the "global risk report" that describes, analyzes and reports global concerns expected in the coming decade to the global community. For over a decade, the level of global risks severity has been intensely significant given the specific key challenges. The types of global risks focused on by WEF include economic, environmental, geopolitical, social and technological risks (WEF, 2017). Although the report attempts to isolate risks, the newest global risk report presented the interdependency of risks as seen in Figure 3 (WEF, 2019).

Statistically, based on global expert views, as summarized in Table 2, the severity risk in terms of its likelihood for three years onward has listed extreme weather events at the top, while the severity of risk in terms of its impacts has listed weapons of mass destruction. Unquestionably, environmental risks and geopolitical risks are also both concerns. Yet, WEF also analyzed the risks which affect regional aspects. With regard to ASEAN, WEF (2018) disclosed the top three risks as cyber-attacks, unemployment, and asset bubbles. Accordingly, in addition to the environmental risks, this research included social and economic risks in the conceptual framework.

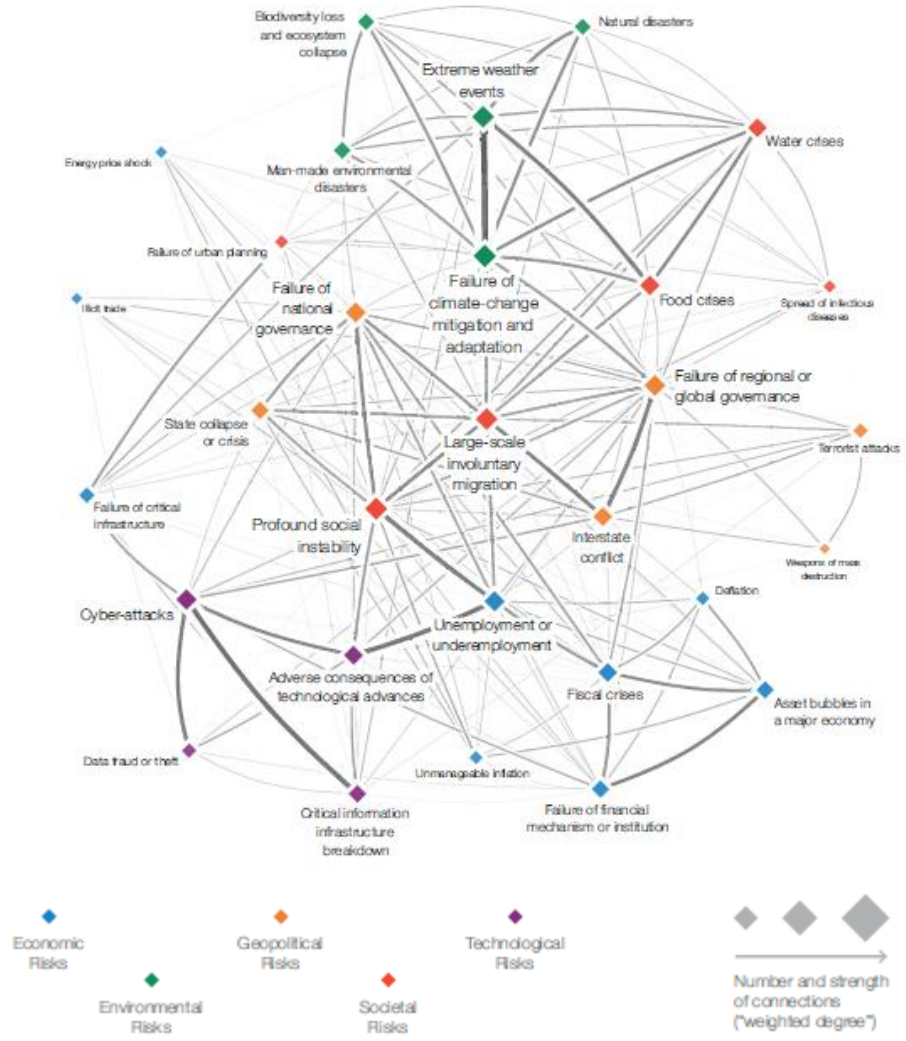

Figure 3: The Global Risks Interconnections Map 2019
Source: (WEF, 2019: 7)

Table 2: 2017-2019 Top Three Risks

2019 Top three risks		2018 Top three risks		2017 Top three risks	
Likelihood	**Impact**	**Likelihood**	**Impact**	**Likelihood**	**Impact**
Extreme Weather Events	Weapons of mass destruction	Extreme weather events	Weapons of mass destruction	Extreme weather events	Weapons of mass
Failure of Climate Change mitigation and adaptation	Failure of climate-change mitigation and adaptation	Natural disasters Cyber-attack	Extreme weather events	Large scale migration	destruction Extreme
Natural Disaster	Extreme weather events		Natural disasters	Natural Disaster	Weather events Water Crises

Source: (WEF, 2017-2019)

D. Operationalization of Global Risks

Based on table 2, global risks are composed of several risk types. Due to the limitations of availability of data, technological disruption risk was then not included into the conceptual model. Moreover, different countries measure technological disruption indicators distinctively. Hence predictor variables inserted to the model were: environmental, economic, social and political risks.

WEF (2020) displayed that global temperatures are increasing by at least 3 celsius. Throughout risk perception survey, environmental concerns experience the top long term risks thru likelihood and impact among members of World Economic Forum (WEF, 2020: 7) . There are several definitions of environmental risk yet most of its term relate to environmental danger (Jones, 2001) . While environmental risk perceives long- term concerns, economic confrontations posit the short- term risk. WEF (2020: 86) divided economic risks with several categories such as, asset bubbles, deflation, unmanageable inflation, failure of a major financial mechanism or institution, fiscal crises and so on.

World Bank defines Social Policy (SP) is traditionally defined as public measures to provide income security for individuals and households; hence, social risk accounts for the events that deviate SP (Frame ,2003). To provide equal income security, employment is the vital leading indicator. Last but not least, political risk is also the global concerns. Political risk itself is a subset of geopolitical risk which is composed of failure of national, regional and global governance, large- scale terrorist attacks and weapons of mass destruction (WEF, 2020: 87) . To measure political risk, this research used the World Wide Governance indicators (WGI) derived from voice and accountability, political stability and absence of violence government effectiveness, regulatory quality, rule of law and control of corruption.

E. Proposed Conceptual Framework

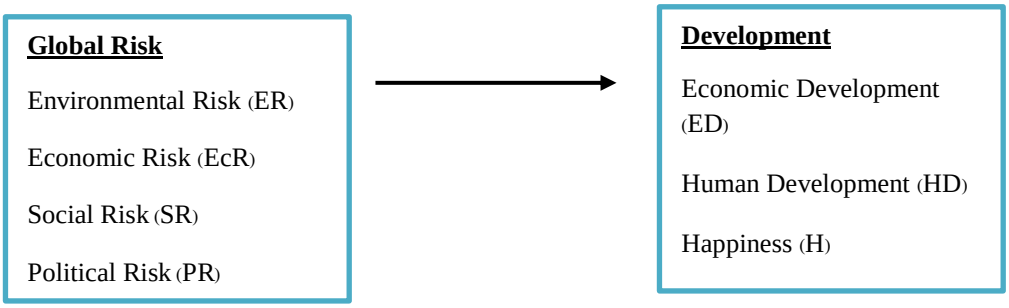

Figure 4: Conceptual Framework

Methodology and Model Specification

Although the key research methodology employed in this study was quantitative analysis, some qualitative analyses with content analysis using reliable documents were also incorporated, as a mixed method approach can better respond to the research objectives. For the quantitative methodology, secondary data from several reliable sources including the UNDP (United Nations Development Program), the World Bank, the World Inequality Database, and the Happiness Research Institute were employed. The character of the data persisted as "panel or longitudinal data" that were collected for multiple entities observed at multiple points in time.

Data Preparation

As described in the theoretical and empirical framework, there are several indicators measuring the environmental, economic and social risks, respectively. Generally, several indicators relate to particular types of risk. To illustrate, total greenhouse gas and carbon dioxide emissions per capita (tons) are both indicators of environmental risk; however, with the limitations of the availability of data in some years as well as the multicollinearity for the model misspecification, isolated indicators were selected as seen in Table 3.

Table 3: Data and Indicators

Variables	Indicators/Explanation	Data Sources
Environmental Risk	Total greenhouse gas emissions (kt of CO2 equivalent)	World Bank Open Data (https://data.worldbank.org/)
Economic Risk	Inflation, consumer prices (annual %)	World Bank Open Data (https://data.worldbank.org/)
Social Risk	Unemployment Rate, total (% of total labor force) (national estimate)	World Bank Open Data (https://data.worldbank.org/)
Political Risk	Political Stability/No Violence Index (ranges from approximately -2.5 (weak) to 2.5 (strong))	World Wide Governance Indicators (https://info.worldbank.org/governance/wgi/#home)
Economic Development	GDP Growth Rate	World Bank Open Data (https://data.worldbank.org/)
Human Capital	Human Development Index (HDI)	UNDP (United Nations Development Program) http://hdr.undp.org/en/data
Happiness	Happiness Index	The Happiness Research Institute (Denmark)

The units of analysis in this study were the ASEAN member countries composed of Thailand, Indonesia, Malaysia, the Philippines, Singapore, Brunei, Vietnam, Laos, Myanmar and Cambodia. With the limitation of the availability of some

variables, especially in Brunei, nine countries were included in the process of analysis. During 2000 to 2018, ASEAN played an important role for global development measured by the growth rate of GDP- golden period of ASEAN- . Consequently, the data set accounted for 171 items (nine countries * 19 years).

Model Specification

For the model specification, with the causality toward multivariate analysis, the testing of the data violation of the assumption was employed. The author then tested the adequacy of the sampling, normality, and multicollinearity in order to ensure that the model was not flawed by misspecification.

This empirical research analyzed the causality between global risks and development at an aggregative level not reported by countries. For the model specification, as there are more than one dependent variables in the proposed conceptual framework, multivariate multiple regression (MMR) analysis with ordinal least square (OLS) was conducted with the given proposed predictor variables.

With panel data, based on the notation in figure 4, panel multivariate regression equations were stated below.

$$ED_{it} = \beta_{01} + B_1 ER_{it} + B_2 EcR_{it} + B_3 SR_{it} + + B_4 PR_{it} + \epsilon_{it}$$
$$HD_{it} = \beta_{02} + B_5 ER_{it} + B_6 EcR_{it} + B_7 SR_{it} + + B_8 PR_{it} + \epsilon_{it}$$
$$H_{it} = \beta_{03} + B_9 ER_{it} + B_{10} EcR_{it} + B_{11} SR_{it} + + B_{12} PR_{it} + \epsilon_{it}$$

where ER_{it} , EcR_{it} , SR_{it}, PR_{it} are environmental economic, social and political risk in countries i while t ranged from 2000-2018, β_{01} , β_{02} , β_{03} are intercept from each dependent variable, ED_{it}, HD_{it}, H_{it} are the dependent variables of countries i in time t, respectively. Also, ϵ_{it} defines as error term of country i in time t.

Content Analysis

The role of content analysis in this study was concerned with the proposal of global risk mitigation policies. As there are several documents relating to how to rectify the global risks, content analysis would contribute for the varying text data (Cavanagh, 1997). There are several types of content analysis, which varies based on the problem being studied (Weber, 1990). Heish and Shannon (2005) concluded that there are three approaches to the content analysis: conventional, directed and summative content analysis. To this end, summative content analysis was chosen to analyze the key words from reliable documents. This approach starts with the identifying of keywords and ends up with the convergence theme.

Empirical Estimations

Descriptive Analysis

Table 4: Averages of the Development Dimensions

Countries	Averages of GDP Growth	Averages of HDI	Averages of Happiness Index
Cambodia	7.802	0.516	4.200
Indonesia	5.279	0.653	5.219
Laos	7.220	0.536	4.935
Malaysia	5.110	0.760	5.829

Table 4: Averages of the Development Dimensions (Continued)

Countries	Averages of GDP Growth	Averages of HDI	Averages of Happiness Index
Myanmar	10.142	0.511	4.402
Philippines	5.298	0.662	5.145
Singapore	5.317	0.885	6.515
Thailand	4.035	0.708	6.108
Vietnam	6.415	0.642	5.293

On the one hand, this research reported the aggregate findings, but on the other hand, a country-based analysis is equally important. Therefore, descriptive analysis, which accounts for the identifying of centrality, data dispersion and so on (Babbie, 2007:454), should be put into place.

Regarding the development aspects, Myanmar, in the golden period of ASEAN, had the highest average GDP growth. The GDP growth rate refers to the annual percentage growth rate of GDP at market prices based on constant local currency. Myanmar's economic growth was consistently high due to the foreign direct investment (FDI) (Suksai, 2019) and is expected to increase in 2019 and 2020 as reported by the Asian Development Bank (ADB) due to the constructive responses to the government's economic and policy reforms.

In terms of the human development, the results were not the same as the GDP growth where Singapore was experiencing the highest levels, closely followed by Malaysia and Thailand. The UNDP (2018) stated that Singapore's HDI value "put the country in the very high human development category — positioning it at 9 out of 189 countries and territories." Between 1990 and 2017, Singapore's HDI value went up from 0.718 to 0.932, an increase of 29.8 percent. This means that life expectancy at birth, expected years of schooling, and mean years of schooling in Singapore outperform the other countries in ASEAN.

Obviously, the happiness index was derived from- the Happiness Research Institute- as mentioned. The secondary data ranged from 0-10 where scale 10 is the most satisfaction of their life. To table 4, averages of Happiness Index in ASEAN did not much the variation ranged from 4 to 6, where Singapore and Thailand were both high while Cambodia and Myanmar perceived low life satisfaction.

With regard to environmental concerns, the highest emissions of greenhouse gases were in Indonesia. Resosudarmo, Nurdianto and Yusuf (2009:146) stated that Indonesia is one of the highest CO2 emitting countries in the world due to fossil fuel combustion and deforestation and was the world's fourth largest emitter of greenhouse gases in 2015 (https://www.carbonbrief.org/the-carbon-brief-profile-indonesia). Apart from the environmental risks, Indonesia also faces a high rate of unemployment. Yunus et al. (2017) revealed that educated unemployment in Indonesia has been high due to monetary policy and trade openness. To be precise, bank credit has not be useful in reducing educated unemployment because of the high wage demands of educated workers.

Table 5: Averages of global risk factors

Countries	Averages of Greenhouse Gas Emissions	Averages of Inflation	Averages of Unemployment	Averages of Political Stability
Cambodia	122,739.964	4.324	0.773	-0.302
Indonesia	965,695.238	6.987	5.901	-1.089
Laos	89,390.999	7.091	1.464	-
Malaysia	247,660.351	2.320	3.308	0.207
Myanmar	365,298.153	14.312	2.352	-1.148
Philippines	161,828.660	3.836	4.435	-1.346
Singapore	51,243.995	1.689	4.511	1.257
Thailand	386,238.241	2.146	1.205	-0.777
Vietnam	255,410.471	6.799	1.751	0.251

Furthermore, economic risks involving the average rate of inflation were found to be in the same direction as the GDP growth rate, which is the most significant concern in Myanmar. Even though an expansionary monetary policy supported by FDI has been attempted in Myanmar's economic system, the increase of inflation is experienced as a long-term negative effect. Apart from FDI, fuel prices and a depreciating kyat are also driving the rise in Myanmar's inflation (IMF, 2019). Obviously, institutional factors related to the political stability index in ASEAN member countries are contributing to the problems as most of them are now in the negative range, which shows the weakness in the political systems, while Singapore is the only country in this region that possesses a strong political system.

Data Violation of Assumption Testing

Before the sophisticated study proposed is conducted, the relationships among the variables must have the linearity. Next, all of the variables should be considered as having "normality". Skewness, which describes departure from symmetry and kurtosis, means the degree of flatness that is employed to test the normality (Jorion, 2011). Their reference value of skewness in order to prove normality or symmetry ranges from -2 to 2. In this data set, most of the variables were normal distribution while environmental risk, namely total greenhouse gas emissions, and the economic risk, which is the inflation rate which were both skewness (range not located in -2 to 2).

Table 6: Variance Inflation Factor (VIF)

Independent Variables	Variance Inflation Factor (VIF) Models 1, 2, and 3
Environmental Risk (Total greenhouse gas emissions)	1.193
Economic Risk (Inflation Rate)	1.020
Social Risk (Unemployment Rate)	1.178
Political Risk (Political Stability)	1.323

The most important assumption of MMR is the dependency of the predictor variables themselves. Having large correlations among the predictor variables results in deducted type I and type II errors (Hair et al., 2010). Multicollinearity occurs when the Variance Inflation Factor (VIF) exceeds 10. As seen in Table 6, the VIF lies between 1. 020 and 1. 323; thus, the predictor variables accounted for the low level of multicollinearity.

Results

The aim of this section is to display the parameter estimations from the empirically testable models. As mentioned, the objective of this study was to empirically examine the effects of global risks on the dimensions of development that are not limited to GDP growth. There are three models along with the dimensions of the development: economic development (GDP Growth Rate), Human Development (the Human Development Index, or HDI) and Happiness (the Happiness Index).

The overall model specification results generally illustrated that the predictor variables significantly explain the phenomenon of the dependent variables. Approximately 50 percent of the predictor variables could explain the variation of the dependent variables in Model 2 (Table 7), along with 19 and 37 percent in Models 1 and 2, respectively. To be precise, the variation of the dimensions of development were derived from several factors, yet also included the global risks in ASEAN.

The empirical estimations, next, indicated that there are significant associations between the global risks and developments as indicated by the ANOVA results. In other words, overall, GDP growth, the HDI and happiness are affected by the global risks. This result represents the implications of the global risks, which were neglected by the previous studies.

Table 7 shows the performance of each model. Based on the unstandardized coefficients, it represents the negative correlation between global risks and development, except the political risks. The negative values of the unstandardized coefficients of the environmental, economic and social risks indicate the negative correlation with each dimension of development. Conversely, political stability has the same direction as that of development, which means that the institutional factor related to the stability of the political system enhances ASEAN development.

Specifically, in Model 1, it can be seen that the economic risk was negatively correlated to GDP growth, while other types of global risk were insignificant. Nevertheless, in Model 2, in which the dimension considered is the human development aspect, it was significantly shown that all global risks are associated with human development, except the environmental risk. The same results are also shown in Model 3, which is concerned with the happiness development. In Models 2 and 3, economic and social risks had a negative effect on the human and mental development, while stable political systems resulted in the positive influence on human and mental development.

Table 7: Empirical Results

Model Specification Results	ANOVA (P-value)	R Square	Unstandardized Coefficients			
			Environmental Risk	Economic Risk	Social Risk	Political Risk
Model 1	0.000	18.3%	-0.00000016*	-0.141***	-0.178	0.261
Model 2	0.000	49.1%	-0.000000042	-0.005***	-0.021***	0.071***
Model 3	0.000	36.7%	-0.00000025	-0.023***	-0.099***	0.423***

* indicates significance level at 0.05, ** indicates significance level at 0.01 and *** indicates significance level at 0.005

Table 8: Refined Empirical Results

Model Specification Results	ANOVA (P-value)	R Square	Unstandardized Coefficients			
			Environmental Risk	Economic Risk	Social Risk	Political Risk
Model 1	0.000	18.5%	-1.205*	-2.108***	-0.217***	-0.178
Model 2	0.000	56.0%	-0.067***	-0.104***	-0.021***	0.072***
Model 3	0.000	40.5%	-0.291*	-0.536***	-0.101***	0.417***

* indicate significance level at 0.05, ** indicate significance level at 0.01 and *** indicate significance level at 0.005

Furthermore, as mentioned, data of environmental and economic risks were violated normal distribution; therefore the author rectified by transforming such variables and putting them into the model again. Table 8 displays the refined model, which provided better results. Regarding the model specification, the refined model showed a higher R square value in all models, which means that the explanation of the variation in the development aspect had a strong impact from the proposed global risks. Likewise, the environmental, economic, social and political risks were significantly associated with the three dimensions of development.

Proposed Risk Mitigation Strategies

Based on the refined empirical models above, it could be proven that the global risks have a higher negative effect on the growth, but in fact they also affect the human development and human happiness. This means that the increased severity of ASEAN global risks induce the low level of ASEAN development. This section recommends to policy decision makers the aspects of risk mitigation strategies as the following.

1) Mitigation Strategies for Unemployment

Globalization became a buzzword at the time of the diffusion of technology. Technology and innovation stimulate growth due to the operations of digital platforms that reduce the supply costs and lower the marginal costs nearly to zero. As such, this phenomenon alters the ways of conducting business as well as the ways of working. As the ways of working change, consequently, it results in some groups, especially those performing routine jobs, to experience a loss of employment (World Bank, 2019: 5). Church and Burke (2017) concluded that there were three changes: the changing nature of work, the nature of the data, and the dynamics of the workforce itself, which all consequently lead to the rise of unemployment.

The response to such phenomenon should start from the ground. To be more precise, the foundations of human capital generated in early childhood are therefore the most important. Unemployment is not only a household concern, but it is also a global issue. However, the governments in many developing countries do not dedicate priority to early childhood development (World Bank, 2019: 10). For this important factor, the author thus proposes that government policy makers should set an agenda for early childhood education. In

addition to academic education, due to the same factor of inequality, government also needs to invest in the infrastructure, especially for the affordable access to the internet in rural areas where people remain unconnected.

Moreover, government agencies should reform their procedures. To be more precise, higher educational institutions (HEIs), which are viewed as having the main role for producing a high quality labor force, have also altered the curriculum. Ho (2015) concluded that HEIs generate mismatched skills that are no longer adequate for the changing environment. In the same way, the educational curriculum nowadays is outdated. To rectify this problem in order to produce a qualified graduated labor force, HEIs need to adjust the educational curriculum by involving all of the related stakeholders as well as understanding what employers require from graduates.

Equally important, the individuals should adapt themselves to the various environments. For the demand side of the economy, organizations need to adapt themselves due to the shortened life cycle of products; therefore, as an employee, they should possess several competencies (Stevens & Strauss, 2018). Furthermore, they should have broad knowledge rather than specific knowledge.

2) Mitigation Strategies for Inflation

ASEAN continues its economic transformation and plays an important role in the global economy, which is the reason that most ASEAN members are now perceived as having high inflation. In order to stimulate growth, ASEAN members have adopted an "expansionary monetary policy", where the central bank has been increasing the supply of money in the economy.

To put it more simply, ASEAN central banks may change the expansionary monetary policy to a "contractionary policy" with the aim to decrease the money supply in the economy while increasing the interest rate; therefore, the borrowing becomes expensive and accordingly, the inflation is then low. Nevertheless, the money supply related to the monetary policy is not the only factor. Edward and Ramayah (2016: 52) proposed two other factors: the oil price and the exchange rate; however, in the end, the exchange rate would be insignificant to determine the inflation in some ASEAN member countries.

3) Mitigation Strategies for Environmental Danger

Although the environmental risk of the average greenhouse gas emissions in this study was insignificant in some models, based on the refined model, it was in fact revealed to have the statistically negative effect on the aspects of development. For this reason, the ASEAN region should not ignore the environmental risk. However, in terms of the perspective of environmental law, ASEAN has been studying this factor in the long term (Pramudianto, 2018: 171). The formation of ASEAN had the role to promote sustainable development with both soft and hard environmental laws on the issues of the conservation and sustainable management of biodiversity and natural resources, environmentally sustainable cities, a sustainable climate and sustainable consumption and production.

As mentioned, the ASEAN mission is concerned with the environmental issues regarding why the average greenhouse gas emissions in most of the ASEAN member nations are now still high. OECD (2014) recommended that, in order to promote the discipline of the environmental awareness, green growth policies should not be a separate strategy from the economic development. Furthermore, political leadership is the key to establish the effective policies and institutions and determine the punishment for a high amount of emission of greenhouse gases from factories. Moreover, governments should ensure that environmental tax reforms reflect social and environmental values.

Conclusions and Policy Recommendations

Risk management is often adopted at the firm or local level, while the implementing

of risk management at a global level is of less concern. Even though 'risks' became a buzzword at the same time as globalization (Sae-Lim, 2020), global risks themselves also generate the negative impacts toward the aspects of development.

In order to utilize the global risks information, the aim of this study was to analyze the impacts of global risks on ASEAN development and the proposed risk mitigation strategies for the policy makers by using content analysis. One of the most significant contributions of this study is the idea that the composition of development involves more than just economic growth. GDP is the principal measurement of economic growth, yet it is not able to cover all of the aspects of development. Therefore, as mentioned, the operationalization of regional development in this study was divided into GDP, human development and the happiness level. As human beings, we need the most happiness; thus, to measure the level of development, happiness should be included.

According to the reliable secondary data on ASEAN, in terms of GDP, Myanmar was the highest while with regard to the human development, it was shown to be Singapore. Moreover, Singapore and Thailand were both shown to be the happiest compared to other ASEAN members. In terms of the development, the most emissions of the greenhouse gases and unemployment were in Indonesia. As the country with the highest GDP was Myanmar, it is also perceived as having the highest inflation. Nevertheless, it is not surprising that Singapore is now the most developed nation in ASEAN, as one of the most obvious indicators is the significant institutional factor regarding the political stability indicator.

For the empirical results given by the ordinal least square (OLS) from the multivariate multiple regression, it indicated that all three models performed quite well since the independent variables (global risks) could be a high enough power to explain the variation of the dependent variables (development aspects). After rectifying the normality in the refined model, all three models showed that global risks are negatively associated with the dimensions of the aspects of development: GDP, human development and happiness, respectively. The findings indicated that these global risks not only affect the firm level, but they in fact negatively impact the ASEAN regional development as well.

The perception of the identified risks is not the end. This paper thus proposed the risk mitigation strategies as the policy recommendations. To rectify the high rate of unemployment, both the central government and individual ASEAN members must play a key role. Regarding the former, they should promote early childhood educational policies and address infrastructure needs. For the latter, lifelong learning involving a modern educational curriculum that is inclusive of the employers' needs is indispensable. With the high rate of inflation, the central bank in each ASEAN member nation should proactively adjust and monitor monetary policy, not only in terms of local economies, but they also need to monitor the monetary policies of the upper-level countries, such as the USA, China and so forth. Finally, to respond to the environmental risk, although ASEAN members have the mission themselves that is directly related to the prevention of environmental damage and the promotion of the green growth, effective environmental management should be driven by the political leadership and institutions.

Indeed, one of the most important factors for sustaining development is concerned with the institutional factors as well as the central governance. This research has shown the significant positive correlation between political stability, which is one of the institutional factors, and the aspects of development; however, there are several other institutional factors such as social institutional factors (social trust, civic cooperative, and so on) and economic institutional factors (government effectiveness, rule of law, control of corruption, ease of paying tax, and so on)

(Suksai, 2019) . Consequently, the future research should include the effects of such variables. Ultimately, the latest paradigm of development has been shifting toward the level of happiness. Global risks have a negative impact on the level of happiness, but in order to increase the happiness level, there are other determinant factors that the future research studies should also incurporate.

Finally, to theoretical limitation, employing multivariate regression with panel data, all data assumptions were tested. Normality, multicollinearity included in model specification. Yet, the author found non- stationary of environmental risk using greenhouse emission. Hence, the future research should make the model more accuracy. Furthermore, as the author already mentioned, global risks could define in several ways. Other variables should incorporate to the empirical study.

References

Alexopoulos, EC. (2010). Introduction to Multivariate Regression Analysis. ***Hippokratia***. 14(1), 23-28.

Asian Development Bank Institution. (2014). ***ASEAN 2030 toward a borderless economic community***. Japan:. ADBI.

Babbie, E. (2007). ***The Practice of social research*** (11th ed.). Belmont: Wadsworth.

Barro, J. R. (1997). Economic growth in a cross section of countries. ***The Quarterly Journal of Economics***, 106(2), 407-443.

Blais, M. R., Boucher, C., Sabourin, S. & Vallerand, R. J. (1990). Toward a motivational model of couple happiness. ***Journal of Personality and Social Psychology***, 59(5), 1021-1031.

Blanchflower, D. G., & Oswald, A. J. (2003). Money, sex and happiness: an empirical. ***Scandinavian Journal of Economics***, 106(3), 393-415.

Boztosun, D., Ulucak, S. Z., & Aksoylu, S. (2016). The Role of human capital in economic *growth.* ***Economics World***, 4(3), 101-110.

Cavanagh, S. (1997). *Content analysis: concepts, methods and applications*. ***Nurse Researcher***, 4(3), 5-16.

Church, H. A. & Burke, W. W. (2017). Four trends shaping the future of organizations and organization development. ***OD Practitioner***,49(3), 14-22.

Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2004). ***Enterprise risk management-integrate framework***.Retrieved from http://www.coso.org.

Costanzw, R., Hart, M., Posner, S., & Talberth, J. (2009). Beyond GDP: The Need for new measures of progress. ***The Pardee Paper***, 4(1), 2-46.

Edward, T., & Ramayah, M. (2016). The Determinants of Inflation: an ASEAN perspective. ***Taylor's Business Review***, 6(1), 49-72.

FarahEffera, S., N., Affandi, S. & Mahmood, W. N. (2014). Financial development and economic growth in ASEAN: evidence from panel data. ***MPRA Paper***, 22(1), 1- 10.

Foster, J., Brakus, E., & Yavorsky, C. (2006). ***Understanding and using advanced statistics***. London: SAGE Publications, Inc.

Frame, J. D. (2003). ***Managing risk in organizations: a guide for managers***. San Francisco: CA:Jossey-Bass.

Hair, J. F., Black, W. C., Babin, B.J., & Anderson, R. E. (2010). ***Multivariate data analysis: a global perspective***. New York: Pearson.

Heish. H. F. & Shannon, S. E. (2005). Three approaches to qualitative content analysis. ***Qualitative Health Research***, 15(10), 1277-1278.

Ho, H. F. (2015). Matching university graduates 'competences with employers' needs in Taiwan. ***International Education Studies***, 8(4), 122-136.

International Monetary Fund (IMF). (2019). ***IMF Country Report.*** 19/100: 1-91.

Isola, W. A. & Alani, R. A. (2015). Human capital development and economic growth: empirical evidence from Nigeria. ***Asian Economic and Financial Review***, 2(7), 813-827.

Jacob, S.A. & Furgerson, S. P. (2012). Writing interview protocols and conducting interviews: tips for students new to the field of qualitative research. ***The Qualitative Report***, 17(6), 1-10.

Jenmana, T. (2018). ***Income inequality, political instability, and the Thai democratic struggle***. The Paris School of Economics Masters in Analysis and Policy in Economics. Working Paper. France.

Jones, N., R. (2001). An Environmental risk assessment/management framework for climate change impact assessments. ***Natural Hazards***, 23(1), 197-230.

Jorion, P. (2011). ***Financial risk manager handbook plus test bank***. New Jersey: John Wiley & Son, Inc.

Jermsittiparsert, K & Sae-Lim, P. (2019). Does the fourth industrial revolution is a panacea? risks towards the fourth industrial revolution: evidence in the Thai economy. ***International Journal of Innovation, Creativity and Change***, 5(2), 732-752.

Lee, J-W. & Hong, K. (September, 2010). Economic growth in Asia: determinants and prospects. ***Asian Development Bank Economics Working Paper Series No. 220.***

Marchetti, A. M. (2012). ***Enterprise risk management best practices***. New Jersey: John Wiley& Sons.

Mundula, L. & Salustri, A. (2012). Growth of the ASEAN countries: determinants and perspectives. ***SSRN Electronic Journal***, 12(1), 1-34.

Organization for Economic Cooperation and Development (OECD). (2014). ***Towards green growth in Southeast Asia solutions for policy makers.*** OECD.

Organization for Economic Cooperation and Development (OECD). (2019). ***Economic outlook for Southeast Asia, China and India 2019: towards smart urban transportation.*** OECD.

Pramudianto, A. (2018). ASEAN commitment to sustainable development in the regional. ***International Environmental Law Perspective***, 6(3), 171-187.

PricewaterhouseCoopers. (May, 2018). The future of ASEAN-Time to act. ***PwC Growth Markets Centre***.
Raworth, K. (2017). ***Doughnut economics: seven ways to think like a 21st century economist***. London: Clay Ltd, St Ives plc.
Resosudarmo, B.P., Nurdianto, D.A., & Yusuf, A.A. (2009). Greenhouse gas emission in Indonesia: the significance of fossil fuel Combustion. in Robiani, B., Resosudarmo, B.P., Alisjahbana, A.S. & Rosa, A. (eds.), ***Regional Development, Energy and the Environment in Indonesia, Palembang: Indonesian Regional Science Association***, pp. 146-159.
Rosa, E. (1998). Metatheoretical foundations for post-normal risk. ***Journal of Risk Research***, 1(4), 15–44.
Sae-Lim, P. (October, 2018). Structural model of Opportunity Management (OM) towards Corporate Governance (CG) and Enterprise Risk Management (ERM). ***Proceeding in International Conference On Applied Statistics (ICAS)***, *2018.*
Sae-Lim, P. (2020). Enterprise Risk Management (ERM) as a strategic tool: the empirical study in Thai listed companies. ***Journal of Public and Private Management***, 27(1).
Saardchom, N. (2013). Enterprise risk management under sustainability platform. ***Journal of Business and Economics***, 4(1), 49-259.
Stevens. A & Strauss, L. (2018). ***Chasing digital: a playbook from new economy***. USA: John Wiley & Sons, Inc.
Suksai, C. (2019). The Empirical study of institutional factors affecting the Foreign Direct Investment (FDI) in 6 ASEAN Countries. ***Association of Private Higher Education Institutions of Thailand (APHEIT)***, 8(1), 25-47.
Thanh, S.D. (2015). Threshold effects of inflation on growth in the ASEAN-5 countries: a panel smooth transition regression approach. ***Journal of Economics, Finance and Administrative Science***, 20(1), 41–48.
The ASEAN Secretariat ASEAN Integration Monitoring Directorate (AIMD) & Community Relations Division (CRD). (2017). ***Asean economic integration brief NO 01.*** Regional Economic Outlook, Jakarta: Catalogue-in-Publication Data.
The ASEAN Secretariat ASEAN Integration Monitoring Directorate (AIMD) & Community Relations Division (CRD). (2018). ***Asean economic integration brief NO 04.*** Regional Economic Outlook, Jakarta: Catalogue-in-Publication Data.
The World Bank. (2019). ***The Changing nature of work.*** Washington, D.C.: International Bank for Reconstruction and Development The World Bank.
UN Development Program. (1990). ***Human development report: overview***. New York: Oxford University Press.
UN Development Program. (2018). ***Human development indices and indicators***. New York: Oxford University Press.
Veenhiven, R. (2015). Social conditions for human happiness. ***International Journal of Psychology***, 50(5), 379 – 391.
Weber, R. P. (1990). ***Basic content analysis***. Beverly Hills, CA: Sage.
Wiking, M. (2019). ***The Key to happiness: how to find purpose by unlocking the secrets of the world's happiest people***. England: Penguin Life
World Economic Forum. (2017). ***The Inclusive growth and development report 2017***. Geneva World Economic Forum.
World Economic Forum. (2018). ***The Global risks report 2017 (12th ed.).*** Geneva: World Economic Forum.
World Economic Forum. (2018). ***The Global risks report 2018 (13th ed.).*** Geneva: World Economic Forum.
World Economic Forum. (2018). ***Regional risks for doing business 2018***. Geneva: World Economic Forum
World Economic Forum. (2019). ***The Global risks report 2019 (14th ed.).*** Geneva: World Economic Forum.
World Economic Forum. (2020). ***The Global risks report 2019 (15th ed.).*** Geneva: World Economic Forum.
Yunus, A. K. F, Benyamin, M., Maruki, & Fattah, S. (2017). Educated unemployment in Indonesia: the effects of monetary policy and trade openness. ***IOSR Journal of Economics and Finance (IOSR-JEF),*** 8(2), 65-69.