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**Research Paper**

# The Impact of Negative Investment List (NIL) Introduction on Investment Decisions of Foreign and Domestic Investors in Indonesia

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**ABSTRACT**

As an investment intervention policy, NIL is present to grant legal certainty to investors and invite more investment. Its existence has possible impacts on investment decisions. However, the studies of its effect are limited, focusing only on specific NIL versions and sectors. To fill this gap, the present paper investigates the impact of NIL introduction on the investment decisions of foreign and domestic investors in Indonesia by utilizing all NIL versions and business field-level data of the planned-investment values from 2005 to 2018. The analysis shows, first, the NIL introduction may generate the investment inflows from both FDI and DDI. Second, there was a parallel movement of crowding-in effect between foreign and national firms responding to the investment opportunities open to both parties. This study suggests that more detailed and transparent information should be provided in the NIL to guarantee its effectiveness.

**Keywords**: negative investment list, investment decisions, crowding effect, foreign direct investment, domestic direct investment

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## 1. Introduction

In the past two decades, the movement of emerging economies towards the open-market type has been significantly increased. The globalization process has resulted in the opening up of trade barriers and facilitated multinational companies to invest in developing countries (Hayakawa et al., 2012). However, this liberalization process has not yet been consistently developed due to some changes and uncertainties in the regulation territory (Genthner & Kis-Katos, 2017). Although the manufacturing sector has played a vital role in Indonesia's economy, the government has limited the involvement of FDI in this sector through the so-called negative investment list (NIL) to protect the national industries (Genthner & Kis-Katos, 2017; Simanjuntak, 2010).

First released in July 2007 as a presidential regulation, the NIL compiles business fields that are closed or conditionally open to direct investment. It is the first essential document to be reviewed by an investor who wants to do business in Indonesia (Magiera, 2011). The business fields listed in the NIL are classified based on the most disaggregated level—5-digit coding—of *Klasifikasi Baku Lapangan Usaha Indonesia* (KBLI) or Indonesian International Standard Industrial Classification (ISIC) (Aisyah, 2018). The 5-digit KBLI codes that are not listed in the NIL are 100% allowed for both Foreign Direct Investment (FDI) and Domestic Direct Investment (DDI) ownership. Moreover, the NIL was subsequently amended four times in December 2007, May 2010, April 2014, and May 2016, totaling five versions of the NIL (Simanjuntak, 2010). The amendments addressed investors' concerns about the legal certainty and government targets to attract more investments in the country, leading to further relaxing of restrictions (Dewi et al., 2017; Magiera, 2011).

As an investment intervention policy, the introduction of the NIL has possible impacts on investment decisions and inflows. First, the NIL introduced the degree of openness to investment—fully open, conditionally open, and prohibited. For foreign investors, the conditionally open term might result in lower FDI inflows due to its restrictive or limiting nature (Genthner & Kis-Katos, 2017; Liu et al., 2018; Magiera, 2011), while for domestic investors, the fully open term is favorable as it indicates a greater opportunity for investment activities (Aisyah, 2018; Dewi et al., 2017). Second, the NIL might indirectly introduce crowding effects to investment inflows as the NIL may become one of the determinants of investment decisions (Magiera, 2011; Sunarwibowo, 2018). The presence of foreign entities might result in crowding effects on DDI decisions and vice versa (Göçer et al., 2014; Paolino, 2009; Prastomo, 2017).

Indonesia presents a relevant issue for studying the effects of investment policies. With its growing domestic market, rich natural resources, and abundant labor supply, the nation has long been a favored investment destination (Lindblad, 2015). Furthermore, the NIL offers an interesting government intervention to give legal certainty to investors (Aisyah, 2018; Magiera, 2011). By providing a clear and transparent NIL framework, the government has targeted more investment inflows into the country (Dewi et al., 2017).

Studies on the introduction of the NIL are limited. Dewi et al. (2017) utilized Cumulative Abnormal Return (CAR) to measure the market reaction to the announcement of the 2016 NIL amendment. The study acknowledged that the 2016 NIL offers a more liberalized investment opportunity to foreign investors, and the introduction of this policy impacted the increase in the stock price index (IHSG). Magiera (2011) evaluated the introduction of the 2007 and 2010 NIL amendments on service sectors. He concluded that the NIL's purpose of providing legal certainty to investors was not achieved because it is no longer listing all the restrictions on investment and obligating other policies to be reviewed, particularly sectoral-related ones. A recent study by Genthner and Kis-Katos (2017) explored the effects of 2007, 2010, and 2014 NIL introductions on investment performance, productivity, and employment of the manufacturing sector. Focusing only on the FDI restrictions, they found a negative relation between the NIL and those variables. They concluded that restrictions in the NIL could lead to a decrease in firms' performance.

While previous studies have increased the knowledge concerning the introduction of the NIL, they have merely examined specific versions of the NIL, focusing primarily on selected sectors. Furthermore, little has been studied to evaluate the effects of the NIL introduction on investment decisions. Therefore, to fill this gap, this study aims to analyze its impact by utilizing all NIL versions and all business fields in the economy.

This paper used the planned-investment value along with the information related to "whether or not the NIL is already introduced at a certain year," "the degree of openness to investment," and variable controls, which consist of factors affecting investment decisions. It employs a quantitative method to

answer questions: How does introducing the NIL affect the investment decisions in Indonesia? How does its implication differ between FDI and DDI decisions? Thus, the study proposes the following hypotheses:

H1 : The introduction of the NIL has a positive impact on both FDI and DDI inflows
H2 : The FDI favors conditionally open term rather than the other terms
H3 : The DDI favors open term rather than the other terms
H4 : There is a crowding-in effect of FDI on DDI and vice versa as an indirect impact of the introduction of the NIL

The unit analysis of this research is a business field categorized at 5-digit KBLI codes. Finally, the study shows that first, NIL introduction may generate investment inflows. Second, the FDI and DDI's decisions differed in response to the introduction of the NIL: the fully open term may increase FDI more than the other terms; in contrast, the conditionally open term may boost DDI more than any other terms. Third, FDI may create a crowding-in effect to the decisions of DDI, vice versa, since the increase in FDI aligns with the increase in DDI of selected sectors. Forth, the investments in Indonesia are mostly financed by the FDI, implying that the crowding-in effect of FDI on DDI is more than the crowding-in effect of DDI on FDI. Fifth, in the manufacturing, electricity, and real estate sectors, a parallel movement of crowding-in effect between foreign and national firms exists to respond to the investment opportunities open to both parties. Sixth, the NIL introduction may generate the crowding-in effect in the electricity sector. In general, the introduction of the NIL in one way or another possibly contributes to investment decisions and investment inflows improvement in Indonesia.

The present paper is structured as follows. The first section contains the introduction and literature review, while the second section explains the methodology and analysis. The third section discusses the results and discussion, and the fourth concludes the study.

## 2. Literature Review

### 2.1 Investment Policy and its Performance in Indonesia

Over the decades, Indonesia has performed investment liberalization. The stipulation of Law No. 25 of 2007 on Investment marked the government's efforts to improve the investment climate to encourage more investment into the country (Magiera, 2011). This law replaced separate laws on DDI and FDI from 1967 and 1968, respectively, and became a legal basis in stipulating investment-related provisions (Magiera, 2011). Adopting this law, the government stipulated a presidential regulation on the NIL in July 2007, revising the old vague negative list that was issued in 2000 (Genthner & Kis-Katos, 2017).

In the meantime, the global financial crisis in 2008 deteriorated the investment performance in Indonesia. Ministry of Investment or the Indonesia Investment Coordinating Board (BKPM, 2020) recorded that the FDI and DDI realization fell by about 28.4% in 2009 and 39.75% in 2008, respectively. Even though a relative upsurge happened in the following years (Table 1), it was still a struggle to recover investments due to the adverse effects of insufficient infrastructure, inadequate education, corruption, and unclear regulations (BKPM, 2020; Duggan et al., 2013; Magiera, 2011). Identical conditions were also reflected in the planned-investment value. In 2009, both the FDI and DDI immediately went down by 49.7% and 9.6%, respectively. The value was successfully recovered in 2012, with an increase of 40.3% and 36.5% for FDI and DDI, respectively. From these figures, it can be concluded that global shocks and national issues might possibly weaken the investment flows.

Table 1: Investment Realization and Planned-investment in Indonesia in 2005 – 2018

| Year | Investment Realization | | Investment Planned | |
|---|---|---|---|---|
| | FDI | DDI | FDI | DDI |
| 2005 | 8.985348073 | 2.078997174 | 8.1959028 | 0.002241403 |
| 2006 | 6.063885703 | 1.599794089 | 9.7744663 | 0.009052674 |
| 2007 | 10.40908319 | 2.444450768 | 21.5033461 | 0.009184078 |
| 2008 | 17.56105999 | 1.472900453 | 24.0856734 | 0.007421915 |
| 2009 | 12.57451613 | 2.889908468 | 12.1150906 | 0.00670767 |
| 2010 | 16.21477071 | 4.041753799 | 18.2020379 | 0.002995102 |
| 2011 | 19.44225822 | 5.066712967 | 16.6359 | 0.007777364 |
| 2012 | 24.56467144 | 6.145467641 | 23.3321053 | 0.010613589 |

| Year | Investment Realization | | Investment Planned | |
|---|---|---|---|---|
| | FDI | DDI | FDI | DDI |
| 2013 | 28.61750341 | 8.543385658 | 72.3830655 | 0.028883924 |
| 2014 | 28.52969683 | 10.40841042 | 91.9048479 | 0.020920518 |
| 2015 | 29.27593406 | 11.964391 | 108.2696726 | 0.041982999 |
| 2016 | 28.96406851 | 14.41538969 | 111.9243197 | 0.046030632 |
| 2017 | 32.23973752 | 17.49003609 | 145.5611584 | 0.064091154 |
| 2018 | 29.30790141 | 21.90699398 | 28.7740006 | 0.055152331 |
| **Total** | **292.7504352** | **110.4685922** | **692.6615871** | **0.313055353** |

Source: BKPM, 2020 (proceed by the author)

During Joko Widodo's regime, the efforts to alleviate the investment bottlenecks have been strengthened. The efforts consist of opening up more business fields to both FDI and DDI and simplifying the procedures through a framework named the Economic Policy Package (Aisyah, 2018; Hendra & Firdaus, 2019; Wijaya et al., 2020).

The Indonesian government has also undertaken a few sectoral deregulations to attract more investment (National Development Planning Agency [Bappenas], 2020). The government proposed a new tax incentive to the labor-intensive industry in the manufacturing sector and simplified its starting business procedure in 2016. In 2015, Joko Widodo offered plenty of potential projects in the electricity sector, specifically renewable energy projects, to achieve the target of "35,000 MW for Indonesian." In the real estate sector, the government relaxed the percentage of FDI shares on the luxury flat project and imposed income tax deductions to encourage investment in housing construction for low-income residents in 2015. In the following year, the government initiated the plan to enhance the Indonesian Special Economic Zones (SEZs) by improving the existing SEZs, establishing 11 new SEZs, and imposing additional fiscal and non-fiscal incentives for investors located in SEZs. The stipulations were proposed in order to indirectly encourage investment in the real estate sector. Lastly, the government applied the Indonesia National Single Window (INSW) to streamline the licensing procedure in the transportation and logistics sector.

The investment approvals by sectors show interesting figures. A large number of planned-investment value flowed into "manufacturing," followed by "electricity, gas, steam and air conditioning supply," "real estate activities," "wholesale, retail trade, and repair of vehicles," "mining and quarrying," and "agriculture, forestry, and fishing" (see Appendix).

Despite the government's efforts to relax the economy, Indonesia still faces challenges improving the investment climate. Schwab (2019) in The World Economic Forum (WEF) Report recorded that Indonesia's Global Competitiveness Index dropped five places to 50$^{th}$ out of 141 countries in 2019, as well as the EODB Index in 2019, which shows stagnancy at 73$^{rd}$ out of 190 economies (World Bank Group, 2020). Additionally, The Organisation for Economic Cooperation and Development (OECD, 2019) reported that although many business fields have been relaxed, Indonesia's economy is still more restricted than other ASEAN countries. With a total FDI Restrictiveness Index of 0.313 in 2018, Indonesia was ranked third in terms of having relatively higher restrictiveness. These figures represent most of the investors' concerns regarding legal uncertainty in Indonesia (Aisyah, 2018; Genthner & Kis-Katos, 2017; OECD, 2019).

Overall, the Indonesian government has taken various measures to open up its economy, one of which is introducing the NIL. However, with the fluctuating figures of FDI and DDI value in those years (BKPM, 2020), along with the global shocks and national issues that occurred in the past decades, the impact of the introduction of the NIL on investment decisions could not be estimated directly (Genthner & Kis-Katos, 2017). Therefore, a quantitative method was proposed for this study.

### 2.2 The Negative Investment List (NIL)

The provision of the NIL is basically a government measure to provide legal certainty to investors and invite more investment. It provides investors with information on business fields that are prohibited or conditionally open to investment at 5-digit KBLI codes (Aisyah, 2018). Long before the first NIL was released, an older and vague negative list was introduced to the market in 2000. However, the list did not use KBLI codes, resulting in confusion in the investment policy, but it showed that the "restriction" already existed

(Genthner & Kis-Katos, 2017). Whether or not the NIL has already been introduced in certain years can be obtained from this information.

The five versions of the NIL have their own stories. First, Presidential Regulation (PR) No. 77 of 2007 was considered a protectionist measure against the FDI because it added more business fields and proposed more conditions than the 2000 list (Genthner & Kis-Katos, 2017). Second, PR No. 111 of 2007 overlapped with sectoral provisions formulated by ministries, raising many uncertainties between investors and legal authorities (Lindblad, 2015; Magiera, 2011). Third, PR No. 36 of 2010 comprised a new implementing language and reorganized the list by adding and removing some business fields to and from the NIL (Genthner & Kis-Katos, 2017; Magiera, 2011). Fourth, PR No. 39 of 2014 remained unwelcome to the FDI because more business fields were restricted to foreign investors. Fifth, PR No. 44 of 2016 dismissed many business fields from the list and signifying a more liberalized economy (Genthner & Kis-Katos, 2017). Overall, the number of business fields listed-in and listed-out from one NIL amendment to the next fluctuates. It describes that the 2010 and 2014 versions are more restricted to investment, while the 2007B version and 2016 version are more liberalized (see Table 2 for more detail).

Table 2: Composition of Listed-in and Listed-out 5-Digit KBLI Codes by the Degree of Openness to Investment

| Number of 5-digit KBLI Codes Listed-in and out | Listed out from 2007A | Newly listed into 2007B | Listed out from 2007B | Newly listed into 2010 | Listed out from 2010 | Newly listed into 2014 | Listed out from 2014 | Newly listed into 2016 |
|---|---|---|---|---|---|---|---|---|
| *Total* | 13 | 15 | 170 | 77 | 22 | 60 | 92 | 29 |
| *FDI* | | | | | | | | |
| Fully open | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Conditionally open | 9 | 7 | 17 | 52 | 16 | 13 | 75 | 21 |
| Prohibited | 4 | 8 | 153 | 25 | 6 | 27 | 17 | 8 |
| *DDI* | | | | | | | | |
| Fully open | 10 | 15 | 167 | 74 | 22 | 58 | 91 | 28 |
| Conditionally open | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 |
| Prohibited | 3 | 0 | 3 | 1 | 0 | 1 | 0 | 1 |

Source: Ministry of Law and Human Rights (Kemenkumham) (2016) (proceed by the author)

The body of the NIL consists of three appendices, but in general, it is structured by two main outlines. First is the list of business fields prohibited from investment. The list is determined based on concern for health, morals, culture, environment, national defense and security, and national interest. Second is the list of business fields opens to investment with conditions, including capital ownership limitations, partnership obligation, designated locations, special permits, and reserved-for-DDI. The "capital ownership limitation" describes how many percentages of investment ownership are allowed, ranging from 25% to 100% of ownership. The "partnerships obligation, designated locations, and special permits" represent some sort of condition that the investors should fulfill. Meanwhile, "reserved-for-DDI" depicts specific business fields designated to be fully open to DDI and prohibited to FDI. Since two main outlines structure the NIL, a single 5-digit-code can be specified multiple times depending on whether it has two or more binding conditions (Kemenkumham, 2016). In this context, the 5-digit KBLI code is not the main classifier but one of the complementary information. Therefore, the investors would need to explore the entire NIL content to capture the whole condition. With these conditions, the degree of openness to investment can be obtained. This degree implies that most of the content of the NIL offers a fully open term to the investors, primarily for DDI.

Based on sector classification, the NIL stipulates 18 sectors. The most stipulated sectors are manufacturing, followed by agriculture, forestry, and fishing; transportation and storage; wholesale, retail trade, and vehicle repair; and construction (Kemenkumham, 2016). During the implementation of the NIL, agriculture, forestry, and fishing, and manufacturing sectors are increasingly stipulated, whereas construction and wholesale, retail trade, and vehicle s sectors were decreasingly regulated in NIL (Kemenkumham, 2016).

The introduction of the NIL has possible impacts on investment decisions as well as investment inflows. According to Genthner and Kis-Katos (2017), Liu et al. (2018), and Magiera (2011), the NIL might hinder improvement in FDI inflows because once a business field is listed in the NIL, some conditions may be applied to it, resulting in two degrees of openness for foreign investors, conditionally open and prohibited. Nevertheless, Aisyah (2018) and Dewi et al. (2017) concluded differently. During the implementation of the NIL, the government deregulated investment procedures and requirements,

including relaxation of the allowed percentage of foreign ownership. Therefore, the conditionally open term might offer legal certainty to foreign investors who might in turn improve the FDI inflows. Slightly different from FDI, the NIL introduced three degrees of openness for DDI: fully open, conditionally open, and prohibited. Dewi et al. (2017) implied that the fully open term is preferable for domestic investors since it can provide greater investment opportunities.

### 2.3 Investment Performance: A General Information

Any analysis of investment policy cannot be separated from the factors determining investment decisions. Those factors are spread over some aspects, such as economic, institutional, and political factors. The economic aspect consists of market size proxied by the real Gross Domestic Product (GDP), the stability level in the host country represented by the real effective exchange rate (REER), and other macroeconomic factors (Fernandez et al., 2020; Tsaurai, 2017). The "Real GDP" has a positive correlation with investment flows because the increasing real GDP may generate more employment and keep the business cycle going (Azam & Lukman, 2010). In contrast, "REER" is found to be negatively correlated with investment flows because when the REER depreciates, the input price from the market of the host country may be lower and more competitive, which may, in turn, boost the investment value (Nainggolan et al., 2015). The institutional aspect consists of government indicators proxied by the Control Corruption Index and legal certainty proxied by the Regulation Quality Index (Sunarwibowo, 2018; World Bank, 2020b). "Regulation Quality" is estimated to positively affect investment inflows because it reflects good governance that will attract more investment value. Meanwhile, the political factor contains Political Disputes that might have a negative coefficient on investment growth (Tsaurai, 2017).

Investment decisions can take many forms. Nuradi and Fatimah (2015) imply that the decisions mainly appear in the form of investment value, workforce numbers, and project numbers. Among those forms, the investment value became the most utilized measure to investigate investment decisions (Nuradi & Fatimah, 2015). Based on Law No. 25 of 2007 on Investment, the investment value is divided into two categories. The first is investment planning. This is the value investors plan to invest in and is recorded in a legal document called the *Izin Prinsip* (Investment Principle License), or today was named as *Nomor Induk Berusaha* (Business Identification Number). The second is investment realization. This is the value that investors have realized in Indonesia and is recorded in the *Laporan Kegiatan Penanaman Modal/* LKPM (a quarter and semester investment activities report). The value of these two types of investment could differ greatly following the investor's project development in the fields and their financial situation.

High investment value is an indicator of a favorable investment policy. In this sense, the investment policy succeeds in providing legal certainty to investors; thus, it manages to boost investment inflows (Aisyah, 2018). There are at least two principles of legal certainty that have emerged from the analysis of investment policy (Portuese et al., 2014): First, legal certainty endures reliance cost, meaning that if the regulation keeps changing, the investors may not be interested and, therefore, may end up in an economic loss to the host country. Second, legal certainty constitutes risk costs, which are the costs of predicting unforeseen changes. The investors may not invest in the destination country when the risk cost is too high. These principles support the idea that when the host countries cannot provide legal certainty to the investors, the investment will not be drawn.

Legal certainty in investment policy has various definitions. The World Bank Group (2020) interprets it as the government's ability to offer clear information regarding investment procedures and investment opportunities (World Bank Group, 2020). In addition, the OECD (2019) translates legal certainty as "the degree of openness to investment" using the FDI Restrictiveness Index that takes values between 0 and 1, wherein 1 is the most restrictive or closed to investment. Thus, the indicators of the degree of openness to investment can be used to analyze the introduction of investment policy on investment decisions.

Furthermore, investment decisions can also be measured by the crowding effect phenomenon. When legal certainty is achieved, multinational firms might be attracted to invest in the host country (Sunarwibowo, 2018). The presence of these firms might result in crowding-in effects on the DDI inflows due to enhanced positive externalities, which are knowledge spillovers, specialized labors, and intermediate inputs (Göçer et al., 2014; Prastomo, 2017; Sunarwibowo, 2018). On the contrary, the crowding-out effect implies the opposite conditions. Similarly, the existence of national entities might also introduce a crowding effect to foreign entities (Paolino, 2009). By adopting this theory, the effect of introducing investment policy can also be explored through the viewpoint of the crowding effect.

## 3. Methodology

In this paper, the hypotheses were tested by measuring the effect of the NIL introduction on investment decisions in Indonesia, investigating its effect differences between FDI and DDI decisions, and exploring the crowding effect phenomenon between foreign and national firms. This study heavily relies on secondary data at the business field level, taken from the BKPM between 2005 and 2018. A quantitative method consisting of regression and descriptive analyses will be employed in this research.

Several steps were taken before finalizing the data. The first step was to extract the data by defining the business field classified in 5-digit KBLI codes. This step was taken because the most disaggregate level of business field classification available in BKPM data is the 4-digit KBLI codes. The information about 5-digit KBLI codes was extracted from the Investment Principle License of each firm that had invested during the analysis period. The total number of firms involved in this study is 82,456, comprising 29,372 foreign and 36,351 domestic entities. The second step was to analyze all NIL versions to capture the information, whether the NIL is already introduced in a certain year or not, and the degree of investment openness to each business field. Finally, the result of data extraction and NIL analysis were incorporated to finalize the data collection.

This paper employed two methods, regression analysis and descriptive analysis. The regression analysis uses the fixed-effect model explored by Genthner & Kis-Katos (2017) and Sunarwibowo (2018). The two regression models, the FDI Model and DDI Model, were estimated using this method. The descriptive analysis by sector utilizes BKPM data, the NIL analysis results, and the government policies during the implementation of the NIL. The reason behind adopting this method was to capture a broader picture of the effect of the NIL introduction on investment decisions and the crowding effect between foreign and local entities in a sectoral manner.

The unit analysis of this study is a business field that is classified in 5-digit KBLI codes, following the business field categorization in the NIL. The total number of business fields analyzed in this paper is 886, consisting of 697 foreign investors and 820 domestic investors. The 886 business fields are the entire number of business fields recorded in BKPM in 2005–2018 (14 years), except for FDI; the data used for the present study is only from 2005 to 2017, considering the incomplete data of planned-investment value in 2018. The business fields used in this research are classified into 20 sectors, with a significant number incorporated in manufacturing, wholesale and retail trade; repair of motor vehicles and motorcycles; agriculture, forestry, and fishing; transportation and warehousing; and construction (Kemenkumham, 2016).

The variables utilized in this paper consist of dependent and independent variables. The dependent variable is the planned-investment value of FDI and DDI, whereas the independent variables consist of: (1) "Dummy of whether or not the NIL is already introduced at a certain year" to capture the effectiveness of NIL's introduction in boosting more investment flows before and after the NIL was introduced (Genther & Kis-Katos, 2017); (2) "Dummy of the degree of openness to investment" to gain both foreign and local investors' decisions when they are about to invest in Indonesia (Aisyah, 2018; Dewi et al., 2017); (3) "The FDI-planned and DDI-planned value" to estimate the crowding effect that could possibly induce the investment inflows (Göçer et al., 2014; Prastomo, 2017; Sunarwibowo, 2018); (4) Control variables in the form of market size and institutional proxy, including Real GDP, REER, and Regulation Quality, that were estimated having either directly or indirectly correlated to the investment inflows (Azam & Lukman, 2010; Nainggolan et al., 2015; Sunarwibowo, 2018; World Bank, 2020b). The description of the variables and the distribution of observations and business fields (5-digit KBLI codes) used in the study are provided in the Table 3 and 4

For the dependent variable, this paper applied the logarithm-form. This form is adopted to avoid the heteroscedastic issue since the data has outliers and increasing patterns of the regression residuals (Wooldridge, 2012). Meanwhile, because the variation of investment-value data is dominated by zero (0), the study proposed the "Log (1 + Investment Value)" to avoid "missing observations." Finally, to interpret the log transform, the present paper followed the formula addressed by Wooldridge (2012).

Furthermore, in the dummy of the degree of openness to investment, this study acknowledged three types of investment circumstances. They are "fully open" if the investment is allowed for 100% of ownership (specifically for DDI, but for FDI, meaning that the business field is not listed in the NIL), "conditionally open" if the investment is allowed for up to 100% with conditions to be fulfilled, and "prohibited" if the investment is restricted for both FDI and DDI.

The present paper utilized planned-investment rather than investment realization. It is because, based on Law No. 25 of 2007 on Investment, the planned-investment shows the first intention of investors, which may be viewed as their investment decisions.

Moreover, the planned-investment in the BKPM data consists of three types: new, changing, and expand. The "new" type means the planned-investment comes from the new investors in a specific year, while the "changing" and "expand" types mean the planned-investment comes from the existing investors who want to change or upgrade their business activities in Indonesia in a specific year. For the purpose of analysis, the paper only exercised the "new" type of planned-investment. This is because the amount of the "changing" and "expand" types was a recalculation or improvement of the initial investment value.

Finally, the equations for the regression model are specified as follows, while the description of its denotation is provided in Table 3.

FDI Model:

$$ln1FDIvalue_{it} = \alpha_{it} + \beta_1.dIntro_t + \beta_2.dOpen_{it} + \beta_3.ln1DDIvalue_{it} + \beta_4.lnRGDP_t + \beta_5.REER_t + \beta_6.RQ_t + \epsilon_{it}$$

DDI Model:

$$ln1DDIvalue_{it} = \alpha_{it} + \beta_1.dIntro_t + \beta_2.dOpen_{it} + \beta_3.ln1FDIvalue_{it} + \beta_4.lnRGDP_t + \beta_5.REER_t + \beta_6.RQ_t + \epsilon_{it}$$

Table 3: Description of Tables

| **Dependent Variable** | **Denoted by** | **Description** | **Expected Sign** | **Definition** |
|---|---|---|---|---|
| Planned-investment | *ln1FDIvalue*$_{it}$ and *ln1DDIvalue*$_{it}$ | Continuous (in logarithm) | N/A | The planned-investment value of FDI or DDI operating in a business field *i* in the year *t* (BKPM, 2020). |
| **Independent Variables** | **Denoted by** | **Description** | **Expected Sign** | **Definition** |
| NIL Introduction | *dIntro*$_t$ | Categorical dummy:<br>1. No = 0 (base category)<br>2. Yes = 1 | N/A<br>+ | The information on whether or not the NIL is already introduced in year *t* (Kemenkumham, 2016). |
| The degree of openness to investment | *dOpen*$_{it}$ | Categorical dummy:<br>1. Prohibited = 0 (base category)<br>2. Conditionally open = 1<br>3. Fully open = 2 | N/A<br>+<br>+ | The information on the degree of openness of business field *i* to investment in year *t* (Kemenkumham, 2016). |
| FDI-planned value | *ln1FDIvalue*$_{it}$ | Continuous (in logarithm) | + | The FDI-planned value operating in a business field *i* in the year *t* (BKPM, 2020). |
| DDI-planned value | *ln1DDIvalue*$_{it}$ | Continuous (in logarithm) | + | The DDI-planned value operating in a business field *i* in the year *t* (BKPM, 2020). |
| Real GDP | *lnRGDP*$_t$ | Control variable (in logarithm) | + | GDP (constant 2010 USD) in year *t* (World Bank, 2020a). |
| REER | *REER*$_t$ | Control variable | - | Real Effective Exchange Rate in year *t* (Bruegel, 2020). |
| Regulation Quality | *RQ*$_t$ | Control variable | + | The ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development in year *t*. It ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance (World Bank, 2020b). |

Note: proceed by the author

Table 4: The Distribution of Observations and Business Fields (5-Digit KBLI Codes) in the Study

| **Distribution of the Observations** | **FDI Model** | | **DDI Model** | |
|---|---|---|---|---|
| | **Total** | **Frequency** | **Total** | **Frequency** |
| *Period analysis (in year)* | 13 years (2005–2017) | | 14 years (2005–2018) | |
| *Number of observations* | 9.061 | | 11,480 | |
| *Introduction of the NIL* | | | | |
| Not yet introduced | 7,671 | 84.7% | 9,685 | 84.4% |
| Already or being introduced | 1,390 | 15.3% | 1,795 | 15.7% |
| *The degree of openness to investment* | | | | |
| Fully open | 8020 | 88.5% | 10,160 | 88.5% |
| Conditionally open | 853 | 9.4% | 894 | 7.8% |
| Prohibited | 188 | 2.1% | 426 | 3.7% |
| *Total observed business fields (5-digit KBLI codes)* | 697 | | 820 | |
| Non-NIL | 419 | 60.1% | 461 | 56.2% |
| NIL | 278 | 39.9% | 359 | 43.8% |

Note: proceed by the author

## 4. Results and Discussions

### 4.1 Regression Results

The empirical model is estimated for 886 business fields for 2005–2017 (FDI Model) and 2005–2018 (DDI Model). The results obtained are significant and acceptable on the basis of *p* value, *prob > f*, and *r*-square. Furthermore, the multicollinearity and heteroscedasticity in the model are also solved, while the Hausman test result shows that the value of *prob > chi2* is less than 0.5, which means that the fixed effect model is the proper estimation method to be used in this study. Finally, the regression results are given as follows.

Table 5: Estimation Results

| | | **(FDI Model)** | **(DDI Model)** |
|---|---|---|---|
| **Dependent Variable** | | Log (1 + FDI-planned Value) | Log (1 + DDI-planned Value) |
| **Regressors** | **Expected Sign** | | |
| Introduction of the NIL = Not yet Introduced[1] | | 0 | 0 |
| | | (.) | (.) |
| Introduction of the NIL = Already or Being Introduced | + | 0.391* | 0.427* |
| | | (0.376) | (0.190) |
| The Degree of Openness to Investment = Prohibited[1] | | 0 | 0 |
| | | (.) | (.) |
| The Degree of Openness to Investment = Conditionally Open | + | 3.889*** | 12.24** |
| | | (0.448) | (4.109) |
| The Degree of Openness to Investment = Fully Open | + | 4.140*** | 5.617*** |
| | | (0.510) | (1.630) |
| Log Real GDP | + | 4.637*** | 16.92*** |
| | | (0.745) | (0.643) |
| REER | - | -0.142*** | -0.151*** |
| | | (0.0113) | (0.0105) |
| Regulation Quality | + | 6.409*** | 3.919*** |
| | | (0.970) | (0.880) |
| Log (1 + FDI-planned Value) | + | | 0.133*** |
| | | | (0.0128) |
| Log (1 + DDI-planned Value) | + | 0.0865*** | |
| | | (0.0107) | |
| Constant | | -109.0*** | -447.2*** |
| | | (20.22) | (17.60) |
| 5-digit KBLI Codes Fixed Effect | | Yes | Yes |
| Year Fixed Effect | | Yes | Yes |

| | | (FDI Model) | (DDI Model) |
|---|---|---|---|
| **Dependent Variable** | | Log (1 + FDI-planned Value) | Log (1 + DDI-planned Value) |
| **Regressors** | **Expected Sign** | | |
| Observations | | 9061 | 11480 |
| *R*-square | | 0.494 | 0.458 |

Notes: Standard errors in parentheses.
* p < 0.05, ** p < 0.01, *** p < 0.001
[1]Base category.

The result implies that the introduction of the NIL, ceteris paribus, may generate an investment value for approximately 47.8% and 53.3% for FDI and DDI, respectively, from the state or period when the NIL was not introduced yet, meaning that H1 is accepted. It has been acknowledged that the government imposed the NIL on the market to give legal certainty to potential investors, who were then expected to attract more investments (Aisyah, 2018; Magiera, 2011). Therefore, the introduction of this policy may be considered a legal certainty in the Indonesian regulatory system and a more liberalized market.

The estimated result of the introduction of the NIL is parallel to the BKPM data. Both investment realization and planned-investment value portray an increasing pattern in the years after the NIL was introduced. As described in the Literature Review, the investment improvement seemed a little bit late and to have fluctuated, given some shocks—for instance, the financial crisis and the hike of world oil prices—that took place during the implementation of the NIL that might have influenced the investment decisions.

A more profound observation of the degree of openness to investment shows that the estimation for the FDI and DDI Model reverse each other. This implies that ceteris paribus, a business field that is fully open (or not listed in the NIL), is preferable to foreign investors than a conditionally open field; thus, H2 is rejected with this finding. In contrast, for domestic investors, the opposite condition applies. It has been acknowledged that the NIL has a restrictive nature to FDI. Even though the government has relaxed some sectors during the NIL implementation, the effect of this policy seems less significant in boosting more FDI into the country. However, given the positive sign of the coefficients of both fully open and conditionally open, those terms can together improve the FDI inflows. Therefore, the introduction of the NIL by any chance is able to generate investment value. Meanwhile, for the DDI Model, the results indicate that domestic investors prefer the business field to be conditionally open (or reserved-for-DDI) than fully open, ceteris paribus; therefore, H3 is rejected. This implies that conditionally open may be regarded as legal certainty for local investors as it ensures their investment activities will run smoothly. Furthermore, given some requirements obliged by the NIL, for instance, “partnership obligation,” national entities are possibly more interested in coping with FDIs as it may offer more opportunities in terms of technology and knowledge transfer. The other obligations, such as “location,” may provide additional information about the potential investment location as the government has already carried out feasibility studies on certain regions.

The estimation results for control variables, Real GDP, REER, and Regulation Quality, display a significant result with the signs that match expectations. The increase in Real GDP, ceteris paribus, may boost more investment as it signals a good economy of the host country (Azam & Lukman, 2010). The depreciation of REER, ceteris paribus, may attract investment since it creates lower input prices and a competitive market (Nainggolan et al., 2015). Further, the increase in Regulation Quality, ceteris paribus, may improve investment inflows. This may also be translated as a more open market since the government has performed a series of deregulations and relaxations in the investment policy, one of which is the NIL provision. The estimation of Regulation Quality strengthens the results of the introduction of the NIL and shows that both foreign and local entities favor legal certainty in the regulatory system.

Furthermore, the regression results of variables of FDI-planned and DDI-planned value proves the hypothesis (H4), which suggests that the rise of FDI value might cause the DDI value to go up, known as the crowding-in effect. Correspondingly, the crowding-in effect of DDI on FDI might also exist, as shown by the positive sign of coefficient in the estimation result. Moreover, the coefficient comparison between the crowding-in effect of FDI on DDI and the effect of DDI on FDI portrays that the former is bigger than the latter as the FDI inflows during 2005 – 2018 significantly exceeded the DDI inflows mostly in all sectors (see Table 1). In general, from the estimation result, it can be concluded that the NIL introduction might create a

crowding-in effect of FDI on DDI decisions and vice versa. A thorough analysis in a sectoral manner is provided in the descriptive analysis.

### 4.2 Descriptive Analysis by Sector

The planned-investment value data released by BKPM (2020) reveals interesting stories. First, the investments in Indonesia are mainly financed by the FDI. A huge amount of FDI inflows were observed during 2005 – 2018 compared to DDI inflows (see Table 1). This fact also implies that foreign firms are likely to introduce the most crowding-in effect to domestic firms, with 10 out of 21 sectors showing this tendency (see Appendix). Second, a considerable investment of the NILs compared to the Non-NILs in some sectors implies that the introduction of the NIL might affect the investment inflows to increase (see Appendix). Third, both FDI and DDI have similar top-nine sectors that experienced the highest performance out of the 21 sectors in the economy (see Appendix). Forth, a more profound analysis of the selected sectors from the top-nine sectors and the government efforts in giving legal certainty to the investors represent the results as follow (the following discussions refer to the information in Table 1 and Appendix):

In the manufacturing sector, both FDI and DDI elevated significantly after the government imposed the new tax incentive to the labor-intensive industry and simplified the investment procedure in 2016 (Bappenas, 2020) by approximately 110% and 67.4% for FDI and DDI, respectively. However, the extensive gap between the performance of the NILs and the Non-NILs, with the latter being way too large, depicts that the NIL introduction effect in this sector was not visible. Additionally, the same pattern that appeared in FDI and DDI inflows during 2008 – 2013 and 2016 – 2017 implies that there was a crowding-in effect of FDI on DDI and the effect of DDI on FDI in this sector. This finding agrees with the regression result above and research conducted by Sunarwibowo (2018) and Paolino (2009), implying that as FDI increases, DDI follows and vice versa. Take an example of the automotive industry. Multinational companies in Indonesia have allowed the national firms to take part in the global production network, leading to knowledge transfer and innovation from foreign to local firms (Aswicahyono & Kartika, 2010). The growth of the Indonesian automotive industry has also enhanced the development of its supporting industries that local manufacturers mostly run, for instance, auto-parts manufacturing, showing a crowding-in effect of FDI on DDI (Aswicahyono & Kartika, 2010). A considerable market share in auto-parts industries and a potentially large market has attracted foreign companies to invest in this country, showing a crowding-in effect of DDI on FDI (Aswicahyono & Kartika, 2010). Therefore, there was a parallel movement of the crowding effect between foreign and domestic entities.

In the electricity sector, the FDI value improved by 85.3% from 2014 to 2015 as the government introduced the "35,000 MW for Indonesia" program and offered some potential projects in renewable energy plants (Bappenas, 2020). The same condition also occurred in the DDI value, which increased by about 9.3 times from the previous year. Meanwhile, considerable investment value in the NILs, compared to the Non-NILs indicates that the impact of the NIL introduction in this sector was noticeable. Moreover, similar patterns in the FDI and DDI value during 2005 – 2018, except in 2008, 2013, and 2014, indicates that the crowding-in effect existed. However, in this sector, the crowding-in effect of FDI on DDI might be bigger than the crowding-in effect of DDI on FDI. First, the electricity projects require huge funds; and the government is seeking advanced and environmentally friendly technology (Budiono & Purba, 2019). Second, the promising source for electricity projects to meet those requirements is the FDI. It can be seen from the government policy intention to relax the percentage of ownership for "power plant projects above the 10 MW" to become 100% allowed for foreign shares in order to achieve "35,000 MW for Indonesia" program goals (Bappenas, 2020). Thus, the existence of foreign firms in this sector—for instance, in the renewable energy projects—might enhance the performance of domestic entities as it offered technology spillovers and other added values (Aissa & Hartono, 2016).

In the real estate sector, the FDI and DDI immediately rose by about 25% and 20%, respectively, from 2015 to 2016 and continued to increase in the subsequent years. A more open market might contribute to this rise. The government relaxed the allowed foreign ownership on the business of luxury flats' construction and imposed income tax deduction for housing construction (Bappenas, 2020). Additionally, the initiation of government plans to enhance the Indonesian SEZs—including improving the management of existing SEZs, establishing 11 new SEZs, and adding privilege incentives—has encouraged the development of industrial estates in SEZs, such as the improvement of the existing Sei-Mangkei SEZs in North Sumatera Province (Tarigan, 2019). However, the extensive amount of investment value in the Non-

NILs compared to the NILs reflects that the impact of the introduction of the NIL on investment inflows was not evident in this sector.

Meanwhile, the increase in DDI inflows aligns with the FDIs. It shows that there was a possibility of crowding-in effect in this sector. It is acknowledged that the government has intended to provide livable housing and promote the development of industrial estates (Bappenas, 2020). Since business activities in the real estate sector require the involvement of many parties or suppliers, the crowding effect was likely to move parallelly between foreign and national firms responding to investment opportunities open to both parties.

In the transportation and logistics sector, the value of FDI and DDI considerably improved as stipulated by the government in the INSW system to streamline the licensing procedure in 2015 (Bappenas, 2020). Even though in the subsequent years the value declined, the performance was still better than the years before 2015. Moreover, substantial investment in the NILs compared to the Non-NILs depicts that the introduction of the NIL had some influence on the inclination of investment value in this sector. Finally, the investment flows between FDI and DDI could not confirm the crowding effect phenomenon as it shows a random pattern.

Overall, the estimation results above could answer two out of the four hypotheses of this study. H1 is accepted because the introduction of the NIL, ceteris paribus, may increase FDI and DDI inflows. H2 and H3 were rejected because, ceteris paribus, fully open term may boost more FDI than conditionally open term. In contrast, conditionally open may attract more DDI than fully open term. H4 is accepted as the regression implies the increase of DDI is associated with the increase in FDI and vice versa. Ceteris paribus, there is a possibility of parallel movement of crowding-in effect between foreign and domestic entities responding to the investment opportunities open for both parties. Furthermore, from the descriptive analysis, four conclusions can be drawn. First, the investment value might improve after deregulation or relaxation—one of which was the NIL provision—was introduced. Thus, it can be implied that the NIL might provide legal certainty to the investors. Second, the effect of the NIL introduction on investment decisions was evident in the electricity, transportation, and logistics sectors, as the investment value of the NILs exceeded the Non-NILs. Third, there was a crowding-in effect possibility in the manufacturing, electricity, and real estate sectors as the increase in DDIs aligns with the rise in FDIs. In other words, foreign and national firms might share the crowding-in effect parallelly. Forth, the NIL introduction might contribute to generating the crowding-in effect in the electricity sector. In general, the introduction of the NIL in one way or another possibly contributes to affecting the investment decisions in Indonesia in the form of investment inflows improvement.

**Conclusions**

As the main reference for investors who wish to do business in Indonesia, the NIL presents an interesting view of government interventions regarding giving investors legal certainty. Using business field-level data of the planned-investment value from 2005 to 2018, this paper attempts to analyze the impact of the introduction of the NIL on investment decisions in Indonesia by exploring all versions of the NIL and all business fields in the economy. Subsequently, the study shows that, first, the NIL introduction may affect the investment decisions in Indonesia with a positive sign, meaning that the NIL is likely to generate investment inflows. Second, holding everything constant, the fully open term is preferable for FDI inflows to be improved. In contrast, the conditionally open term is favorable for DDI inflows to be increased. Third, there is a parallel movement of crowding-in effect between foreign and national firms responding to the investment opportunities open to both parties. Forth, since the investments in Indonesia are mostly financed by the FDI, the crowding-in effect of FDI on DDI is most likely to happen. Fifth, in the manufacturing, electricity, and real estate sectors, foreign and national firms may share the crowding-in effect with one another since the increase in DDIs aligns with the rise in FDIs. Sixth, in the electricity sector, the NIL introduction may generate the crowding-in effect. All in all, the introduction of the NIL in one way or another possibly contributes to affecting Indonesia's investment decisions in the form of investment inflows improvement.

The present paper contributes to the literature on the analysis of the introduction of investment intervention policy at the most disaggregated level. In this light, as a policy implication, the study suggests the policymaker consider the provision of Positive Investment List (PIL), which employs the 5-digit codes as the main classifier followed by “conditions” as complementary information. Even though the government

has just recently replaced the NIL with PIL under the name of "Priority Investment List," the main outline of the PIL is not much different from the NIL (Kemenkumham, 2021). Therefore, by arranging the 5-digit-codes as the main classifier, the investors may get the clearest and most transparent picture as they need only to look for KBLI codes to get comprehensive information without having to explore the entire contents of the NIL. In addition, since this study acknowledged that the investment decisions are possibly affected by the provision of the NIL and the macroeconomic factors, including Real GDP, REER, and Regulation Quality, the government should focus on improving the investment climate as these variables correlate to the investment decisions.

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## Appendix

Table A. Planned-investment Value by Sector in 2005 – 2018

| Planned-investment by sector (in USD billion) | | FDI | DDI |
|---|---|---|---|
| Accommodation and food service activities* | Total | 14.0556952 | 0.006382352 |
| | Non-NIL | 12.5986093 | 0.003791362 |
| | NIL | 1.4570859 | 0.002590990 |
| Activities of extraterritorial organizations and bodies | Total | 0 | 0 |
| | Non-NIL | 0 | 0 |
| | NIL | 0 | 0 |
| Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use | Total | 0 | 0.000000267 |
| | Non-NIL | 0 | 0.000000267 |
| | NIL | 0 | 0 |
| Administrative and support service activities | Total | 0.7758567 | 0.001139858 |
| | Non-NIL | 0.3767 | 0.000296717 |
| | NIL | 0.3991567 | 0.000842458 |
| Agriculture, forestry, and fishing* | Total | 26.0963756 | 0.020682496 |
| | Non-NIL | 4.5445429 | 0.003340900 |
| | NIL | 21.5518327 | 0.016928642 |
| Arts, entertainment, and recreation | Total | 2.3644341 | 0.002679238 |
| | Non-NIL | 0.5495628 | 0.001675351 |
| | NIL | 1.8148713 | 0.001003821 |
| Construction* | Total | 13.3089683 | 0.008144085 |
| | Non-NIL | 9.9601284 | 0.005683207 |
| | NIL | 3.3488399 | 0.002280685 |
| Education | Total | 0.1865279 | 0.000470456 |
| | Non-NIL | 0.0753806 | 0.000213383 |
| | NIL | 0.1111473 | 0.000257074 |
| Electricity, gas, steam, and air conditioning supply* | Total | 150.309523 | 0.068602538 |

| Planned-investment by sector (in USD billion) | | FDI | DDI |
|---|---|---|---|
| | Non-NIL | 20.2995001 | 0.017653856 |
| | NIL | 130.010023 | 0.050489494 |
| Financial and insurance activities | Total | 0.0014505 | 0.000184975 |
| | Non-NIL | 0.0014505 | 0.000160663 |
| | NIL | 0 | 0.000024312 |
| Human health and social work activities | Total | 0.3594334 | 0.003132441 |
| | Non-NIL | 0.0553009 | 0.000684154 |
| | NIL | 0.3041325 | 0.002448194 |
| Information and communication | Total | 9.3557341 | 0.000887887 |
| | Non-NIL | 2.0736003 | 0.000462524 |
| | NIL | 7.2821338 | 0.000402930 |
| Manufacturing* | Total | 330.151185 | 0.109278127 |
| | Non-NIL | 246.518164 | 0.083774925 |
| | NIL | 83.6330212 | 0.018189383 |
| Mining and quarrying* | Total | 40.2347978 | 0.010864291 |
| | Non-NIL | 31.5752978 | 0.008888935 |
| | NIL | 8.6595 | 0.001964709 |
| Other service activities | Total | 0.266396 | 0.000045217 |
| | Non-NIL | 0.1826991 | 0.000031210 |
| | NIL | 0.0836969 | 0.000013736 |
| Professional, scientific, and technical activities | Total | 2.4584001 | 0.000181339 |
| | Non-NIL | 1.2800285 | 0.000147210 |
| | NIL | 1.1783716 | 0.000033384 |
| Public administration and defense; compulsory social security | Total | 0 | 0.000007327 |
| | Non-NIL | 0 | 0.000007327 |
| | NIL | 0 | 0 |
| Real estate activities* | Total | 41.6877779 | 0.060109142 |
| | Non-NIL | 41.4027979 | 0.059816224 |
| | NIL | 0.28498 | 0.000286098 |
| Transportation and storage* | Total | 18.434898 2 | 0.011506260 |
| | Non-NIL | 9.0420194 | 0.001608134 |
| | NIL | 9.3928788 | 0.009873694 |
| Water supply; sewerage, waste management and remediation activities | Total | 2.051189 | 0.000934885 |
| | Non-NIL | 1.5414842 | 0.000487754 |
| | NIL | 0.5097048 | 0.000447132 |
| Wholesale and retail trade; repair of motor vehicles and motorcycles* | Total | 40.562944 9 | 0.007822175 |
| | Non-NIL | 39.944472 | 0.003994889 |
| | NIL | 0.6184729 | 0.003801099 |
| **Total** | | **692.661587** | **0.300795725** |

Source: Kemenkumham, 2016 (proceed by the author)
Notes: Sector category is based on KBLI classification.
*The top-nine sectors

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