Effect of Capital Investment on the Level of Internationalization of Companies in ASEAN-5 Period 2009–2018

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ABSTRACT

This study aims to determine the effect of capital investment on the level of internationalization and to see the relationship between the capital investment and company size of large companies in Indonesia, Malaysia, the Philippines, Thailand and Singapore. This study used the Generalized Least Square (GLS) balanced data panel method with annual data for the 2009-2018 period. The results of this study indicated that capital investment had a negative and significant influence on the level of internationalization. However, this study found that large capital investment moderates the effect of capital investment on the level of internationalization, so that the relationship between the two is nonlinear or U-shaped. This study also found that company size did not moderate the relationship between capital investment and the level of internationalization, so that the negative effect of capital investment on the level of internationalization did not differ in large companies.

I. INTRODUCTION

Disruption in global trade caused by Chinese and American trade tensions had reduced global GDP growth in 2018 to 3.6% (Toye, 2019). Amidst the uncertainties in the global economic environment that showed signs of slackness, growth in Asian developing countries remains strong. In ASEAN, economic growth in 2018 was strong at 5.1% (Asian Development Bank, 2019). ASEAN exports in 2016 reached 7.2% share of world exports where 23.5% of these were intra-regional trade. In 2017, trade growth for ASEAN products reached 15%, higher than the growth in trade in world products and the United States. ASEAN’s Foreign Direct Investment growth in 2017 reached 12%, in which intra-regional investment remained the largest source of FDI for ASEAN (Vintessonthi, 2017).

Non-financial companies (NFC) in ASEAN began to actively expand since 2010 when at that time there were only 198 NFCs, then increased 56% to 308 in 2017. This expansion trend had contributed on the increase in intra-ASEAN investment, which increased from US$ 16.3

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billion in 2010 to US$ 25.5 billion in 2017. This regional expansion was followed by the growth in asset ownership of the multinational company. In 2017, the combined total assets of ASEAN multinational companies reached nearly US$ 1.1 trillion, an increase 65% since 2010 (Das, 2018).

In this study, researchers expect that capital investment encourages companies to internationalize. Liao et al. (2016) found that managers will increase capital spending in the current period to increase sales growth in the future. Capital investment provides greater capabilities for companies, both in quantities and product lines, to serve a larger market, and encourage companies to export or expand internationalization at the next level (Esaku & Krugell, 2020; Fabling & Sanderson, 2013). On the other hand, companies that expand their activities abroad can enjoy a variety of economic benefits, such as economies of scale and economies of scope, aside from what can be achieved by only operating within the domestic market (Keller & Yeaple, 2009; McGahan & Victer, 2010; Wan, 2005) or well known as Firm Internationalization. Large capital investment can encourage companies to internationalize in order to maximize the benefits of resources and capabilities compared to competitors, enjoy economies of scale, and minimize fixed costs of production. Thus, the degree of internationalization may depend on the company’s long-term assets and new capital investment. An early stage of internationalization had been major key success for company’s development and international operations across borders (Esaku & Krugell, 2020). This stage involved development of international markets and usually often targeting countries with similar language or continent. The stage came along with initial export sales which eventually formed the cross-countries investment (Owen & Yawson, 2015).

However, ASEAN companies may face considerable obstacles in their internationalization process. Aside from Singapore, ASEAN-5 countries are not included in the top 20 countries with the world largest outflow of foreign direct investment (UNCTAD, 2017), so it can be said that ASEAN-5 are still in their early stage of internationalization. This makes companies face a significant amount of liabilities of foreign investment which can obstruct the benefits that can be obtained by entering foreign markets (Kostova & Zaheer, 1999). Liabilities of this foreign influence puts a company in an unfavorable position compared to local companies or other foreign companies that have already been in the market. Another obstacle was that ASEAN logistical liberalization had not been efficient, so the cost of transportation of goods for export activities was still relatively expensive (Tongzon, 2011). On the other hand, countries in ASEAN have a very large domestic market. As the region with the third largest population in the world, the domestic market cannot be ignored. This means ASEAN companies can have a competitive advantage in their domestic market.

Internationalization can be seen as a growth strategy (Kyläheiko et al., 2011), or a diversification strategy (Gulamhussen et al., 2014) carried out through a phased sequential process (Johanson & Vahlne, 1977), so it can be assumed that internationalization activities are strategic for companies. The decision to internationalize also depends on the company’s risk profile. If the costs and risks of entering a foreign market are too high for the company; the company does not expand its business or may exit the foreign market (Denk et al., 2012; Mata & Freitas, 2012), then the relationship between capital investment and internationalization may be negative or non-existent. Therefore, this research examined ASEAN 5 firm’s conditions and characteristics.
that might affect the relationship between internationalization and capital investment.

II. ANALYTICAL FRAMEWORK

This section will explain each variables that tested in this study such as Capital Investment, and Firm Internationalization. Also, explanation of constructed hypothesis.

A. Capital Investment

According to Baddeley (2017), investment is the flow of funds into capital assets. The main characteristic of fixed capital assets is that these investments represent delayed consumption because the company expects these assets to be able to produce goods and services in the future. So based on the description, capital investment is defined as funds invested by the company as capital to achieve certain strategic objectives of the company. Capital investment in this study is calculated as the ratio of capital expenditure to total assets.

Shapiro (2005) suggested that there are several types of corporate capital investment that are reflected as capital expenditure. Firm invest in capital asset for equipment renewal, expansion to meet the growth of current products, expansion generated by new products, and capital investment for projects required by law, such as building smelters in the mining industry, or industries that produce hazardous waste to the environment. Capital investment is also closely related to the company’s strategy to expand. Expansion is defined as management actions for company growth, both in terms of assets, production, capital and markets (Baumol, 1962). In addition to increasing the company’s capabilities in production assets, investment in research and development (R&D) is also known to encourage company growth which then leads to investment in technology application, and ultimately can encourage company productivity (Costantini, J., & Melitz, 2008).

There are several capital investment theories that were relevant in this study. First, traditional view by (Fisher, 1930), and (Keynes, 1936). Basically, both argued that investment is carried out until the net present value (NPV) is equal to zero. However, Keynes developed an investment theory that included the existence of risks due to uncertainties that could form expectations of decision makers. This theory was further developed by the neoclassical theories, which are the accelerator theory by Clark (1917), D. Jorgenson (1967; 1963), and theory Q by Brainard & Tobin (1968). These three theories generally complement the “expectations” and “uncertainties” in calculating capital investment decisions made by companies. Meanwhile in the capital budgeting theory, company carries out capital budgeting to determine new investment proposals in order to gain optimal profit. From previous facts, this research tries to examine the impacts of capital investment to internationalization of businesses.

B. Firm Internationalization

Merging separate national markets into one large global market and reducing trade barriers make companies compete for internationalization (Anthony, 1990). Internationalization is defined as a process in which companies gradually increase their international involvement (Johanson & Vahlne, 1977). The international involvement can be in the form of export activities, licenses, or Foreign Direct Investment (FDI), depending on the foreign market conditions faced by each company. The level of internationalization in this study was calculated as the ratio of foreign sales to total sales (FSTS). This variable is commonly used to measure the level of internationalization of a company (Bae et al., 2008; Capar & Kotabe, 2003). According to Hsu & Boggs (2003), FSTS measures the level of internationalization in the financial dimension which can capture the accumulated sales of various internationalization activities, either with exports, subsidiaries, or FDI. In this case, companies in ASEAN-5 mostly use exports as their mode of internationalization, although there might be companies that have foreign operations in the form of subsidiaries or FDI.

Dunning (1988) stated that there were four main motives of companies in committing internationalization. Companies generally seek to invest or operate overseas to access natural
resources, raw materials and other production needs in a more favorable environment, known as the resource seeking motive. Company also operates abroad to find new markets and expand its customer base (market seeking), or to increase efficiency by increasing productivity through increasing factories (efficiency seeking). Finally, internationalization also allows companies to seek strategic assets (strategic asset seeking) that provide a competitive advantage for the firm (Barney, 1991; Wernerfelt, 1984). International business literacy also suggests several factors that determine a company’s decision to internationalize. Some of these are top management capabilities (Agnihotri & Bhattacharya, 2015; Sambodo, 2017), company size (Oesterle et al., 2013), productivity (Helpman et al., 2004; Tomiura, 2007), and also global networking and technological progress which is important for small companies with limited asset capability who want to expand globally (Knight & Cavusgil, 2004).

There are several internationalization theories that are relevant to this research; Product Life Cycle, the Eclectic Paradigm, the Uppsala Model, and the Three-Staged Model. The Product Life Cycle Model theory (Vernon, 1966) focused on product innovation, economies of scale, and uncertainty of international trade patterns. Eclectic Paradigm Theory (Dunning, 1988) focused on the motives and locations and channels of internationalization that can be used by companies. The Uppsala Model (Johanson & Vahlne, 1977) emphasized internationalization as a sequential process along with increasing company knowledge and experience in foreign markets. This theory implies that companies will face liabilities of foreignness that make companies sacrifice a number of costs. This theory is further developed in the Three-Staged Model (Contractor et al., 2003) which emphasized internationalization as a cycle in which the company will reach its optimal point and then be in a diseconomy position, so that internationalization has a non-monotonous or S-curved influence.

In a previous study, Vithessonthi (2017) found a negative effect of capital investment on the level of internationalization due to the large competitive advantages that companies have in their home countries. Internationalization is considered risky because it involves liabilities of foreignness (Denk et al., 2012; Kostova & Zaheer, 1999). If the costs and risks to internationalize are too high for a company, the company can choose not to expand its business or to exit the foreign market (Buch et al., 2014). In this case, the relationship between capital investment and internationalization may be negative or non-existent. However, investment capital provides the capacity for firms to increase productivity, and thus encourage the expansion of the market share to achieve higher efficiency. Expanding business internationally also lets companies take advantage of economies of scale and economies of scope of international activities by exploiting their competitive advantage (Owen & Yawson, 2015). So, large capital investment might induce higher internationalization levels, which reflect an internationalization strategy of a firm. Since that, this research focuses on firm internationalization regarding to investment and firm size

C. Constructing Hypotheses

Mentioned variables were the basis of constructing the hypothesis of current research. From elaborating the framework of capital investment and firm internationalization, this study conducts 3 (three) hypothesis:

**Hypothesis 1.** Capital investment affects the level of internationalization. The effect of capital investment on the level of internationalization show a positive trend due to the growth of big companies with larger capital investment. A small market share increases production cost per unit with large capital investment (Helpman et al., 2008; Melitz, 2003). Hence, firms with larger capital investment need to focus more on expanding into foreign markets than firm with smaller capital investments. These conditions indicate that the effect of capital investment on the level of internationalization might be stronger for firms with larger capital investments.

**Hypothesis 2.** The effect of capital investment on the level of internationalization is stronger for larger sized companies. Firm size is an indicator of the resources owned by the company
Large firm may have excess resources power that can be used to expand internationally, which is consistent with the view that internationalization is a strategy of growth. Ownership source of power and high competence by large firms enable them to compete as effectively in markets outside of the home country. Consequently, these firms have an advantageous position to undertake required investments (Agarwal & Ramaswami, 1992). Therefore, the result of internationalization might be better for larger-sized firms.

Hypothesis 3. The effect of capital investment on the level of internationalization is more pronounced in large firms due to competitive advantage in the domestic market.

III. METHODOLOGY

A. Data Sources

The scope of this research included active firms listed in the stock exchanges of ASEAN-5 countries, which are Indonesia, Malaysia, Philippines, Thailand, and Singapore. Sample selection is determined based on the data availability in the given period: in 2009-2018. Financial firms are excluded from the sample because they tend to have higher level of leverage, strict regulations, and different accounting standards and risk management than companies in other industries. After collecting and cleaning up the data, the number of samples used for the study was 302 companies. All sample data were obtained from Thomson Reuters Datastream.

B. Estimation Techniques

This study analyzed the effect of capital investment on the firm level of internationalization in ASEAN-5 and its influence on certain conditions and characteristics, such as larger capital investment, and larger firm size. To resolve the problem of high variability of the dependent variable (FSTS), heteroscedasticity, and autocorrelation in the sample, we used a panel data analysis with Generalized Least Square estimator (Gujarati, 2004). The following regression model was run for the full sample:

\[
\text{INTER}_{i,t} = \beta_0 + \beta_1 \text{CAPEXTA}_{i,t-1} + \beta_2 Y_{i,t-1} + \beta_3 Z_{i,t-1} + \epsilon_{i,t} \quad (1)
\]

\[
\text{INTER}_{i,t} = \beta_0 + \beta_1 \text{CAPEXTA}_{i,t-1} + \beta_2 Y_{i,t-1} + \beta_3 Z_{i,t-1} + \epsilon_{i,t} \quad (2)
\]

where \( \text{INTER}_{i,t} \) is a measure of internationalization for firm \( i \) at time \( t \). We use the ratio of foreign sales to total sales as a percentage to measure the firm’s internationalization. Firm’s capital investment (CAPEXTA) is measured by the ratio of capital expenditure to total assets for firm \( i \) at time \( t \). \( Y_{i,t} \) represents all control variables for firm-specific characteristics, and \( Z_{i,t} \) in model (2) represents the squared term of CAPEXTA to test the impact in larger capital investment, and the interaction term between capital investment and the large firm size (HTA) dummy variable. HTA takes a value of one for observations whose book value of total assets is larger than the cross-sectional median of the industry level, and zero otherwise. All explanatory variables were measured with a lag value of one period to resolve the endogeneity problem and establish causal relationships. All nominal values are deflated by the US GDP deflation at the constant 2010 price. Variables’ description and summary are shown in Table 1.

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Proxy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internationalization (FSTS)</td>
<td>Foreign sales to total sales</td>
</tr>
<tr>
<td>Capital Investment (CAPEXTA)</td>
<td>Capital expenditure to total assets</td>
</tr>
<tr>
<td>Firm Size (LNTA)</td>
<td>Natural logarithm of total assets</td>
</tr>
<tr>
<td>Fixed Asset Ratio (PPETA)</td>
<td>Net property, plant, and equipment to total assets</td>
</tr>
<tr>
<td>Firm Performance (ROA)</td>
<td>EBIT to total assets</td>
</tr>
<tr>
<td>Gross Profit Margin (GPM)</td>
<td>Gross profit to total sales</td>
</tr>
<tr>
<td>Leverage (LEV)</td>
<td>Total debt to total assets</td>
</tr>
<tr>
<td>Sales Growth (SGROWTH)</td>
<td>First difference in the natural logarithm of total sales</td>
</tr>
<tr>
<td>Operating Risk (RISK)</td>
<td>Five-year rolling standard deviation of ROA</td>
</tr>
</tbody>
</table>
IV. RESULTS AND DISCUSSION

The number of panel data used in this study was 3020 observations, consisting of cross-section data of 302 companies listed on the stock exchanges of ASEAN-5 countries. The company’s capital investment) has a sample average value of 4.8%. This showed that the level of capital investment made by ASEAN companies is still relatively low on average. The maximum value of capital investment in the sample is 35.8% owned by Polyplex Corporation Ltd. Thailand in 2013.

Second, The level of internationalization of the company as measured by the FSTS (foreign sales to total sales) variable has a sample average value of 46.1%. This shows that the level of internationalization of ASEAN companies on average is relatively low.

Third, company size as measured by the LNTA variable (natural logarithm of total assets in USD) has a sample mean value of 12.98. The maximum value of company size in the sample is 18.15 owned by conglomerate Jardine Matheson Group from Singapore in 2018.

Meanwhile, the minimum value of company size in the sample is 8.9 owned by technology company Simat Technology Plc. from Thailand in 2009. A high value of company size is generally owned by companies from Singapore. Fourth, the level of corporate leverage as measured by the LEV variable (total debt to total assets ratio) has a sample average value of 23% which indicates that the average company in the sample has a reasonable leverage value. The maximum value of the leverage level in the sample is 95% owned by technology company Samat Digital Plc. from Thailand in 2018.

Effect of capital investment on the level of internationalization. The regression results in column 1 (Table 3) showed that capital investment negatively affected a firm’s level of internationalization. There are several reasons for this negative effect. There is a substantial time lag from the time of investment to the time when additional foreign sales are generated from the investment. Although the regression included the time-lag of one-year period, but in reality the time-lag may be longer than one year. It is also supported by the Uppsala Model where firms’ success of their overseas performance is determined by their success in the domestic market (Johanson & Vahlne, 1977). This is because the large competitive advantages that companies have in their home countries (Vithessonthi, 2017). Therefore, if the company does not immediately launch the new product that are associated with capital investment in foreign market, the relationship of capital investment and the level of internationalization is negative (Vithessonthi, 2017). In addition, based on descriptive statistics, the capital expenditure /asset ratio (CE-AR) in each ASEAN-5 country showed that Indonesia had a CE-AR of (0.0554), Philippines (0.0526), Thailand (0.0538), Malaysia (0.0495), and for Singapore (0.0412). However, the value of those capital expenditure asset ratio does not align with the level of internationalization which showed the rank of Singapore as the biggest country of internationalization in ASEAN with the value of 0.566.

Furthermore, this study predicted that firms can utilize the economies of scale from internationalization to create capital investment.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Obs.</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSTS</td>
<td>0.4612</td>
<td>3020</td>
<td>0.3124</td>
<td>0.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>CAPEXTA</td>
<td>0.0479</td>
<td>3020</td>
<td>0.0431</td>
<td>0.0000</td>
<td>0.3584</td>
</tr>
<tr>
<td>LNTA</td>
<td>12.9825</td>
<td>3020</td>
<td>1.6806</td>
<td>8.9036</td>
<td>18.1585</td>
</tr>
<tr>
<td>LEV</td>
<td>0.2296</td>
<td>3020</td>
<td>0.1773</td>
<td>0.0000</td>
<td>0.9485</td>
</tr>
<tr>
<td>PPETA</td>
<td>0.3295</td>
<td>3020</td>
<td>0.1970</td>
<td>0.0024</td>
<td>0.8822</td>
</tr>
<tr>
<td>ROA</td>
<td>0.0838</td>
<td>3020</td>
<td>0.0861</td>
<td>-0.4172</td>
<td>0.6734</td>
</tr>
<tr>
<td>GPM</td>
<td>0.2371</td>
<td>3020</td>
<td>0.1538</td>
<td>-0.4845</td>
<td>0.9513</td>
</tr>
<tr>
<td>RISK</td>
<td>0.0417</td>
<td>3020</td>
<td>0.0375</td>
<td>0.0015</td>
<td>0.3509</td>
</tr>
<tr>
<td>SGROWTH</td>
<td>0.0135</td>
<td>3020</td>
<td>0.2351</td>
<td>-1.4059</td>
<td>1.3148</td>
</tr>
</tbody>
</table>
efficiency. However, ASEAN-5 were still in their early stage of internationalization, so that the level of satisfactory economies of scale has not occurred (Contractor et al., 2003). In the early stage, firms should spend a significant amount of learning costs because of the liabilities of foreignness, which is unfavorable for firms’ competitiveness. Moreover, the inefficiency of ASEAN-5 logistics system makes the cost of transportation higher and therefore the product less competitive in the foreign market (Tongzon, 2011).

The obstacles might make the substantial time lags of foreign sales that are generated from the investment of capital to be longer. Meanwhile, companies in emerging foreign markets had a strong root in their domestic markets which are usually large (Prahalad, 2005), and mean they might have the competitive advantage in their country. ASEAN is a region with a third largest population in the world and large domestic markets. Thus, if the risks of doing internationalization on investment capital are too high, it may affect firm’s level of survival, or exit from the foreign market (Denk et al., 2012) and chose to focus on domestic sales.

Effect of capital investment on the level on internationalization for firms with larger capital investment. Although the result obtained was that capital investment negatively affected the level of internationalization, we want to test whether this relationship was non-linear. Positive value of squared term of CAPEXTA in column 2 (Table 3) showed that the relationship between capital investment and the level of internationalization is non-linear or U-shaped. This means the negative effect of capital investment on the level of internationalization becomes smaller at higher level of capital investment. According to Vithessonthi (2017), relative to firms with larger amount of capital investment, companies with smaller capital investment pay less attention to international market. A large capital investment can be a big push for firms to distribute their production cost over a large number of units. Thus, firms with larger capital investment pay more attention to international market because their capability and productivity are much higher (Aw et al., 2000), so the lag time of one year period between capital investment and international sales is likely to be smaller. This non-linear relationship also indicates that the capital investment made by

<table>
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<th>Tabel 3.</th>
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<tr>
<td>Regression Results of Hypothesis 1-2-3</td>
</tr>
<tr>
<td><strong>Dependent Variable</strong></td>
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<td></td>
</tr>
<tr>
<td>Independent Variable</td>
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<tr>
<td>CONSTANTa</td>
</tr>
<tr>
<td>CAPEXTA</td>
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<tr>
<td>LNTA</td>
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<tr>
<td>LEV</td>
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<tr>
<td>PPETA</td>
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<td>ROA</td>
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<td>GPM</td>
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<td>RISK</td>
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<td>SGROWTH</td>
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<tr>
<td>CAPEXTASQ</td>
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<tr>
<td>CAPEXTAxHTA</td>
</tr>
<tr>
<td>Obs.</td>
</tr>
<tr>
<td>Prob&gt;chi2</td>
</tr>
</tbody>
</table>

*Significant at 10%
**Significant at 5%
***Significant at 1%
a company will increase its internationalization level after reaching the lowest optimal point of required capital investment. Meaning, companies will benefit from internationalization if their optimal capital investment reached that lowest optimal point (Aw et al. 2000).

To test whether the effect of capital investment to the level of internationalization is different for larger firms, we included the interaction term between capital investment and the large firm size (HTA) dummy variable. However, the result shown in column 3 (Table 3) indicated the relation is not statistically significant. Thus, the negative effect of capital investment on the internationalization level did not differ for the larger firms. Companies may have competitive advantages other than the size of their assets, which can strengthen the relationship of capital investment and internationalization level. Advantage such as technology advances, global networking, and innovation (Knight & Cavusgil, 2004) are needed to maximize the utilization of capital investment. These advantages are not owned only by large firms. Regardless of size, small firms also have these advantages as their strength in order to be able to continue to compete in domestic market (Boermans & Roelfsema, 2016). Previous stated factors also support companies to compete in the push and pull markets, however some companies tend to create their niche markets which had a slight difference from a push one.

V. CONCLUSION

The capital investment made by ASEAN-5 firms had a negative effect on internationalization level. It is because there is a substantial time lag between the time of investment and the time additional foreign sales are generated from the investment. Moreover, ASEAN-5 is still in their early stage of internationalization, so there were obstacles that can increase these time lags. ASEAN-5 firms still have to face significant costs and risks when entering a foreign market, due to liabilities of foreignness and inefficient logistic industry.

However, this study found that large capital investment showeds the significant effect of capital investment on the level of internationalization, so that the relationship between the two is nonlinear or U-shaped. This study also found that company size did not shows the relationship between capital investment and the level of internationalization, so that the negative effect of capital investment on the level of internationalization did not differ in large companies.

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