

# **Capital Structure Adjustment Speed in Indonesia Health Sector Companies**

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## **Abstract**

This study contributes to the existing literature on capital structure by providing evidence regarding the existence of a target capital structure, the estimated speed of adjustment, and the factors influencing it. The concept of speed adjustment begins with dynamic trade-off theory with the aim that the company achieves optimal leverage targets. This paper aims to examine the determinants of capital structure and speed of adjustment in Indonesia's Health Sector companies. For this purpose, we use the Generalized Method of Moments estimation technique. The results of this study indicate that the health sector companies adjust their capital structure towards the optimal capital structure with an average adjustment period of 1.17 years. The test results also show that distance and financial deficit/surplus did not significantly affect the speed of adjustment of the company's capital structure.

## **Keywords**

Determinants of Capital Structure, Optimal Capital Structure, Generalized Method of Moments, Speed of Adjustment.

## **1. Introduction**

The Investment Coordinating Board (BKPM) states that the health sector is a sector that can survive unfavorable economic conditions. The COVID-19 pandemic around the world has made people more aware of the importance of medicines, medical devices, and health workers. The pandemic has driven many countries, including Indonesia, to invest more in the health sector. Since the COVID-19 cases were found in Indonesia, the demand for vitamins, supplements, and medicines has increased to the high-demand category. This moment is an evaluation material for Indonesia to continue strengthening the national health industry (BKPM, 2020).

The Central Statistics Agency (BPS) noted that the health services sector and social activities contributed the most to the Gross Domestic Product (GDP) amount at constant prices. Health services and social activities grew by 16.54% in the fourth quarter of 2020 compared to the fourth quarter of 2019, which was only 7.82% (year on year/yoy). In addition, on a quarter-to-quarter basis, this sector recorded a growth of 5.78% in the fourth quarter of 2020. This indicates that this industry continues to grow during the pandemic even though the Indonesian economy has contracted since the second quarter of 2020 (databoks, 2021).

The current COVID-19 pandemic also affects the company's performance and value, one of which is the capital structure. Optimizing the capital structure requires appropriate funding because it can affect the company's performance (Agustin et al., 2021). Capital structure for the health sector itself is the relative use of debt and equity to support assets and is seen as a strategic component of their financial plan (Wheeler et al., 2000).

The company's financial management has three important decisions: investment, funding, and dividend. These decisions are important because they affect the value of the company. An investment decision is a decision to invest in an asset that will yield higher than the specified minimum yield. A financing decision is about how the company financed its previous investment decisions through debt or equity. A dividend decision is how the company will decide the part of the profits to be paid to shareholders, which affects the internal funds' availability. The composition of debt and equity in the company determines the company's capital structure and ultimately affects the value of the company (Memon et al., 2021).

In the corporate finance literature, the mix of long-term debt and equity financing is known as capital structure. The debate about the optimal capital structure of financial and non-financial companies is still unconvincing. Capital structure management is highly needed so that the source of funding used by the company can positively impact the value of the company itself. Each model regarding capital structure has its own risks and problems (Prihadi, 2019).

Previous research on the target company's optimal capital structure, and the speed of capital structure adjustment has been carried out by Hovakimian et al., (2004), Flannery and Rangan (2006), Drobetz and Wanzenried (2006), Aybar-Arias et al., (2012), Lemma and Negash (2014), Naveed et al., (2015), Nehrebecka & Dzik-Walczak (2018), Memon et al., (2021), and Soekarno et al., (2021).

## **2. Literature Review**

### **2.1 Capital Structure Theory**

The capital structure is the optimal combination of long-term debt and equity and is also an important company policy dealing with company activities, debt, and equity (Saif-Alyousfi, 2020). The ideal mix of debt and equity for a firm is one that maximizes firm value and minimizes the overall cost of capital (Sheikh & Qureshi, 2017). The company's capital structure explains three basic theories: trade-off theory, pecking order theory, and market timing theory (Cahyaningdyah, 2017).

The trade-off theory suggests that capital structure is controlled by balancing the profits and costs of debt. Initially, the trade-off theory suggests that the ideal level of debt is reached when the marginal benefits of financing debt are equal to the marginal costs. Debt benefits include tax deductions on interest expense and reduced equity agency costs stemming from excess free cash flow. The trade-off hypothesis proposes that all firms have an ideal level of debt. This theory does not consider information asymmetry, agency costs or pecking orders. In general, when a business needs capital, the first thing to consider is the trade-off between the benefits and costs of using debt (Saif-Alyousfi, 2020).

The pecking order theory states that companies like internal finance (funding from the company's operating results in the form of profit balance). If external financing is required, the company will issue the safest securities first, starting with debt, then followed by securities with characteristic options, otherwise, enough new shares will be issued (Karlina, 2021).

The market timing theory states that companies choose the right time for the issuance (buyback) of securities based on the period of overvaluation (undervaluation) of their shares. Companies will issue equity when their shares are valued higher than their fundamental value (overvaluation) and will repurchase when the fundamental value is lower than the share price (Cahyaningdyah, 2017). Market timing theory emerged based on the fact that corporate financial

arrangements change over time and that market efficiency can have important implications for corporate finance (Allini et al., 2018). The market timing theory has two assumptions. First, high market valuations, measured by the market-to-book ratio, reduce leverage in the short term. Second, a high market-weighted average ratio of external finance to books is associated with lower leverage in the long run. The relationship between these two results must be that the effect of the market-to-book ratio, as a proxy for market timing theory, is very persistent in determining capital structure decisions (El-manakhyy et al., 2018).

This study uses leverage as the dependent variable to calculate the optimal capital structure and six independent variables as factors that are predicted to have an influence on the company's leverage, namely profitability (Nehrebecka & Dzik-Walczak (2018); Kewal (2019); Memon et al., (2021) and Soekarno et al., (2021)), firm size (Nehrebecka & Dzik-Walczak (2018); Kewal (2019); Memon et al., (2021) and Soekarno et al., (2021)), tangibility (Nehrebecka & Dzik-Walczak (2018); Kewal (2019); Memon et al., (2021) and Soekarno et al., (2021)), liquidity (Mahakud & Mukherjee (2011); Haron et al., (2013); Kewal (2019) and Soekarno et al., (2021)), asset utilization (Kewal (2019) and Nosita (2012)), and business risk (Kewal (2019) and Nosita (2012)). Those variables have been used by most of the previous studies as factors to determine the capital structure in the research model, e.g., Kewal (2019) and Nosita (2012).

### 2.3 Speed of Adjustment

The speed of adjustment is the time it takes the company to adjust its capital structure towards the optimal capital structure (Robiatun & Witiastuti, 2021). The concept of speed of adjustment begins with a dynamic trade off that is made to make the company achieve the optimal leverage target based on calculating the benefits of tax savings with debt and bankruptcy costs (Supra et al. 2016).

The concept of speed adjustment is rooted in dynamic trade-off theory. The speed of adjustment depends on two important factors, namely: the cost of the adjustment and the potential benefits of the adjustment. Adjustments occur only when the potential benefits outweigh the adjustment's costs (Ghose, 2017). The concept of speed of adjustment is based on the fact that the company has a target capital structure for the upcoming year and is trying to achieve the target; the rate at which it strives to achieve this target is called the speed of adjustment (Supra et al., 2016).

The variables that affect the speed of adjustment based on Kewal (2019) and Nosita (2012) are distance and financial deficit/surplus. In this case, distance is the difference or distance between the company's optimal capital structure and its actual capital structure.

### 2.3 Research Model

The objects of this study are 21 health sector companies listed on the Indonesia Stock Exchange (IDX) that provide research data from 2016 to 2020. The dependent variables of this study are capital structure and speed of adjustment, while the independent variables include profitability, firm size, tangibility, liquidity, asset utilization, and business risk. Variable data for this study were collected from the annual reports of 21 healthcare businesses listed on the Indonesia Stock Exchange for the period 2016-2020. (Figure 1)

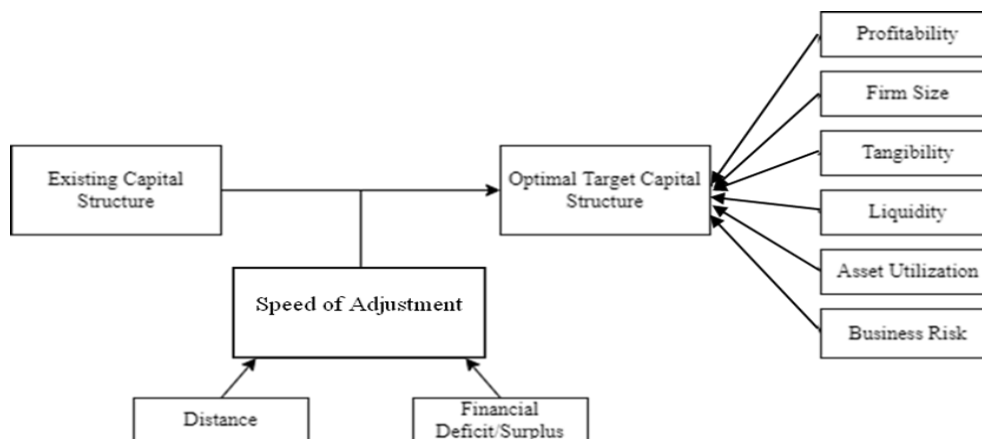


Figure 1. Research Model

The hypotheses of this study can be formulated as follows:

- H1: There is a speed of adjustment of the actual capital structure towards the optimal capital structure of the health sector companies listed on the Indonesia Stock Exchange for the period 2016-2020.
- H2: There is an effect of distance on the speed of adjustment partially to the health care companies listed on the Indonesia Stock Exchange for the period 2016-2020.
- H3: There is an effect of financial deficit/surplus on the speed of adjustment partially to the health sector companies listed on the Indonesia Stock Exchange for the period 2016-2020.

### 3. Methodology

#### 3.1 Population and Sample

The population in this study are all health sector companies listed on the Indonesia Stock Exchange for the period 2016-2020, a total of 21 companies. The sampling technique in this study uses purposive sampling with criteria of health sector companies listed on the Indonesia Stock Exchange in the period 2016-2020 and health sector companies that publish complete financial statements in the period 2016-2020. By applying these criteria, 14 companies were used as research samples.

#### 3.2 Data Analysis Technique

The data analysis techniques used in this research are descriptive statistical analysis and panel data regression analysis. For panel data regression, this study uses two regressions where the first regression is carried out to calculate the company's optimal leverage. Optimal leverage of the company can be done by calculating the function of the variables that affect capital structure decisions. Cited from Kewal's research (2019), the company's optimal leverage can be formulated as follows:

$$L^*_{i,t} = \lambda_0 + \lambda_1 TAN_{i,t} + \lambda_2 SIZE_{i,t} + \lambda_3 PROF_{i,t} + \lambda_4 LIQ_{i,t} + \lambda_5 AU_{i,t} + \lambda_6 RISK_{i,t} + \varepsilon_{i,t} \quad (3.1)$$

Where:

- $L^*_{i,t}$  = optimal leverage of company i at time t
- $TAN_{i,t}$  = Tangibility of company i at time t
- $SIZE_{i,t}$  = Firm Size of company i at time t
- $PROF_{i,t}$  = profitability of company i at time t
- $LIQ_{i,t}$  = Liquidity of company i at time t
- $AU_{i,t}$  = Asset Utilization of company i at time t
- $RISK_{i,t}$  = Business Risk of company i at time t

By including the variables that affect the capital structure above, the equation used to test whether the company makes adjustments to its capital structure can be formulated as follows:

$$L_{i,t} = (1 - \delta_{i,t})L_{i,t-1} + \delta_{i,t} \sum_{j=1}^k \lambda_j X_{j,i,t} + \varepsilon_{i,t} \quad (3.1)$$

Hypothesis testing uses the estimation of  $\delta_{i,t}$  as an indicator of capital structure adjustment. The capital structure adjustment indicator follows the criteria if  $\delta = 1$  then  $L_{i,t} = L^*_{i,t}$ . The actual debt is the same as the optimal debt level. If  $\delta < 1$ , it means that the adjustment made is still below the optimal debt level. However, if  $\delta > 1$ , it means that the company has over-adjusted (Kewal, 2019).

This study uses distance and financial deficit/surplus variables that affect capital structure adjustment speed. Thus, the equation used for speed adjustment is:

$$\delta_{i,t} = \beta_0 + \beta_1 DIST_{i,t} + \beta_2 FD_{i,t} + \varepsilon_{i,t} \quad (3.2)$$

Where:

$\delta_{i,t}$  = adjustment of capital structure

$DIST_{i,t}$  = Distance between actual and optimal capital structure of firm i at time t

$FD_{i,t}$  = Financial condition (deficit/surplus) of company i at time t

After two regressions were performed, the next step was hypothesis testing. Hypothesis testing was conducted to explain the influence and direction of the independent variable on the dependent variable. This test uses a statistical t test, F statistic, and is accompanied by a coefficient of determination.

Hypothesis testing with statistical t-test is carried out to assess p-value, whether it is smaller than the specified significance level, or t-count is greater than t-table, meaning that the independent variable affects some of the dependent variables (Sisworo, 2011). Statistical F test or simultaneous test is if F-count value is greater than the F-table value, the independent variable has a simultaneous significant effect on the dependent variable (Suliyanto, 2011). The coefficient of determination or R2 is used to measure how well the predictor of the regression equation is used. If the research equation is a perfect predictor, then the coefficient of determination is 1. If the equation can only predict 50% of the variation, then the coefficient of determination is 0.5. Meanwhile, the coefficient of determination of 0 indicates that the equation does not predict any variation (Saunders et al., 2019).

## 4. Result and Discussion

### 4.1 Result

#### 4.1.1 Statistic Descriptive

The results of descriptive statistical tests of the dependent variables, leverage (Lev) and the independent variable, are as follows: *Profitability (ROA)*, *Firm Size (FS)*, *Tangibility (TAN)*, *Liquidity (LIQ)*, *Asset Utilization (AU)*, dan *Business Risk (RISK)*. (Table 1 & 2)

Table 1. Statistic Descriptive of Capital Structure Determinant

	Lev	ROA	FS	TAN	LIQ	AU	RISK
Mean	0,373	0,096	28,609	0,388	2,932	0,901	0,0059
Median	0,319	0,077	28,449	0,342	2,586	0,913	-0,083
Minimum	0,077	0	25,796	0,148	0,390	0,237	-8,515
Maximum	0,832	0,921	30,747	0,923	11,094	1,810	27,571
Std. Dev.	0,195	0,117	1,148	0,186	2,109	0,382	4,0721
Observations	70	70	70	70	70	70	70

The dependent variable on the determination of capital structure is leverage. This variable has a minimum value of 0.077, obtained by PT. Industri Jamu dan Farmasi Sido Muncul Tbk. (SIDO) in 2016. This value shows that the smallest total assets are financed by corporate debt of PT. SIDO is 7.7%. Meanwhile, the maximum value of 0.832 was obtained by PT. Organon Pharma Indonesia Tbk. (SCPI). This value indicates that the largest total assets financed by SCPI's corporate debt is 87.2%. This variable's average or mean value is 0.373, indicating the net assets financed by the health sector's trade debts are still low. In addition, this also indicates that the total company debt is lower than the total assets. On other words, the financial condition of the health sector companies is still relatively good, with an average use of external funds of 37.3%.

Table 2. Statistic Descriptive Speed of Adjustment Determinant

	SOA	Distance	FD/S
Mean	0.151438	-0.022423	-3.48E+11
Median	0.044939	0.049703	-1.72E+09
Minimum	-0.584521	-0.673053	-2.54E+12
Maximum	1.492343	0.347545	2.59E+11
Std. Dev.	0.410349	0.290483	6.66E+12

The dependent variable of the speed of adjustment in health sector companies listed on the IDX for the period 2016-2020 has an average value of 0.151438, indicating that companies need an average of 1.17 years (1/0.848562) to adjust their capital structure towards the optimal capital structure.

#### 4.1.2 Panel Data Regression

Panel data analysis was conducted to see the effect of the distance and financial deficit/surplus variables on the speed of adjustment. The first-panel data regression analysis was conducted to determine the company's optimal debt. Table 3 below shows the results of the first-panel data regression.

Table 3. Panel Regression for Capital Structure Determinant

Dependent Variable: LEV				
Method: Panel Least Squares				
Date: 03/04/22 Time: 10:12				
Sample: 2016 2020				
Periods included: 5				
Cross-sections included: 14				
Total panel (balanced) observations: 70				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.291571	1.814427	-1.814111	0.0757
ROA	0.227203	0.108007	2.103607	0.0405
FS	0.133853	0.062006	2.158714	0.0357
TAN	-0.235450	0.214409	-1.098136	0.2774
LIQ	-0.013380	0.009405	-1.422663	0.1610
AU	-0.061183	0.087990	-0.695341	0.4901
RISK	-0.002584	0.002336	-1.106474	0.2738
Effects Specification				
Cross-section fixed (dummy variables)				
Root MSE	0.062537	R-squared	0.895806	
Mean dependent var	0.373900	Adjusted R-squared	0.856212	
S.D. dependent var	0.195137	S.E. of regression	0.073995	
Akaike info criterion	-2.134685	Sum squared resid	0.273762	
Schwarz criterion	-1.492258	Log likelihood	94.71397	
Hannan-Quinn criter.	-1.879505	F-statistic	22.62492	
Durbin-Watson stat	0.995275	Prob(F-statistic)	0.000000	

Table 3 shows the panel data regression equation obtained as follows:

$$L^*_{i,t} = -3.291571 - 0.235450TAN + 0.133853SIZE + 0.227203PROF - 0.013380LIQ - 0.061183AU - 0.002584RISK + \varepsilon_{i,t}$$

By using the regression model generated from Table 4, the value of the target capital structure of each company and the year was used to test whether the health sector companies listed on the IDX in 2016-2020 adjust their capital structure towards the optimal capital structure. The estimated value of the adjustment speed over a period of time can be obtained by the formula of  $1 - \delta_{i,t}$ .

This study assumed that distance and financial deficit/surplus variables affect capital structure adjustment speed. Based on the results of the second regression, the equation used for speed adjustment is:

Table 4. Panel Regression for Speed of Adjustment Determinant

Dependent Variable: SOA  
 Method: Panel EGLS (Cross-section random effects)  
 Date: 06/04/22 Time: 12:18  
 Sample: 2016 2020  
 Periods included: 5  
 Cross-sections included: 13  
 Total panel (unbalanced) observations: 53  
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.199005	0.102866	1.934607	0.0587
DISTANCE	0.562705	0.295365	1.905113	0.0625
FD_FS	1.12E-13	1.30E-13	0.863555	0.3920

Effects Specification		S.D.	Rho
Cross-section random		0.289060	0.4624
Idiosyncratic random		0.311700	0.5376

Weighted Statistics			
Root MSE	0.303103	R-squared	0.068744
Mean dependent var	0.070616	Adjusted R-squared	0.031493
S.D. dependent var	0.317257	S.E. of regression	0.312063
Sum squared resid	4.869174	F-statistic	1.845455
Durbin-Watson stat	1.153449	Prob(F-statistic)	0.168551

Unweighted Statistics			
R-squared	0.018480	Mean dependent var	0.151438
Sum squared resid	8.594266	Durbin-Watson stat	0.653499

Table 4 shows the panel data regression equation form obtained as follows:

$$\delta_{i,t} = 0.199005 + 0.562705DIST_{i,t} + 1.12E - 13FD_{i,t} + \varepsilon_{i,t}$$

### 4.1.3 Hypothesis Testing

#### A. Hypothesis Testing for Determinants of Capital Structure

Table 5 shows the result of a partial test to see the significance of the effect of the independent variable on the dependent variables.

Table 5. Results of Partial Test on the Determinant of Capital Structure

	Coefficient	t-Statistic	Prob.
C	-3.291571	-1.814111	0.0757
ROA	0.227203	2.103607	0.0405
FS	0.133853	2.158714	0.0357
TAN	-0.235450	-1.098136	0.2774
LIQ	-0.013380	-1.422663	0.1610
AU	-0.061183	-0.695341	0.4901
RISK	-0.002584	-1.106474	0.2738

Table 5 shows that the firm size and profitability variables have p-value < (5%), meaning that H<sub>0</sub> is rejected. Meanwhile, the variables of tangibility, liquidity, asset utilization, and business risk have p-value > (5%), meaning that H<sub>0</sub> is accepted. Thus, it can be concluded that only firm size and tangibility variables partially influence the leverage variable.

For the simultaneous test or F-test, the p-value is  $0.00 < 0.05$ , meaning that all independent variables simultaneously affect Leverage. Table 3 shows that the adjusted R-squared value is 0.856212, meaning that the variables of tangibility, firm size, profitability, liquidity, asset utilization, and business risk have an effect on leverage of 85%.

### **B. Hypothesis Testing for Determinant of the Speed of Adjustment**

Table 6 shows the results of the partial test to see the significance of the effect of the Distance and financial deficit/surplus variables on the speed of adjustment.

Table 6. Results of Partial Test for Determinant of the Speed of Adjustment

	<b>t-Statistic</b>	<b>Prob.</b>
<b>C</b>	1.934607	0.0587
<b>Distance (X<sub>1</sub>)</b>	1.905113	0.0625
<b>Financial D/S (X<sub>1</sub>)</b>	0.863555	0.3920

Table 6 shows that p-values on the distance and financial deficit/surplus variables are greater than  $= 0.05$ , then  $H_0$  is accepted and  $H_a$  is rejected. Thus, it can be stated that the distance variable and the financial deficit/surplus have no effect on the Speed of Adjustment.

For the simultaneous test or F test, the p-value is  $0.00 > 0.05$ , meaning there is no significant effect between Distance (X<sub>1</sub>) and financial deficit/surplus (X<sub>2</sub>) on the Speed of Adjustment (Y).

### **4.2 Discussion**

The study results show that distance did not significantly affect the speed of adjustment. This means that the distance between the actual capital structure and the optimal capital structure has no effect on the length of time required by the company to adjust the capital structure towards its optimal capital structure (Kewal, 2019). This study's results align with previous research conducted by Kewal (2019) which states that each company has a different speed of adjustment. The difference is caused by differences in the characteristics and environment of the company that cause structural adjustment costs. If the cost of adjusting the structure is high, the company will be slower in adjusting its capital structure, and vice versa. Therefore, the company does not adjust the capital structure only because of the large distance between the actual and optimal capital structures. However, Aisjah & Rahman (2019) showed different results, stating that distance negatively affects the speed of adjustment. Adjustment of capital structure will slow down if the gap between actual and optimal capital structure is large enough. This can be caused by consideration of the adjustment costs faced by the company, so the company is reluctant to adjust immediately.

The results showed that there was no significant effect between the company's financial deficit/surplus on the speed of adjustment of its capital structure. The company's deficit or surplus condition is identified through the company's cash flows by adding up dividends, net investment, changes in net working capital, and operating cash flows after interest and taxes.

The study results are in line with previous research by Kewal (2019), stating that the company's financial condition did not affect the speed of adjusting its capital structure. The company data show behavior that is not following the existing theory. Some companies with a financial surplus adjust their capital structure by increasing it in the upcoming year. and vice versa, companies with a financial deficit adjust by lowering their capital structure in the upcoming year. For example, PT. Sarana Meditama Metropolitan Tbk in 2016 had a leverage ratio of 41% and experienced a financial deficit in 2017. However, the leverage ratio decreased to 39% (still above the company's optimal leverage). An example of the opposite behavior is PT. Merek Tbk in 2017 had a leverage ratio of 27% and experienced a financial surplus in 2018. However, the leverage ratio increased to 59% (still above the company's optimal leverage).

Although, the study results are not in line with research by Maulana & Yusuf (2019), which shows that Financial Deficit has a positive effect on the speed of adjustment. This is because when a company has a financial deficit or debt below the target, as well as a financial surplus or debt above the target, many adjustments will occur.



## 6. Conclusion

There is a capital structure adjustment towards the optimal capital structure for the health sector companies listed on the Indonesia Stock Exchange for the period 2016-2020 with an average speed of adjustment of 0.848562 (1 - 151438). This value shows that the average company in the health sector takes about 1.17 years (1/0.848562) to adjust the optimal capital structure, with adjustments that are still below the optimal debt value.

Distance from the actual capital structure to the optimal capital structure proved to not affect the speed of capital structure adjustment in health sector companies listed on the Indonesia Stock Exchange for the period 2016-2020. Financial deficit/surplus proved to not affect the speed of capital structure adjustment in health sector companies listed on the Indonesia Stock Exchange for the period 2016-2020.

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