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Attribution Analyses of Value Premium in the Japanese Stock Market

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Contents

Abstract

This paper describes and discusses attribution analyses of value premium. Following Bourguinion and de Jong (2006), the author firstly breaks down the book-to-price ratio into two components: 'a transitory component' and 'a structural component', and then investigates their contribution to value premium. As a result, it is seen that value premium mainly stems from the transitory component. Moreover, the author finds that changes in stock prices contribute more to value premium than changes in equities.

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1. Value Premium

It is well known in the stock market that value stocks generally exceed market performance in the long run regardless of whether domestic or foreign. Although there are various definitions of value stocks, PER (price earnings ratio) and PBR (price book-value ratio) are considered major criteria. In particular, PBR is regarded not only as an investment criterion but also as a criterion for value stocks and growth stocks (style benchmarks) in recent years, which reflects the fact that the considerable role it plays in the stock portfolio management of institutional investors has become well recognized.

Various explanations have been offered about the background of what is called 'value premium' whereby return on low PBR (high B/P) stocks exceeds that of high PBR (low B/P) stocks. Fama and French [1993] considered stocks with high B/P as high risk and accordingly, high return is sought by investors. That is, B/P is a proxy variable for risk premium. On the other hand, Lakonishok and Shleifer and Vishny [1994] concluded that the relatively high return from high B/P stocks results from an investor's overreaction to past performance of a company. Moreover, Daniel and Titman [1997] assumed that characteristics peculiar to each stock cause value premium. In contrast to various previous analyses, Bourguignon and de Jong [2006] attempted attribution analyses of value premium, paying attention to the definition of the value index itself. They split the B/P indicator into a 'structural component' computed from the long-term mean value of B/P and a 'transitory component' expressed by transitory deviation from the structural component indicator, and verified which factor generated commonly known value premium. As a result, it was found that the higher the structural component, the higher a stock's B/P is in the long run, in other words, the stock is undervalued. Moreover, it means that when a stock where the value of the transitory component index is high, present B/P value is relatively lower than the structural value. As a result of verification, it is shown that a large portion of value premium is explained by the transitory component rather than the structural component.

In this paper, we first tried to apply the analysis of Bourguignon and de Jong [2006] to all stocks listed on the Japanese market[1]. As a result, it was found that much of the value premium in the Japanese market is explained by the transitory component. This result was thus mostly in agreement with the result Bourguignon and de Jong [2006] obtained from analyzing the MSCI Japan Index as their universe. As they pointed out, this result differs from the idea of Daniel and Titman [1997] that a characteristic peculiar to a certain stock is the source of value premium. Moreover, this result is different from the interpretation of Fama and French［1993］that since stocks which are in a critical (distress) situation are high risk and their B/Ps are at a high level structurally, risk premium causes subsequent high price returns. In other words, much of the value premium is occasioned by mean reversion from the temporary deviation of stock price.

[1] *Stocks listed on the Tokyo Stock Exchange, Osaka Securities Exchange, Nagoya Stock Exchange, Fukuoka Securities Exchange, Sapporo Securities Exchange, and JASDAQ.*

Then, we conducted attribution analyses with respect to the transitory component. That is, we carried out multple regressions using the long-term average stock price for every stock (hereinafter referred to as stock price change) and deviation from the long-term average of book value (hereinafter referred to as book value change) as independent variables, and using a factor return due to the transitory component among returns on an individual stock as the dependent variable. What was obtained from regression was that although a part of transitory value premium was explained by book value change, a large portion was explained by stock price change. This suggests that much of value premium is due to the trend of mean reversion of stock price, i.e., the return reversal effect. Furthermore, though effects are weak, it is very interesting that, different from the result in the report of Daniel and Titman [2006], there is almost no relationship between financial performance, such as the growth of book value, and a future stock price return is also obtained.

Section 2 surveys some of the discussion regarding value premium in the US. Then, in Section 3, we applied Bourguignon and de Jong [2006] to the Japanese market and analyzed the results as to whether the relatively high performance of high B/P stocks compared with low B/P stocks depends on the structural component or the transitory component. Further analysis is undertaken in Section 4 as to whether transitory value premium is occasioned by stock price change or book value change, in other words, the fundamental growth of a company (growth of book value), is introduced. Finally, Section 5 considers value premium based on a series of analyses.

2. Past Research

Fama and French [1993] conducted factor analysis regarding the high performance of value stocks and concluded that risk premium for distressed companies was the factor behind such performance.

On the other hand, Daniel and Titman [1997] considered value premium to be based on the fundamental characteristics of a company, and more like risk premium. They concluded that the relatively high performance of value stocks resulted from the overreaction of market participants to information brought to the market.

In a recent work, Daniel and Titman [2006] tried to divide the return information of value stocks into tangible information and intangible information, and analyzed which factor has explanatory power for price return. Tangible information is commonly and publicly known information including financial growth, etc., and intangible information refers to influence other than that due to visible information about return on individual stocks. As a result, they concluded that although risk premium is not the cause of value premium, intangible information is important and occasions value premium.

On the other hand, Bourguignon and de Jong [2003] conducted analysis from a different angle, concluding that growth investors invest in the essential growth of a company, and value investors look at stock market evaluation differences as an arbitrage opportunity. According to this report, as a result of examining annual returns from 1992 to 2001 of the MSCI growth index and value index for six major stock markets around the

world, it was confirmed that the value index outperformed the growth index in all markets except the US, but when stocks which migrated to the value index from the growth index for a short period and vice versa were removed, while the performance of the growth index improved, performance of the value index worsened. That is, the performance gap between the value index and the growth index was influenced by short-term style change. On the basis of the results, they tried to classify stocks into two categories respectively configured by independent different standards, without regarding growth and value as opposing concepts. Of the two standards, one is the index generally used in the case of selecting value and glowth, such as PER and PBR, and the other is a time axis. The basis of the standard which regards low PBR stocks as value stocks and high PBR stocks as growth stocks is very ambiguous and, when PBR is used simply, it is hard to distinguish between a stock where PBR is at a structurally high (or low) level over a certain period and a stock which went up (or declined) temporarily. After pointing out that there was the possibility of mixing up structural characteristics of a certain stock with characteristics which appear with the passage of time using Fama and French [1993] HML factor analysis, they adopted the difference between the most recent B/P and past average B/P as a value factor. They divided all stocks into about three quintiles, and calculated each quantile's return. As a result, it was confirmed that the average return of a quintile with a plus difference between the most recent B/P and a past average B/P exceeded the average return of a quintile with a minus difference. On the other hand, when the same analysis was conducted based on the past mean B/P, return gap among quintiles was not really evident. The authors said value premium is generated when B/P of a stock temporarily diverges from the structural level due to a certain factor and then returns to the previous level rather than originating in company characteristics. In response, Bourguignon and de Jong [2006] decomposed B/P into average value (structural component) and temporary deviation (transitory component) from mean value over a long period of time, and considered them as risk factors and implemented global analysis through multiple regression to ascertain from which of the two components value premium is generated. The analysis conducted in Bourguignon and de Jong [2006] is as follows:

They decomposed a value factor as per equation (1). BP_{it} is where a book value at *t* time of stock *i* is divided by market cap at *t* time of stock *i*. Moreover, $\overline{BP}_{it}$ is the long-term mean value of BP_{it} calculated at the time of stock *i*, and expresses the structural component, where $\overline{BP}_{it}$ is average value during the past 60 months for every stock.

$$BP_{it} = \overline{BP}_{it} + \left(BP_{it} - \overline{BP}_{it}\right), \qquad (1)$$

From equation (1), BP_{it} is decomposed into $\overline{BP}_{it}$ which is a structural component value and $BP_{it} - \overline{BP}_{it}$ which is shown by $\overline{BP}_{it}$'s deviation from BP_{it} at time *t*. Hereinafter, $BP_{it} - \overline{BP}_{it}$ is called a transitory component. From these components, verification was effected as to how stock price return is explained, as follows. First, equation (2) is introduced with respect to stock price return.

$$R_{it} = \alpha_i + \beta_i M_t + \gamma_i V_t + \varepsilon_{it}, \qquad (2)$$

where R_{it} is stock price return at time *t* for stock *i*. Moreover, β_i is the market beta of stock *i* to market return, M_t is excess market return at time *t*, γ_i is the stock's exposure to the value factor, V_t is factor return at time *t*, α_i is an intercept term obtained as a result of regression, and ε_{it} is a residual term obtained by regression. Furthermore, the value factor term in equation (2) is transformed as equation (3), and replaced with a regression equation which regards exposure of the value factor expressed by BP_{it} as observed.

$$R_{it} = \delta_i + \beta_i M_t + BP_{it} V_t + \eta_{it} \qquad (3)$$

Equation (3) is a two-factor model representing return on an individual stock by market and value factor. If the right-hand side $BP_{it}V_t$ of equation (3) is decomposed into the above-mentioned structural component and transitory component, it becomes equation (4). Equation (4) is a three-factor model for decomposing individual stock returns into a structural component factor and a transitory component factor.

$$R_{it} = \phi_i + \beta_i M_t + \overline{BP}_{it} V_t^{struc} + \left(BP_{it} - \overline{BP}_{it}\right) V_t^{trans} + \theta_{it} \qquad (4)$$

V_t^{struc} represents the factor return of the structural component and V_t^{trans} represents the factor return of the transitory component. V_t^{struc} and V_t^{trans} are obtained as a result of cross-sectional regression in equation (4). Moreover, θ_{it} is the residual obtained as a result of regression, and ϕ_i is an intercept term.

As a result of this analysis, it was found that only the transitory component of the two risk factors which constitute value stocks can receive premium in return for risk.

Based on such past verification, this paper develops discussion based on Bourguignon and de Jong [2006] with respect to value premium in the Japanese market. Specifically, their analysis (which presupposes that most value premium is due to the transitory component) is applied to a wider universe of the Japanese market to conduct attribution analyses of value premium and then further analyses especially focusing on transitory components.

3. Attribution Analyses of Value Premium

3.1. Analytical methods

Bourguignon and de Jong [2006] applied analysis to the Japanese market, but it is difficult to say whether the MSCI Japan Index, which is their univers, is sufficiently broad. Hence, we use all stocks listed on the Japanese market as our universe. However, financial stocks, such as banks, insurers, and securities houses, were excluded. The analysis period is from March 1991 to January 2007 and analysis was based on most

recent information compared with Bourguignon and de Jong [2006]. Nikkei NEEDS financial data was used. For book value which constitutes B/P, that for two months previous is used[2]. In addition, analytical procedures were as in previous sections, and calculations for each factor based on Bourguignon and de Jong [2006].

Moreover, in calculating regression results and correlation value, factor value for each stock was standardized cross-sectionally and used.

3.2. Analysis

The statistical value of V_t which is a factor return of BP_{it} from March 1991 to January 2007 as calculated by equation (3) is displayed in **Exhibit 1**. **Exhibit 2** shows *t*-value (absolute value) of V_t. Furthermore, **Exhibit 3** shows the cumulative value of V_t. Excluding events, such as the IT bubble period in 1999, as presented in **Exhibit 1** and **Exhibit 3**, value premium has been continuously visible in the Japanese market. Also statistically, significance can be found in almost all periods.

Exhibit 1 Statistical Value of V_t

Factor return statistical value of B/P					
By period	Monthly average	Median	Maximum value	Minimum value	Standard deviation
03/1991-12/1993	0.007	0.005	0.031	-0.007	0.008
01/1994-12/1996	0.006	0.005	0.016	-0.004	0.006
01/1997-12/1999	0.001	-0.001	0.080	-0.027	0.018
01/2000-12/2002	0.009	0.010	0.038	-0.026	0.013
01/2003-12/2005	0.003	0.003	0.031	-0.027	0.013
01/2006-01/2007	0.006	0.003	0.028	-0.009	0.011
Entire period					
03/1991 to 01/2007	0.005	0.005	0.080	-0.027	0.012

Source: Prepared by author (same hereafter).

[2] *For example, in calculating B/P, if the stock price is as of end-January 2007, then book value published by November 2006 is used.*

Exhibit 2 *t*-value (absolute value) of V_t

Factor return *t*-value (absolute value) statistic of B/P				
By period	Monthly average	Median	Maximum value	Minimum value
03/1991-12/1993	3.46	2.63	11.56	0.06
01/1994-12/1996	3.42	2.91	8.62	0.24
01/1997-12/1999	3.96	3.27	18.53	0.37
01/2000-12/2002	5.86	5.59	17.45	0.16
01/2003-12/2005	4.93	4.50	16.00	0.01
01/2006-01/2007	6.16	4.71	15.81	1.36
Entire period				
03/1991-01/2007	4.46	3.62	18.53	0.01

Exhibit 3 Time Series Transition of V_t (cumulative)

Factor return transition of B/P

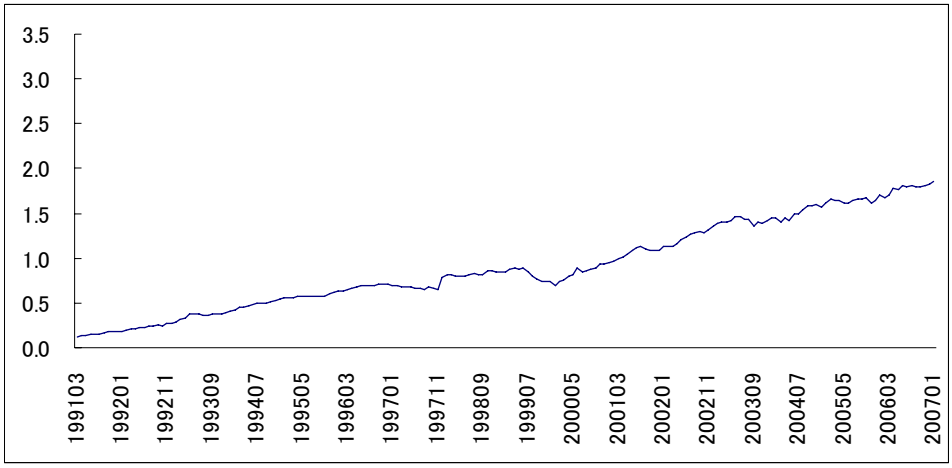


Exhibit 4 shows the results of cross-sectional analysis after seperating B/P into structural and transitory components according to equation (4) for the period from March 1991 to January 2007. The statistical value of V_t^{struc} and V_t^{trans} by period is shown in **Exhibit 4**. **Exhibit 5** shows the *t*-value (absolute value) of V_t^{struc} and V_t^{trans} by period, and **Exhibit 6** is a graph showing the monthly accumulated value of two factor returns. V_t^{struc} is a factor return of the structural component. When V_t^{struc} has a high value, a stock which has a larger structural component, i.e., a stock which has a relatively low price for a long time, gives a higher return than the average market return. On the other hand, V_t^{trans} is a factor return of the transitory

component. If B/P at a certain time exhibits large positive deviation from the long-term average, i.e., a relatively cheap stock compared to its past average has higher capital return than other stocks, V_t^{trans} is a positive value. V_t^{struc} was basically leveling off through the analysis period. On the other hand, V_t^{trans} remained stable at plus throughout. The magnitude of V_t^{trans} exceeded the factor returns of V_t shown in **Exhibit 3**, i.e., B/P before broken down into two factors. Therefore, it was shown that the relatively high return of high BP stocks in the Japanese market originates in the transitory component which is $BP_{it} - \overline{BP}_{it}$ showing the deviation from the mean, rather than the structural component which is $\overline{BP}_{it}$ of long-term mean value. This point agrees with the analysis of Bourguignon and de Jong [2006].

This paper carried out analyses by breaking B/P into a transitory component and a structural component. Therefore, analysis of B/P for every time is effected, and the cut-off time of periods for analysis differs from that of Daniel and Titman [1997], where characteristics peculiar to a stock are regarded as a factor explaining value premium. However, as our analytical result suggests, it seems better to regard temporary deviations of B/P as the factor generating value premium rather than stock specific characteristics.

Moreover, in **Exhibit 6**, almost all V_t, the factor return of B/P, consists of the transitory component, and therefore the obtained result is slightly different from the interpretation in Fama and French [1993]. That is, although Fama and French [1993] suggested the possibility that the return of a high B/P stock would become high ex post with distress as a factor, it was confirmed by sorting the factors that value premium is occasioned by temporary valuation changes.

Exhibit 4 Statistical Values of V_t^{struc} : Structural Component Factor and V_t^{trans} : Transitory Component Factor

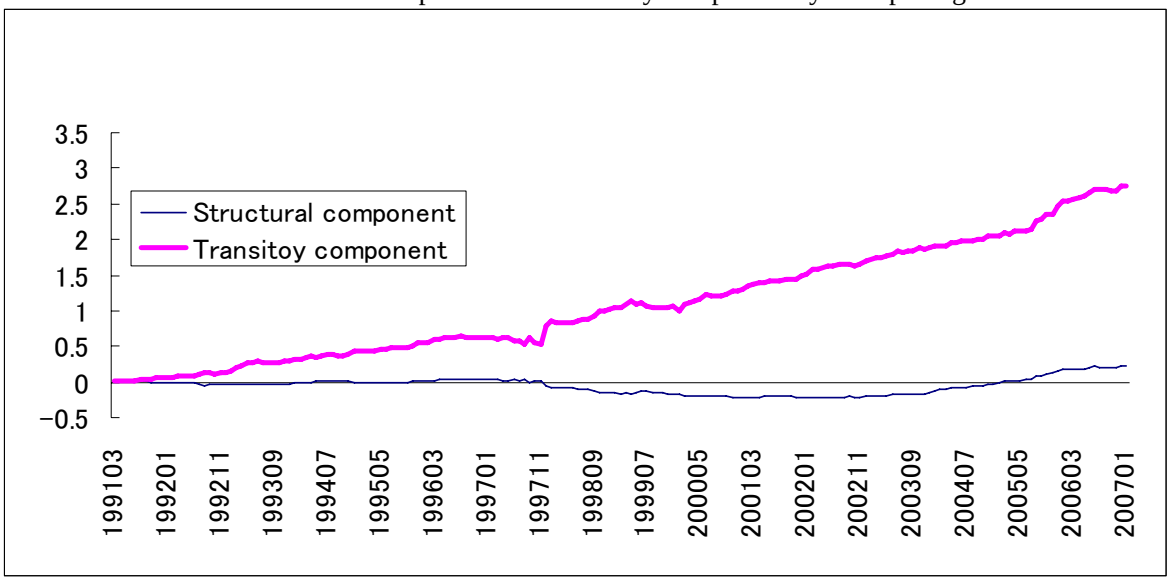
	Structural Component Factor					Transitory Component Factor				
	Monthly average	Median	Maximum value	Minimum value	Standard deviation	Monthly average	Median	Maximum Value	Minimum value	Standard deviation
By period										
03/1991-12/1993	0.002	0.001	0.027	−0.020	0.012	0.010	0.010	0.034	−0.007	0.011
01/1994-12/1996	0.002	0.001	0.022	−0.014	0.009	0.008	0.007	0.031	−0.016	0.009
01/1997-12/1999	−0.007	−0.006	0.033	−0.065	0.019	0.015	0.006	0.171	−0.035	0.036
01/2000-12/2002	0.002	0.002	0.029	−0.019	0.010	0.009	0.008	0.041	−0.015	0.013
01/2003-12/2005	0.009	0.008	0.032	−0.005	0.008	0.004	0.004	0.025	−0.013	0.008
01/2006-01/2007	0.002	0.002	0.012	−0.004	0.006	0.001	−0.002	0.015	−0.014	0.009
Entire period										
03/1991-01/2007	0.002	0.002	0.033	−0.065	0.013	0.009	0.006	0.171	−0.035	0.018

Exhibit 5 *t*-value (absolute value) Statistical of V_t^{struc} : Structural Component Factor and V_t^{trans} : Transitory Component Factor

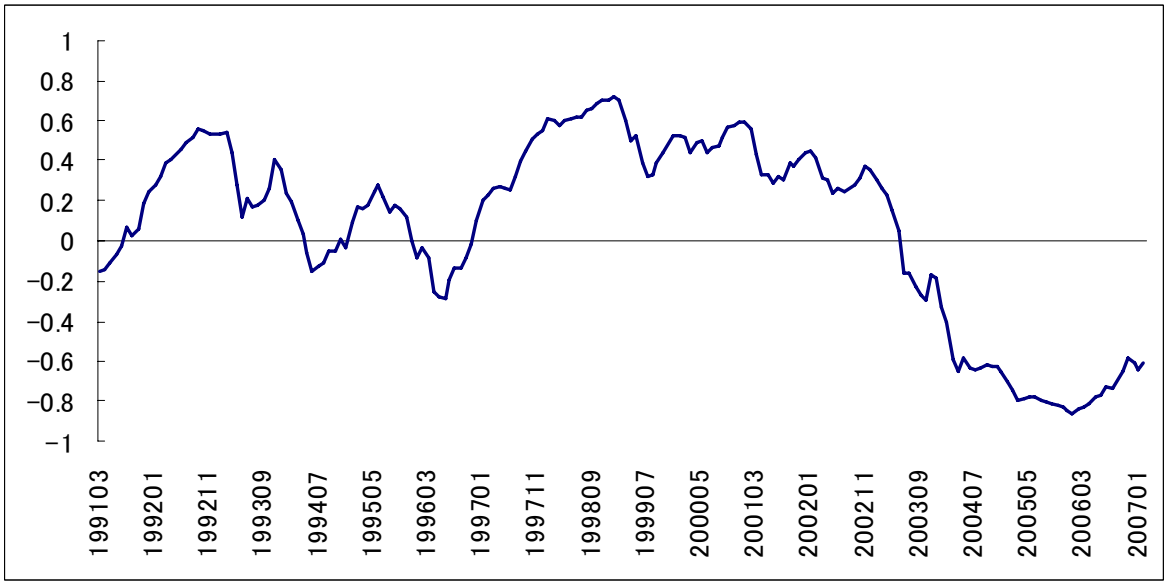
	Structural Component Factor				Transitory Component Factor			
By period	Monthly average	Median	Maximum value	Minimum value	Monthly average	Median	Maximum value	Minimum value
03/1991-12/1993	3.28	2.88	9.22	0.11	4.72	4.13	13.48	0.16
01/1994-12/1996	3.17	2.93	9.95	0.03	4.68	5.19	13.58	0.24
01/1997-12/1999	4.41	4.12	17.73	0.42	5.71	3.06	29.59	0.05
01/2000-12/2002	3.42	2.68	14.67	0.04	5.32	4.93	13.38	0.04
01/2003-12/2005	4.08	3.63	10.54	0.02	2.93	2.36	9.85	0.06
01/2006-01/2007	3.38	2.79	6.70	1.03	4.30	4.35	9.29	0.89
Entire period								
03/1991-01/2007	3.66	3.09	17.73	0.02	4.64	3.61	29.59	0.04

Exhibit 6 Historical Trends of V_t^{struc} and V_t^{trans}

Factor return of structural component and transitory component by multiple regression



Fugure 7　Correlation of Structural Component and Transitory Component
Changes in the cross-sectional correlation of structural component and transitory component



In addition, the cross-sectional relation of the structural component and transitory component at each time point from March 1991 to January 2007 for the whole universe was investigated. The results are shown in **Exhibit 7**. Although broadly distributed from －0.8 to 0.7 depending on time, particular periodicity was not seen. On the other hand, and particularly after 2002, when high B/P stocks exhibited relatively high return, the positive correlation value between the structural component and transitory component deteriorated, and was found to have an inverse correlation in 2003 and afterwards. This result is interpreted as follows. In a market phase when high B/P stocks are continuously sought, their stock price rises, so a trend for B/P calculated at a certain time to become lower than structural B/P is witnessed. Then, since $\overline{BP}_{it}$ indicating structural BP is positive while $BP_{it} - \overline{BP}_{it}$ shows negative values for many high B/P stocks, the positive correlation between those two deteriorates from a cross-sectional aspect. The inverse correlation in 2003 and afterwards is considered to be because of the phenomenon contrary to what had happened to high B/P stocks happened to low B/P stocks. In addition to the median of the transitory component factor in **Exhibit 4** slightly decreasing to －0.002, the cross-sectional inverse correlation value shrank, as seen in **Exhibit 7**, in 2006 and afterwards. This tendency can be regarded as a reaction of value premium going too far in 2002 and afterwards.

4. Attribution Analyses of Value Premium of the Transitory Component

4.1 Analytical methods

According to Daniel and Titman [2006], a large part of value premium is occasioned by intangible information, and there is almost no relationship between financial performance, such as the growth possibility of book value, and future stock price return. If this result is also applicable to the Japanese market, a large part of returns from the transitory component are presumed to be explained by a change in stock price.

Thus, for this paper, we closely examined the transitory component index $BP_{it} - \overline{BP}_{it}$ of Bourguignon and de Jong [2006], dividing value premium from the transitory component into stock price changes and book value changes, and analyzing to see which factor generated the effect. Specifically, we analyzed using multiple regression by introducing equation (5) to see whether the factor returns of the transitory component are produced by deviation from the long-term mean of book value B_i or of stock price P_i.When computing $\overline{P}_{it}$, the adjusted closing price[3] was used. The universe for the analysis and analysis periods are the same as in the previous section.

$$\left(BP_{it} - \overline{BP}_{it}\right) V_t^{trans} = \mu_i - \frac{P_{it} - \overline{P}_{it}}{\overline{P}_{it}} V_t^{P\_trans} + \frac{B_{it} - \overline{B}_{it}}{\overline{B}_{it}} V_t^{B\_trans} + \kappa_{it} \qquad (5)$$

P_{it} is the price of stock *i* at time point *t*, B_{it} is the book value of stock *i* at time point *t*, $\overline{P}_{it}$ is the long-term average stock price of stock *i* calculated at time point *t*, $\overline{B}_{it}$ is the long-term average book value of stock *i* calculated at time point *t*. $V_t^{P\_trans}$ and $V_t^{B\_trans}$, which are obtained as a result of regression, show factor returns, respectively. κ_{it} is a residual in expression and μ_i is a section clause.
Long-term average values, such as $\overline{B}_{it}$ and $\overline{P}_{it}$, are calculated by the average of the past 60 months for each stock as in the analysis in **3.2.** Here, $-\left(P_{it} - \overline{P}_{it}\right)/\overline{P}_{it}$ is defined as a stock price change, and $\left(B_{it} - \overline{B}_{it}\right)/\overline{B}_{it}$ a book value change. '—' (minus) is placed before $-\left(P_{it} - \overline{P}_{it}\right)/\overline{P}_{it}$ to give a positive value to stocks whose price returns depreciated greatly from the long-term average. In other words, $V_t^{P\_trans}$ is positive when the stock price return of a stock with relatively substantial low stock price to the long-term average price mean shows a high value in the future.

4.2. Results of analysis

Analysis was carried out according to equation (5). The left side of equation (5), $\left(BP_{it} - \overline{BP}_{it}\right) V_t^{trans}$ is a product of $BP_{it} - \overline{BP}_{it}$, a factor exposure of the transitory component, and its factor return V_t^{trans}. Taking this as a dependent variable, multiple regression was effected with explanatory variables $-\left(P_{it} - \overline{P}_{it}\right)/\overline{P}_{it}$, defined as a stock price change, and $\left(B_{it} - \overline{B}_{it}\right)/\overline{B}_{it}$, defined as a book value change.

The results of analysis are shown in **Exhibits 8**, **9**, and **Exhibit 10**. **Exhibit 8** gives statistical values of factor returns from stock price changes $V_t^{P\_trans}$ and from book value changes $V_t^{B\_trans}$ for each period. **Exhibit 9** gives *t*-value (absolute value) statistics of $V_t^{P\_trans}$ and $V_t^{B\_trans}$. **Exhibit 10** shows historical trends of $V_t^{P\_trans}$, $V_t^{B\_trans}$, and V_t^{trans} in cumulative values. V_t^{trans} used the factor returns shown in **Exhibit 4**.

[3] *Adjusted closing price is a closing price before split implementation adjusted to the price after split in order to see a stock price continuously before and after the stock split.*

Exhibit 8 Statistical Values of $V_t^{B\_trans}$: Book Value Change Factor and $V_t^{P\_trans}$: Stock Price Factor

	Book Value Change Factor					Stock Price Factor				
	Monthly average	Median	Maximum value	Minimum value	Standard deviation	Monthly average	Median	Maximum value	Minimum value	Standard deviation
By period										
03/1991-12/1993	0.003	0.003	0.017	-0.004	0.004	0.006	0.005	0.026	-0.009	0.008
01/1994-12/1996	0.003	0.003	0.018	-0.004	0.004	0.004	0.004	0.026	-0.006	0.006
01/1997-12/1999	0.001	0.000	0.025	-0.011	0.007	0.005	0.000	0.115	-0.029	0.024
01/2000-12/2002	0.003	0.003	0.013	-0.014	0.005	0.005	0.006	0.032	-0.031	0.010
01/2003-12/2005	0.003	0.002	0.019	-0.003	0.005	0.005	0.003	0.027	-0.004	0.007
01/2006-01/2007	0.003	0.002	0.009	-0.001	0.004	0.004	0.003	0.012	-0.002	0.005
Entire period										
03/1991-01/2007	0.003	0.002	0.025	-0.014	0.005	0.005	0.004	0.115	-0.031	0.012

Exhibit 9 *t*-value (absolute value) Statistic of $V_t^{B\_trans}$: Book Value Variable Factors and $V_t^{P\_trans}$: Stock Price Variable Factors

	Book Value Change Factor				Stock Price Factor			
	Monthly average	Median	Maximum value	Minimum value	Monthly average	Median	Maximum value	Minimum value
By period								
03/1991-12/1993	22.84	21.70	38.92	11.57	42.25	42.68	57.69	31.07
01/1994-12/1996	39.04	38.85	51.86	27.23	55.70	56.35	71.67	36.93
01/1997-12/1999	23.26	21.47	35.26	10.66	52.56	50.89	69.13	40.77
01/2000-12/2002	25.00	24.54	34.02	17.32	45.27	45.02	51.62	35.75
01/2003-12/2005	33.46	34.86	39.40	18.84	52.02	54.23	59.04	40.22
01/2006-01/2007	31.47	30.44	36.36	28.64	42.69	43.15	45.33	39.39
Entire period								
03/1991-01/2007	28.97	30.44	51.86	10.66	49.21	48.84	71.67	31.07

As a result of analysis, it was confirmed that $V_t^{P\_trans}$ and $V_t^{B\_trans}$ contribute to a certain degree as factors of V_t^{trans}, and it turned out that $V_t^{P\_trans}$ contributed relatively greatly. That is, it was confirmed by analysis that most of the factor returns of the transitory component are explained by a change in stock price

expressed by $-\left(P_{it}-\overline{P}_{it}\right)/\overline{P}_{it}$. On the other hand, it turned out that book value changes expressed by $\left(B_{it}-\overline{B}_{it}\right)/\overline{B}_{it}$ also cause a certain level of return. Analysis thus showed that a large portion of the factor returns of the transitory component can be explained by changes in stock price. Therefore, it turned out that value premium in the Japanese market is largely effected by the return reversal trend of stock price evaluated by the B/P valuation index. Moreover, as shown in **Exhibit 10**, the part explained by book value changes is also seen continuously from a historical viewpoint. Therefore, although analytical methods differ, the possibility that the trend in the Japanese market is different from the report of Daniel and Titman [2006], which presupposed that the relation between financial performance, such as the growth of book value, and a future return hardly exist, was suggested.

Exhibit 10 Historical Trends of V_t^{trans}, $V_t^{B\_trans}$, and $V_t^{P\_trans}$ (cumulative)
Factor return of book value change and stock price change
by multiple regression variable values

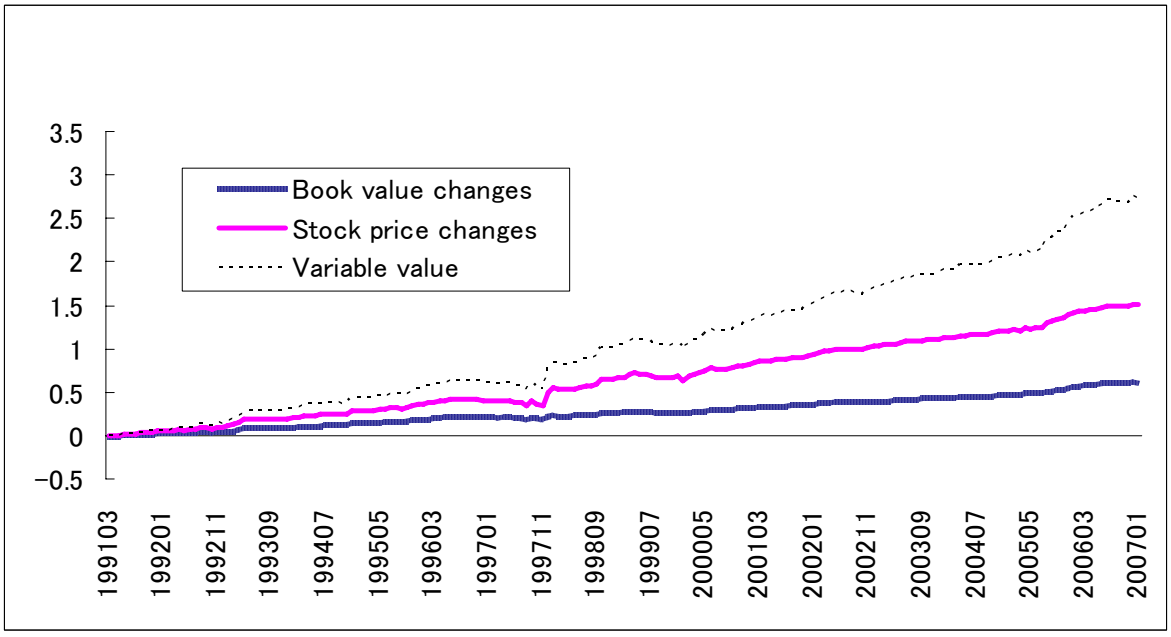
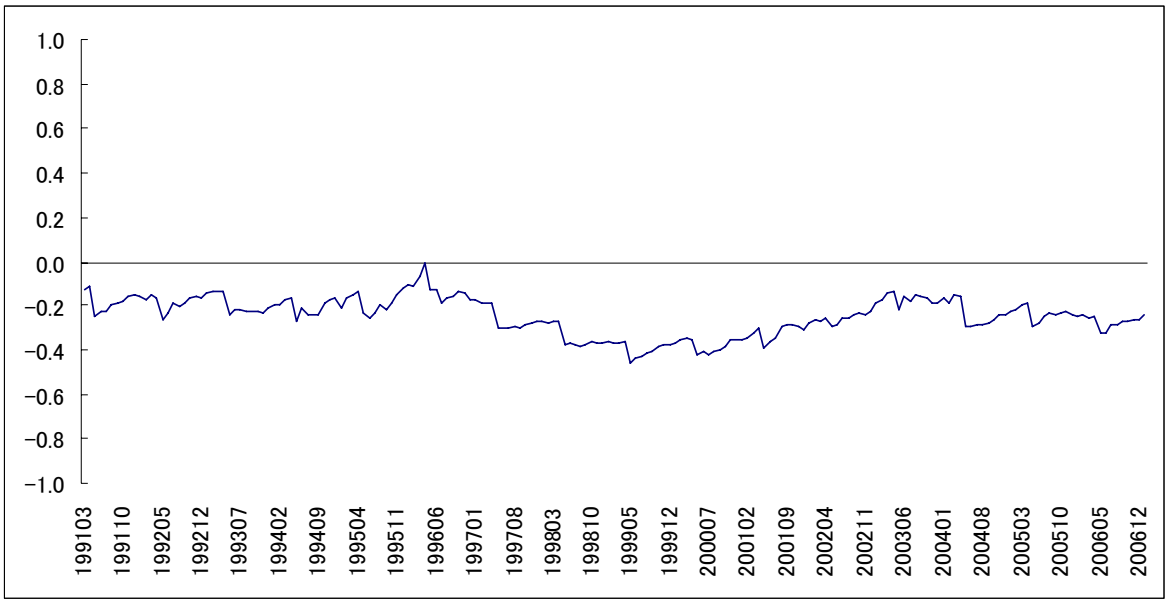


Exhibit 11　Correlation of Change Factors of Stock Price and Book Value



As in the same manner of **3.2**, the cross-sectional correlation of the stock price change factor and book value change factor at each time point from March 1991 to January 2007 is shown in **Exhibit 11**. Correlation values remain stable at about －0.25 as an average level. Although a certain level of inverse correlation is always seen, it is thought that there is no need to be concerned about multicollinearity.

5. Conclusion

Analysis in this paper shows that the transitory component accounts for a majority of the factors in value premium. Moreover, it was shown that the structural component only has low explanatory power as a factor behind value premium. That is, even for a relatively cheap stock with a structurally large B/P value, if there is no variability in the level, it is thought it can be continuously neglected by the market**.** Moreover, when a market temporarily evaluates a certain stock excessively or too little, value premium is generated in the process in which the evaluation returns to the structural level. This result is considered to be different from the conclusion of Daniel and Titman [1997] that value premium is related to the fundamental characteristics of the business, as Bourguignon and de Jong [2006] pointed out.

Furthermore, it also differs a little from the conclusion that value premium is a risk premium, which Fama and French [1993] pointed out. It was shown that it reflects return reversal characteristics of stock price in a relatively short period.

Because, when it is assumed that value premium is a risk premium for a distressed company, the effect is

expected to appear significantly in the structural component, which reflects long-term company characteristics, rather than the transitory component. On the other hand, Fama and French [2007] say in a recent report that the high return of high B/P stocks is brought about by 'convergence' of B/P. I believe this conclusion is close to the conclusion reached in this paper.

In order to check this point, in this paper transitory component was divided into book value changes (deviation from long-term average book value) and stock price changes (deviation from the long-term average stock price), and attribution analyses using multiple regressions effected. The results confirmed that a portion of return obtained by the transitory value premium was explained by book value changes. Considering many companies grow book value gradually at each account settlement, the book value change factor can be seen as what reflects the degree of book value growth rather than a temporary deviation value. Therefore, it is thought that financial growth and future stock price return have a certain relevance.

On the other hand, it is also confirmed that much of the transitory value premium originates in stock price changes. It was thus suggested that value premium has a considerable mean reversion tendency, so-called return reversal.

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