Investment Earnings as a Countercyclical Tool: Evidence from U.S. State Governments

Sungchan Kim[1], Soyoung Park[2]*

[1]Local Finance Research Center, Korea Research Institute for Local Administration, Wonju, South Korea, [2]Fiscal Information Research Center, Korea Public Finance Information Service, Seoul, South Korea. *Email: soyoungp2@gmail.com

ABSTRACT

Budget stabilization funds (BSFs) play an important role as a safety device for countercyclical fiscal capacity in the United States. However, while BSFs take on a kind of allowance for a contingent budget deficit, state governments can't expect high return on the money because the BSFs should be used immediately. They can alternatively provide profits from short-term investment earnings with safety and liquidity. Thus, the purpose of this study is to examine whether investment earnings decrease the volatility of total general fund expenditures (GFEs) and improve budget performance in state government. By using ordinary least square regression models with a paneled data set ranging from 2002 to 2013, this study concludes that investment earnings increase the volatility of GFEs, while the generally accepted countercyclical tools such as BSFs and unreserved and undesignated balances reduce it. In addition, it also finds that investment earnings are a source of better performance in state government.

Keywords: Investment Earning, Budget Performance, Countercyclical Fiscal Capacity, Budget Stabilization Fund
JEL Classifications: E6, H6

1. INTRODUCTION

A growing body of literature has been striving to identify an empirical link between the financial management of state government and its performance. Especially from the condition of financial perspective, the performance of state government can be realized in contingency. Since the recession in the 1980s, public budgeting has been criticized as a complex process that is difficult to control (Caiden, 1981), and in order to prepare for the bust years, sometimes referred to as a "Rainy day," public budgeting in state government felt the need to protect the general budgeting system, such as reserving funds for a rainy day or some other forms of expenditure cuts. As Wildavsky (1978) explained, the ultimate goal of public budgeting is most often to maintain a balanced annual budget consistently. Thus, safety devices for a balanced budget, such as rainy day funds as captured by the budget stabilization funds (BSFs), were created.

Moreover, BSFs play an important role as a safety device for countercyclical fiscal capacity (CCFC) in state government. State governments in the United States often face a lack of flexibility

when they face budgetary deficits when compared with the federal government and are therefore more exposed to the probability of an unbalanced annual budget. In the case of "rainy days," they realize the necessity of fiscal reserves to cushion the effects of shocks in bust years and to avoid severe budget cuts during these lean periods. Thus, according to regulations, state governments are strongly advised to reserve a certain proportion of budgetary surplus as BSFs. As described in Figure 1, they are a part of CCFC, which means state governments save their surplus during economic booms, and they spend the saved reserves during rainy days, or in bust years. BSFs, or unreserved and undesignated balances (UUBs), play an important role as a CCFC to absorb budgetary shocks.

However, while BSFs take on a kind of allowance for a contingent budget deficit, state governments can't expect high return on the money, because the BSFs should be used immediately when state governments face budget deficit in a certain fiscal year. On the other hand, state governments have alternatives with a certain amount of such moneys. They can provide profits from short-term investments with safety and liquidity, such as state or local

Figure 1: Current trends of budget stabilization fund, investment earnings, and unreserved and undesignated balances (expressed in million dollars)
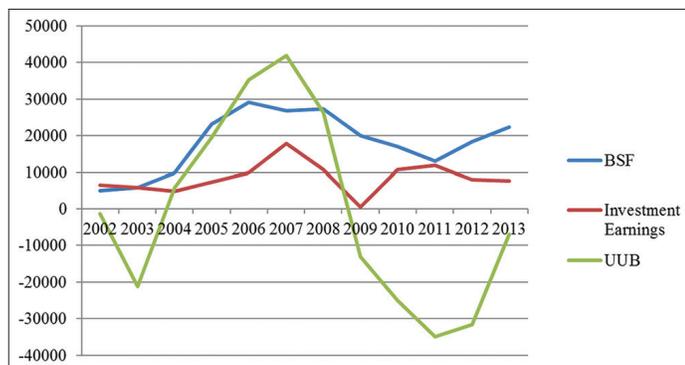
government bonds, CDs, or they can buy properties by means of rent or interest. Practically, they invest a certain amount of money in bonds and properties, which generate investment earnings in each year. Moreover, BSFs have many budgetary or legal limitations in terms of their usage, but the amount of the budget which provides investment earnings is not as strictly regulated as BSFs, or rainy day funds. Thus, if they can save enough money as an investment reserve, and if they demonstrate their will to overcome political allurement, such investments present a strong alternative for BSFs with less strict legal restrictions. In this paper, we examine whether investment earnings may be a strong indicator of whether state government is well-prepared for economic downturns and better budgetary performance when compared with BSFs or UUBs.

The article is organized as follows. The next section, literature review, examines BSFs and their role in maintaining CCFC. In addition, we provide additional detail about such investments as an alternative to BSFs, or rainy day funds. The fourth section, data and methodology, offers empirical analyses in order to compare the effect of investment earnings with rainy day funds as an aspect of BSFs. The last section, conclusion, offers results regarding whether investment earnings may be a strong countercyclical fiscal tool, as well as some policy recommendations.

2. LITERATURE REVIEW

2.1. CCFC

Economic stabilization is one of the critical functions of government (Keynes, 1936; Musgrave, 1959). In order to keep state government stable at all times, the original purpose of reserves was to accumulate reserves during economic booms so that state government is prepared for economic downturns and is able to release such reserves. This reserve also attains the budgetary goal of a balanced annual budget by reserving and spending based on economic condition. The budget or financial management corresponds to a CCFC, and in the end, state government maintains budgetary stability as well (Hou and Moynihan, 2008). The source of a CCFC consists of money from various fields. First of all, the general fund balance (GFB) generally contributes as the main source of a CCFC, because by definition, it is the aggregate of all of the money available in the GFB (Ruppel, 2004) and indicates

how much money is accumulated in the general fund, even though the usage of funds can differ from its limitations or designations. The second main source, on the other hand, is fund surplus in the current year. The surplus shows how much the reserve of the general government fund increased in the current year. Thus, a CCFC for the following year can be realized based on two main sources of the general government fund.

In terms of government spending, state government is more likely to spend more in an economic downturn, because it has to boost the economy by pumping money into various fields, such as investments in infrastructure or social expenditures. As a consequence of sustaining the economy through Keynesian budgetary policy (Romer, 1993), state government may face more serious budget deficits especially in bust years. Thus, in this case, financial reserves in bust years are one of the important factors in the performance of state government, and both the Government Finance Officers Association and the National Association of State Budget Officers (NASBO) recognize the importance of securing sufficient financial reserves for rainy days (Hou and Moynihan, 2008).

The problem of financial management is not so much of whether management is necessary or not, but, rather, "when, where, and how" (Boyne et al., 2005. p. 634). In particular, our study focuses on "how" state government can manage financial resources for better performance during economic downturns, and this is closely related to the CCFC. Thus, among existing countercyclical fiscal tools, the most dominant and frequently used sources are the BSFs, UUBs, and investment earnings as a part of the general fund surplus overall.

2.2. BSF as a Tool for a CCFC

In accordance with changes in terms of how to prepare for rainy days, legislators have reconsidered problems in budgetary systems, and subsequently, they have enthusiastically embraced BSFs based on their legal and regulatory structure. According to the NASBO, 46 of the states have adopted and accumulated BSFs so far. The earliest was adopted in 1946 (New York), and the most recent were adopted in 2014 (Maine, Connecticut) (Hou, 2004). Originally, a BSF was defined as a fund that was required to be reserved based on the legal structure of a state government and used for a government-wide general purpose. Based on the general fund expenditures (GFEs), the amount of BSF is settled, and state government is strongly recommended to reserve a certain percentage of GFEs. The maximum percentage of GFEs - a cap on the balance level - for BSF is different from statutory regulation of state government; the cap was fixed from 2% of GFEs to unlimited to a BSF balance. However, state legislators only fix the maximum percentage of general government expenditures, even though an unlimited amount of expenditures are allowed in some states. Thus, state government itself has the responsibility for how much state government prepares for rainy days.

In practice, BSFs play a role in preventing state government from any cyclical deficit. Especially during an economic downturn, state government exhibits different activity patterns between expenditures and revenue (Wagner and Sobel, 2006; White,

1983). Expenditures are more oriented toward service to those who need help, while revenues, on the other hand, decrease more during economic falls due to the high level of revenue elasticity based on the structure of the tax portfolio in the state (Misiolek and Perdue, 1987). In the end, state government experiences more severe budgetary deficits in bust years (Groves and Kahn, 1952; Sobel and Holcombe, 1996). Thus, in order to prevent state government from cyclical deficits, BSFs were created as a CCFC, which is similar to any other contingent fund in state government. However, usage of BSFs is specifically more limited to budgetary deficits such as revenue shortfalls, rigid cash flow, and any other emergencies. Even though BSFs can be used for various purposes, their ultimate goal is focused primarily on budgetary deficits or revenue shortfalls in order to attain an annual balanced budget at the end of the fiscal year (Poterba, 1994; Wagner and Elder, 2005).

However, state governments forcefully deposit at least a certain amount of the funds, and when the government withdraws money, BSFs are regulated to follow established limits. On the other hand, such regulations don't meet the timely requirements of BSFs, and this may result in a reluctance on the part of state government to secure enough BSFs, because it cannot use BSFs whenever it is necessary (Knight and Levinson, 1999; Sobel and Holcombe, 1996; Wagner, 2003). Other than limits within BSFs, there are external constraints in budget systems of state governments, although the roles are similar to BSFs. For example, a tax and expenditure limit or other tax limit laws play an alternative role in BSFs (Hou and Duncombe, 2008; Rose, 2010), but those rules exercise a certain pressure on saving money within those limits, and this pressure means there is less likelihood of adopting a statutory BSF.

2.3. Investment Earnings as an Alternative
According to GASB statement 31, general funds that are invested in some liquid type of assets, such as interest-earning investments, open-end mutual funds, or equity securities with a determinable fair value, are readily transferred into cash and cash equivalents whenever it is necessary in state government compared with BSFs. Investment earnings are a byproduct of short-term investments, but in our analysis, they are used as an indicator of how much state government invests in liquid assets. The interest rate is not so high or volatile that we can directly compare the amount of general government funds in the investment with fair values. The amount of investment can be an alternative to BSFs, and investment earnings are also likely to be an indicator of the amount of investment as a function of cash management (Coe, 1988; Johnson and Mikesell, 2003). Investment earnings are also regarded as an indicator of how much state government is willing to preserve the general fund for rainy days or any other contingent events. This attitude of state government will affect the budgetary performance as well, and short-term investments may act in a manner that is similar to BSFs or UUBs on rainy days.

3. DATA AND METHODOLOGY

The two empirical research questions of this study are straightforward:
1. Which are most effective in stabilizing state general fund spending, investment earnings as an indicator of the amount of fair-valued investment, BSFs or UUBs?
2. How much do countercyclical tools affect budget performance in state government?

To examine whether the amount of investment earnings predicts budgetary performance, we collected a panel of 49 (excluding Alaska due to the outlier issue) state data from 2002 to 2013.

3.1. Dependent Variable
The volatility of GFEs is defined by how significantly actual expenditures deviate from expected expenditures, and in our analysis, regression models identify trends in expenditures, which can be applied to examine the least variations based on both counties and time periods (Hou, 2003; White, 1983). In this sense, the linear trend line can identify the true gap between actual and expected expenditure trends. The expected expenditure (E*) is calculated by using the following regression model:

$$E^*_{i,t} = \exp(\alpha + \beta_1 t + \beta_2 i) \tag{1}$$

Where E* represents the expected expenditures of the general fund, i represents the dichotomy variables indicating each state, and t stands for a year variable. So, the number of state dummy variables included in this model is 48. From this regression model, the expected GFEs reflect the trends of both counties and years. Finally, after calculating the expected total expenditures in each county at each year, we obtain the volatility of GFEs by computing the standard deviation between the actual and the expected expenditures. As previously indicated, the state of Alaska is excluded due to its unique economic and fiscal conditions in our analysis. According to Hou (2003) and Kwak (2013), Alaska relies heavily on oil and gas severance taxes, so much so that the state does not collect sales or individual income taxes, which may adversely affect the results. Thus, in our analysis, Alaska is not considered.

In addition to the volatility of total GFEs, year-end budget balance is used as a dependent variable of budget performance in this analysis in order to examine the budget performance of each countercyclical budget tool, such as investment earnings as an indicator of short-term investments, BSFs, and UUBs. Each item is expected to contribute to the budget performance in state government and to reduce the volatility of spending. Thus, the second model tests whether the three countercyclical tools have a positive impact on budget performance.

3.2. Independent Variable
In our analysis, independent variables fall into three categories. The first category includes the total amount of countercyclical tools, such as investment earnings, BSF, and UUB balance. They are used to examine how the amount of each reserve saved in state government affects GFE. The second category indicates social and economic factors used as control variables. Among the social and economic factors, five variables are used in our analysis: Total gross state product (GSP), personal income change, population change, welfare spending in general government expenditures of state government, and the unemployment rate. For balanced budget

requirements, four different types are included as a set of dummy variables: (1) The governor must submit a balanced budget, (2) the legislature must pass a balanced budget, (3) the governor must sign a balanced budget, and (4) a state may carry over deficits into the next fiscal year. These balanced budget rules may affect the expenditure gaps of general government expenditure.

The last category consists of political control and investment allowance variables. In terms of political control variables, seven series of dummy variables are used in this analysis: (1) Whether the president and the governor support different political parties, (2) whether the majority of the Senate and the governor support different political parties, (3) whether the governor is a Democrat, (4) whether the majority of the Senate in the state are Democrats, (5) whether the majority of the House in the state are Democrats, (6) whether the Senate in the United States is dominated by the Democratic Party, and (7) whether the House in the United States is dominated by the Democratic Party. They are influential in securing the amount of money for investments, BSFs, and UUBs based on the level of confrontation between the president and the governor or between the governor and the Senate, or characteristics of individual political parties. Finally, allowance items for investment are examined as a series of dummy variables in this study. Characteristics of allowed investment items can increase or reduce the volatility of GFEs or budget performance in the state on the grounds of how risky the items are and their level of liquidity. We choose nationally traded CDs, government obligations such as local government bonds, corporate bonds, mortgage-backed securities, and money market funds. All are a potential investment source for investment earnings in this study, and they may have an impact on the volatility or the budget performance. Specific explanations of the variables are listed in Table 1.

3.3. Model Specification

In our analysis, the ordinary least square (OLS) regression model offered for our analysis measures how investment earnings, BSFs, and UUBs affect the volatility of GFEs. We consider state and year impacts by using a fixed-effects regression model, but the results are not displayed in the table; the Hausman test proves that the fixed-effects model is more appropriate for this model than the random-effects model. The dependent variable is estimated as shown in (2):

$$\text{Volatility}_{i,t} = \alpha_i + \beta_1 \text{INV}_{i,t} + \beta_2 \text{BSF}_{i,t} + \beta_3 \text{UUB}_{i,t} + \beta_k X_{i,t} + \varepsilon_{i,t} \quad (2)$$

Table 1: Variable specification: Variables, descriptions, and data sources

Variable	Description and data source
Dependent variable	
Volatility of expenditure	Standard deviation value of residuals from the expected total GFEs trend regression model (measured in thousand dollars); Source: The CAFR in each state
Year-end budget balance	Total amount of general government budget balance at the end of each fiscal year (measured in million dollars); Source: The CAFR in each state
Independent variable	
Investment earning	Total amount of investment earnings provided by general fund of state government (measured in thousand dollars); Source: The CAFR in each state
BSF	Total amount of BSF in each state (measured in million dollars); Source: The NASBO
UUB	Total amount of UUB in each state (measured in million dollars); Source: The NASBO
GSP per capita	Total amount of GSP divided by the total number of population in each state; Source: The U.S. Bureau of Economic Analysis and the U.S. Census Bureau
Personal income	Total amount of personal income; Source: The U.S. Bureau of Economic Analysis
Welfare expenditure per capita	Total amount of welfare expenditure in general fund of state government divided by the total number of population in each State; Source: The CAFR
Unemployment rate	Unemployment rate in each state from 2002 to 2013 (measured in percentage); Source: The U.S. Bureau of Labor Statistics
Budget balanced rules	Set of dummy variables indicating whether (1) governor must submit a balanced budget (Budget Balance 1), (2) legislature must pass a balanced budget (Budget Balance 2), (3) governor must sign a balanced budget (Budget Balance 3), and (4) state government may carry over deficits into the next fiscal year (Budget Balance 4); Source: The NASBO
Political variables	Series of dummy variables; (1) whether the president and the governor support different political party (Conflict 1), (2) whether the majority of Senate and the governor support different political party (Conflict 2), (3) whether the governor is Democratic (Governor), (4) whether majority of the Senate in the state is Democratic (State Senate), (5) whether majority of the House in the state is Democratic (State House), (6) whether the Senate in the United States is dominated by Democratic Party (National Senate), and (7) whether the House in the United States is dominated by Democratic Party (National House); Source: The Book of the States series from 2002 to 2013
Investment variables	Series of dummy variables; (1) whether National CDs are allowed for investment in the state (CD Nationally), (2) whether government obligations are allowed to be invested in the state (Government Bond), (3) whether corporate bonds are allowed for investment (Corporate Bond), (4) whether MBS are allowed for investment (MBS), and (5) whether MMF are allowed for investment (MMF); Source: The Book of the States series from 2002-2013

GFE: General fund expenditures, CAFR: Comprehensive Annual Financial Report, NASBO: National Association of State Budget Officers, BSF: Budget stabilization fund, UUB: Unreserved and undesignated balance, GSP: Gross state product, MBS: Mortgage backed securities, MMF: Money market funds

Where the volatility variable indicates the standard deviation value of the expenditure gap between the actual and the expected GFEs, and INV, BSF, and UUB represent the amount of money in investment earnings, BSFs, and UUBs, respectively. X consists of balanced budget rule dummy variables, political variables, and investment allowance variables, as well as social or economic variables such as income changes, population changes, welfare expenditures from the general fund, and unemployment rates in this study.

In addition to the model of volatility, the other OLS regression model investigates how those countercyclical tools affect the budget performance by using the fixed-effects regression model. The dependent variables are the year-end budget balance in the state, i at the year, t, and the independent variables are the same as the first model in equation (2). The specific model for budget performance is shown in equation (3):

$$\text{Budget}_{i,t} = \alpha_i + \beta_1 \text{INV}_{i,t} + \beta_2 \text{BSF}_{i,t} + \beta_3 \text{UUB}_{i,t} + \beta_k X_{i,t} + \varepsilon_{i,t} \qquad (3)$$

Where budget represents the year-end budget balance in the state, i at the year, t. Descriptive statistics for all variables are provided in Table 2.

4. RESULTS

4.1. Results of Expenditure Volatility

The volatility columns in Table 3 provide the regression results for the model. First of all, investment earnings have a positive impact on the volatility of total GFEs, and this is statistically significant at the level of 1%. On the other hand, BSFs and UUBs are negatively related to volatility, which means they reduce the fluctuations in state government expenditures. Compared with BSFs and UUBs, investment earnings as an indicator of short-term investment are not devoted to its countercyclical role at all but, rather, increase the volatility of GFEs in state government.

In terms of economic factors, the unemployment rate is proved to increase the volatility of GFEs, and this is statistically significant at the level of 1%. Regarding balanced budget rules, among the four dummy variables, the term that the legislature must pass a balanced budget (Budget Balance 2) has a positive impact on volatility. Each term has different impacts on the volatility of GFEs based on characteristics. Among political control variables, the confrontation between the president and the governor (conflict 1) decreases the volatility of total GFEs, and this is statistically significant at the 1% level. Interestingly, if the majority party of the Senate is Democratic in the United States (National Senate), then the volatility of GFEs increases, but if the majority of the House is Democratic nationally (National House), this factor, on the other hand, has a negative impact on the volatility, even though the signs are opposite from the majority party of the Senate (State Senate) or the House (State House) in the state. In terms of investment allowance in state government, all of the variables are not statistically significant in our analysis.

4.2. Results of Budget Performance

The last two right-hand columns in Table 3 show the results of budget performance by using a year-end budget balance as a

Table 2: Descriptive statistics

Variable	Obs	Mean	SD	Minimum	Maximum
Dependent variable					
Volatility	588	5801.09	9778.84	3.8	126,741.3
Year-end budget balance	559	4646.75	5677.16	−4271.2	51,492.8
Independent variable					
Investment earning	524	194.04	363.47	−1957.0	3608.8
BSF	586	372.87	904.59	−3535.0	10,071.0
UUB	540	−10.00	3020.73	−28,645.4	10,696.8
GSP	588	44.44	9.23	24.4	80.0
Personal income	588	37.49	6.85	23.2	60.8
Welfare expenditure	539	1.28	0.39	0.5	2.7
Unemployment rate	588	6.16	2.12	2.5	13.8
Budget Balance 1	588	0.88	0.33	0	1
Budget Balance 2	588	0.81	0.40	0	1
Budget Balance 3	588	0.70	0.46	0	1
Budget Balance 4	588	0.12	0.33	0	1
Conflict 1	588	0.51	0.50	0	1
Conflict 2	588	0.39	0.49	0	1
Governor	587	0.48	0.50	0	1
State Senate	588	0.47	0.50	0	1
State house	588	0.51	0.50	0	1
National Senate	588	0.42	0.49	0	1
National house	588	0.75	0.43	0	1
CD nationally	588	0.47	0.50	0	1
Government obligation	588	0.72	0.45	0	1
Corporate bond	588	0.65	0.48	0	1
MBS	588	0.63	0.48	0	1
MMF	588	0.63	0.48	0	1

BSF: Budget stabilization fund, UUB: Unreserved and undesignated balance, GSP: Gross state product, MBS: Mortgage backed securities, MMF: Money market funds

dependent variable. Above all, investment earnings have a positive impact on budget performance, and this is statistically significant at the level of 1%. Furthermore, BSFs and UUBs, which are generally regarded as a countercyclical tool, are also positively related to budget performance, increasing the year-end budget balance in state government. They are statistically significant at the 1% level. In terms of economic factors, GSP per capita increases budget performance, while the unemployment rate, on the other hand, aggravates budget performance. The economic variables are statistically significant at the level of 5%.

Regarding balanced budget rules, the term that the legislature must pass a balanced budget (Budget Balance 2) has a positive impact on budget performance, as it increases the volatility of GFEs as well. Moreover, the term that state government may carry over deficits into the next fiscal year (Budget Balance 4) is also positively related to budget performance, and this is statistically significant at the level of 5%. Turning to the analysis of how political conditions affect budget performance, if the majority of the Senate is Democratic, then the year-end budget balance decreases, and this is statistically significant at the level of 5%. On the contrary, if the Senate in the United States is ruled by the Democratic Party, then budget performance as measured by the year-end budget balance is improved, and this is statistically significant at the level of 5%.

Finally, among five main investment allowances of state government, CDs invested nationally decrease budget performance,

Table 3: OLS regression results

Variable	Volatility		Year-end budget balance	
	Coefficient	Standard error	Coefficient	Standard error
Investment earning	1.77***	0.46	0.66***	0.20
BSF	−0.39**	0.19	0.23***	0.09
UUB	−0.87***	0.09	0.41***	0.04
GSP	143.06	141.46	136.63**	62.57
Personal income	−86.16	183.23	−15.19	81.04
Welfare expenditure	−795.81	1314.97	85.22	581.59
Unemployment rate	741.82***	104.15	−113.31**	46.07
Budget Balance 1	0.00	0.00	0.00	0.00
Budget Balance 2	7903.63***	1377.95	1978.09***	609.45
Budget Balance 3	1012.42	1008.57	282.48	446.07
Budget Balance 4	−1128.09	800.75	722.73**	354.16
Conflict 1	−889.89***	295.23	190.24	130.58
Conflict 2	−522.50	359.85	229.52	159.16
Governor	293.39	374.95	−219.60	165.84
State Senate	−476.36	533.54	−548.71**	235.98
State house	−139.03	514.71	122.42	227.65
National Senate	1622.95***	387.36	395.22**	171.32
National house	−3525.14***	625.42	−339.11	276.61
CD nationally	−740.21	661.67	−515.67*	292.65
Government bond	100.52	700.88	621.56**	309.99
Corporate bond	−389.28	898.06	−622.16	397.20
MBS	−717.56	574.06	−372.40	253.90
MMF	−379.25	522.79	48.83	231.22
State control	Yes		Yes	
Year control	Yes		Yes	

"***," "**," and "*"indicate significance at the level of 1%, 5%, and 10% respectively. OLS: Ordinary least square, BSF: Budget stabilization fund, UUB: Unreserved and undesignated balance, GSP: Gross state product, MBS: Mortgage backed securities, MMF: Money market funds

while government obligations such as state or local government bonds improve the year-end balance in state government. These are statistically significant at the level of 10% and 5%, respectively. Each investment allowance has different impacts on budget performance, even though all are not statistically significant in our analysis.

5. CONCLUSION

The purpose of this study is to examine whether investment earnings as an indicator of short-term investment decrease the volatility of total GFEs and improve budget performance in state government. By using two OLS regression models, this study concludes that investment earnings increase the volatility of total GFEs as well as budget performance. Furthermore, we identify some meaningful implications of investment earnings when compared with the generally used countercyclical tools, such as BSFs or UUBs. From the evidence obtained, the contribution of this research is threefold.

First of all, investment earnings increase the volatility of GFEs, while the generally accepted countercyclical tools such as BSFs and UUBs reduce it. In order to secure enough liquidity and safety for the investment, federal and state laws strictly limit the scope of investment vehicles in short-term investments and

trade off stabilization or safety against returns. However, in state government, short-term investments don't perform an appropriate role in reserving enough money for a rainy day. Regulations for safety or liquidity don't work well, and short-term investments exhibit characteristics that are similar to long-term investments. Relating to our original question, it is questionable as to whether and how state government manages the reserved amount of money for the future or whether it is best to simply reserve it unused without taking any further action.

Second, as other reserved funds such as BSFs or UUBs, investment earnings are a source of better performance in state government. Originally, short-term investment is managed in order to provide more earnings for state government, while BSFs and UUBs are not revenue sources for profits. However, the results show that all countercyclical tools lead to better budget performance, even though the amounts of coefficients are different based on its source. Especially, BSFs are strictly limited in terms of their use, and they can only be used for rainy days. Ironically, the results may indicate that state governments are negligent in managing short-term investments, because they believe that it is regarded as safe and stable to invest short-term capital. In this study, the results show that investment is risky and increases the volatility of GFEs, even though the duration is short, and that short-term and long-term investments share similar characteristics.

Relating to this, and third and last, state government needs to manage the risk of short-term investments as well. Even though relative laws make short-term investments more robust and safe from duration and other risks, they still retain their own characteristics; they increase the volatility of GFEs and generate more profit (budget performance). Thus, short-term investments should be treated as a sort of investment instead of a cash management substitute. If state governments don't change their minds about short-term investments, realizing that short-term investments also interject more volatility in state budgets, then they may face budget shortages due to their short-term investments in the future.

However, this study has some limitations as well. First of all, the volatility from short-term investment may result from poor financial management of state government. As Hou (2006) stated, financial control includes complex and multifaceted problems; thereby, it is difficult to isolate one problem from another. Problems from investment earnings lie in the middle of managerial and cyclical budget issues. Thus, we cannot say that investment earnings increase the volatility of GFEs, because they have such a cyclical characteristic. Although they are in the grey zone between managerial and cyclical problems, this study provides a meaningful clue that state government should be cautious with investments, regardless of their duration. The lesson from this study is simple but straightforward: State governments should take risks if they want to achieve greater profits.

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