INVESTMENT OPTION REVIEW

Independent
advice for
the institutional
investor

Investment Option
Review
for the
Federal Thrift
Savings Plan

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The Federal Retirement Thrift Investment Board (FRTIB) asked Ennis Knupp + Associates to review the current investment structure of the Thrift Savings Plan (TSP), i.e., the number and types of investment funds offered to participants, and evaluate potential investment fund additions. In this report, we:

- Review the current circumstances of the TSP and compare its practices to peer plans
- Identify key criteria for evaluating investment fund alternatives
- Apply the key criteria to a broad array of investment fund alternatives to identify investment funds appropriate for consideration
- Review appropriateness of adding specific investment fund alternatives
- Provide our recommendations to the FRTIB

Below we summarize the key points of our report:

Current Practices and Comparisons to Peers

The key points of the TSP's investment structure and comparison to peers are highlighted below.

- The TSP offers participants five core investment options (G, F, C, S and I Funds) that reasonably span the risk-return spectrum, allowing participants to construct portfolios that range from low to moderate to higher risk.

- The L Funds allow participants to select an investment fund(s) that is diversified among and within asset classes, as the L Funds are constructed using the five core investment funds.

- With 10 investment options (5 core funds and 5 L funds), the number of investment options available to participants is generally comparable to peers.

- The TSP offers investment funds in the categories that are found in the majority of participant-directed defined contribution plans -- stable value (G Fund), bonds (F Fund), U.S. stock (C and S Funds), non-U.S. stock (I Fund), and lifecycle/balanced funds (L Funds).

- The types of investment funds that receive the majority of participants' assets in peer plans are comparable to those used by TSP participants.

- While peer plans may offer a wider array of investment funds, the non-core investment funds do not typically receive a significant portion of participant assets.

- TSP participants are offered the type of investment funds predominantly used by participants in peer plans. Importantly, participants are offered five core investment options that span the risk/return spectrum and are offered the option of selecting pre-mixed portfolios (L Funds) that reflect different risk/return characteristics and embrace the key principles of investing – diversification among and within asset classes, low cost, rebalancing to maintain target portfolio weights, and target weights that evolve as an investor's time horizon shortens.

Our review of the program leads us to the conclusion that the core of the investment program is well-structured and there are no gaps in the investment line-up.

Investment Structure

We believe a plan's investment options should offer a sufficient range of choice to allow participants to form well-diversified portfolios, given a reasonable range of risk and return circumstances. As such, we believe that the TSP should have a structure that:

- Offers sufficient range of choice – with options that reasonably span the risk and return spectrum
- Allows participants to form well-diversified portfolios
- Is appropriately comparable with peers
- Meets broad participant demand

The investment fund types offered to TSP participants match those we recommend the TSP offer.

- U.S. stock
- Non-U.S. stock
- Diversified fixed income
- Cash equivalent/stable value
- Lifecycle

Our recommendations regarding the TSP's investment structure are also influenced by our beliefs that:

- Employee education is one of the most important components of a successful defined contribution plan
- The number of options should not overwhelm participants
- The more broadly diversified an asset class/asset category, the better it will serve participants over the long-term
- Participants should be provided with two decision-making paths – an array of lifecycle funds and an array of broadly diversified asset class/asset category specific funds

Key Criteria For Evaluation of Investment Fund Alternatives

In evaluating the types of investment fund alternatives to offer in the TSP, we believe the following criteria (individually and collectively) are the most relevant to consider:

- Major diversified asset class/category not currently offered as an investment option
- Asset class/category is large enough for the TSP to invest in
- Potential diversification benefit for TSP participant portfolios
- Index fund products are available
- Practices of peers

Application of Key Criteria

We identify the following asset classes/categories for evaluation:

Equities	Fixed Income	Alternatives/Other
U.S. Growth Stock U.S. Value Stock Real Estate Investment Trusts Emerging Market Stock Non-U.S. Small-cap Stock	Non-U.S. Bonds High Yield Bonds Treasury Inflation-Protected Securities	Private Real Estate Private Equitiy Commodities Hedge Funds Socially Responsible/ Corporate Governance Funds

After applying the key criteria, we eliminated the following asset classes/categories from further consideration:

- Non-U.S. small-cap stock
- High yield bonds
- Private market real estate
- Private equity
- Hedge funds
- Socially responsible/corporate governance funds

We then reviewed the merits of offering the following investment fund alternatives in detail:

- Non-U.S. bonds
- U.S. stock funds by valuation
- Emerging markets stock
- Treasury Inflation-Protected Securities (TIPS)
- Real Estate Investment Trusts (REITs)
- Commodities

Asset Classes/Categories Evaluated in Detail

Our key thoughts on the six asset classes/categories we reviewed in detail are outlined below.

Non-U.S. bonds

While non-U.S. bonds are a material portion of the world's investable market capitalization, the benefits of adding a non-U.S. bond fund are minimal from an expected risk-return and portfolio diversification standpoint for TSP participants. Moreover, adding a non-U.S. bond fund would add complexity to a segment of the plan where we believe additional flexibility is not required and/or meaningful. We recommend the FRTIB not add a non-U.S. bond fund as an investment fund alternative.

Value and Growth U.S. Stock Funds

We examined the potential addition of larger-capitalization growth and value stock funds, but did not find this a compelling alternative as TSP participants have significant exposure to those segments already; the TSP's investment line-up currently provides broad exposure to the entire U.S. stock market via the C and S Funds.

Emerging Markets Stock

While emerging markets are a large asset class, expected to experience secular growth and provide a benefit to portfolios at the highest levels of risk, we have concerns with the TSP offering emerging markets as a stand alone investment fund due to its high level of risk. The high risk associated with emerging markets has resulted in material losses over relatively short periods of time and is difficult for participants (or for any investor) to bear. Additionally, there are limited benefits to adding an emerging markets investment fund for well-diversified low to moderate risk portfolios.

Overall, we believe the negatives of offering an emerging markets investment fund outweigh the positives and recommend an emerging markets fund not be added as an investment fund alternative. We believe it is appropriate to monitor the possibility of accessing the emerging markets via the I Fund in the future as index providers may offer a daily valued index fund that provides exposure to both the developed non-U.S. stock markets and emerging markets in their respective proportions.

TIPS

TIPS are attractive to investors who want to hedge inflation. The TSP, however, offers a fund (G Fund) that provides similar inflation-hedging characteristics over the long-term without negative price volatility, which diminishes the benefits of offering a TIPS option. Additionally, a TIPS option would provide limited diversification benefits to TSP participants, add complexity to an investment category where we believe additional flexibility is not required and is not common practice among peer plans. We recommend that the FRTIB not offer TIPS as an investment fund alternative.

REITs

We recommend the FRTIB not offer REITs as an investment fund alternative. Our recommendation is based on the fact that REITs are a sub-sector of the U.S. stock market, TSP participants currently can obtain exposure to REITs via the C and S Funds, the addition of REITs does not significantly improve TSP participant portfolios, and it is not common practice among peers. Overall, we believe the negatives more than outweigh the primary potential positives of REITs, historically low correlation of returns to the current TSP investment funds.

Commodities

Commodity futures offer a diversification benefit, as well as the potential to hedge against inflation. However, commodity prices are influenced by demand/supply considerations rather than the intrinsic value of securities, and future return expectations are uncertain. Most individual investors will have difficulty in determining an appropriate allocation to commodities, and commodities have a concentration in the energy sector. It is also not a common investment option in defined contribution plans. We recommend that the FRTIB not offer commodities as an investment option in the TSP.

Recommendation

We did not find any of the six asset classes/categories that we evaluated in detail particularly compelling as investment fund additions. We recommend the FRTIB not add any additional investment funds to its investment program.

Our analysis follows.

The following section encapsulates the current circumstances of the TSP's investment structure and compares it to peer plans.

Overview

- Assets of approximately $194 billion as of September 30, 2006
- Over 3.6 million participants
- An average participant balance of approximately $54,000
- 10 investment options currently available to participants

Fund Type	TSP Fund
– Stable Value	G Fund
– Diversified Fixed Income	F Fund
– Lifecycle/Balanced	L Income L 2010 L 2020 L 2030 L 2040
– U.S. Stock	C Fund S Fund
– Non-U.S. Stock	I Fund

Key Characteristics of TSP

- The TSP offers participants the ability to invest in five diversified “core” investment alternatives (G, F, C, S and I Funds) that reasonably span the risk return spectrum, allowing participants to construct portfolios that range from low risk to moderate to higher risk. We note the G Fund is not “diversified” among securities but is backed by the full faith and credit of the U.S. government.
- The L Funds allow participants to select an investment fund(s) that is diversified among and within asset classes, as the L Funds are constructed using the five underlying core investments funds. Importantly, the L Funds embrace the key principle of investing in that they are broadly diversified. The L Funds rebalance and evolve over time from growth-oriented portfolios to income and principal-preservation focused portfolios in order to adjust for participants’ time horizons.
- The costs of administering the TSP’s investment options are well below industry average at less than 0.05%. Investment fees for most other plans range from 0.50% to 0.80%. We rarely observe total investment fees below 0.45% for participant defined contribution plans.

On the following pages, we compare the practices of the TSP to those of peer defined contribution plans. In order to compare the TSP to an appropriate sub-set of peers, we use information from three widely followed defined contribution marketplace surveys – Profit Sharing/401(k) Council of America (PSCA), Hewitt Associates, and CRA RogersCasey.

Using the PSCA 49th Annual Survey of Profit Sharing and 401(k) Plans and data from CRA RogersCasey, we first compare the number of options offered to TSP participants to those offered by other plans.

Number of Investment Options Offered

		PSCA		
	TSP	Plans with 5,000 + Participants	All Plans	CRA RogersCasey
One to Five		2.1%	2.3%	7.0%
Six		2.2	0.9	3.0
Seven		2.2	1.6	7.0
Eight		0.7	1.5	2.0
Nine		5.8	3.3	5.0
Ten	X	8.0	6.6	13.0
Eleven to Fifteen		48.2	38.3	37.0
Sixteen to Twenty		14.6	22.6	18.0
Twenty-One +		16.0	23.0	8.0

Source: PSCA 49th Annual Survey of Profit Sharing and 401(k) Plans (2005 Plan Experience); CRA RogersCasey Annual Defined Contribution Survey 2004

Observations

- The median number of investment options offered is eleven to fifteen. While the number of options offered has increased since the early nineties, the average number of options utilized by participants (approximately 4 options according to Vanguard and Fidelity participant studies) has not kept pace.

- With 10 investment options, the number of choices available to TSP participants is generally comparable to peer plans.

- As it stands, TSP participants are offered ample opportunity to diversify their assets, and the current plan is generally competitive with regard to the number of investment options offered.

The table below shows the types of investment options commonly offered to participants.

Investment Options Commonly Offered

Fund Type	TSP	Plans with 5,000+ Participants	All Plans
Balanced Fund	No	65.6%	67.5%
Actively Managed Bond Fund	No	59.2	64.2
Bond Index Fund	Yes – 1	36.8	28.9
Cash Equivalents	No	48.0	50.4
Company Stock	No	56.0	21.3
Actively Managed U.S. Stock Fund	No	80.0	80.0
U.S. Stock Index Fund	Yes – 2	80.0	71.3
Actively Managed Non-U.S. Stock Fund	No	75.2	74.8
Non-U.S. Stock Index Fund	Yes – 1	28.8	22.6
Lifestyle/Asset Allocation Fund	Yes – 5	49.6	50.2
Real Estate Fund	No	8.0	18.8
Self-directed (brokerage/mutual fund window)	No	24.8	22.6
Stable Value Fund	Yes – 1	76.0	58.8
Other	No	18.4	24.5

Source: PSCA 49th Annual Survey of Profit Sharing and 401(k) Plans (2005 Plan Experience)

Observations

- The TSP offers funds in the categories that are typically found in the majority of defined contribution plans – stable value (G Fund), bonds (F Fund), U.S. stock (C and S Funds), non-U.S. stock (I Fund) and balanced and/or lifestyle/asset allocation funds (L Funds).

- The investment categories that are offered in more than 50% of peer plans where the TSP does not offer investment options is not a deficiency. The TSP offers a fund in a similar category or is unable to offer a fund in the category. We discuss this further below:

    - While 64% of all plans offer an actively managed bond fund, it is not necessary for the TSP to offer this type of fund as the F Fund provides exposure to the asset class and the TSP has historically offered only index funds to its participants.

    - It is not necessary for the TSP to offer a cash equivalent fund as it offers the G Fund, which provides the key characteristics sought in a money market fund – i.e., liquidity and preservation of capital.

    - Company stock is offered in 56% of plans with more than 5,000 participants. This consideration is an irrelevant point as the TSP does not have the ability to offer company stock.

- Actively managed U.S. stock funds are offered in the majority of plans (80%). The TSP has not offered actively managed U.S. stock funds as it has not been allowed to do so by statute. It is not necessary for the TSP to offer actively managed funds as the TSP has provided broad exposure to the U.S. stock asset class via the C and S Funds.

- Actively managed non-U.S. stock funds are offered in the majority of plans. It is not necessary for the TSP to offer actively managed funds as the TSP provides participants access to this asset class via the I Fund. By statute the TSP is only able to offer a passively managed fund.

In the following tables, we show the participant asset allocation practices according to the three marketplace surveys mentioned earlier.

PSCA: Participant Asset Allocation

	Plans with 5,000+ Participants	Allocations Excluding Company Stock	TSP
Cash Equivalents	4.0%	4.8%	--
GIC/Stable Value	14.5	17.3	37%
Actively Managed Bond	3.6	4.3	--
Bond Index	1.6	1.9	5
Total Fixed Income	23.7%	28.3%	42%
Company Stock	16.0	--	--
Actively Managed U.S. Stock	23.4	27.9	--
U.S. Stock Index	11.2	13.3	42
Actively Managed Non-U.S. Stock	5.8	6.9	--
Non-U.S. Stock Index	1.5	1.8	9
Total Stock	57.9%	49.9%	51%
Balanced	6.8	8.1	--
Lifestyle/Asset Allocation	6.0	7.1	7
Real Estate	0.2	0.2	--
Self-directed	1.9	2.3	--
Other	3.5	4.1	--
TOTAL	100.0%	100.0%	100%

Source: PSCA 49th Annual Survey of Profit Sharing and 401(k) Plans (2005 Plan Experience)

Observations

- TSP participants' allocation to stocks is lower than that of its peers; however, after normalizing the peer data for company stock, the allocation to stocks is comparable.

The table below shows the asset allocation practices of plans with 40,000+ participants according to Hewitt Associates' 2005 survey.

2005 Hewitt Associates' Survey: Participant Asset Allocation

Fund Type	Plan Site 40,000+ Participants	Allocations Excluding Company Stock	TSP
Money Market	2%	3%	--
GIC/Stable Value	16	23	37%
Bond	3	4	5
Total Fixed Income	21%	30%	42%
Company stock	30	--	--
Large-cap U.S. stock	15	21	35
Mid-cap U.S. stock	2	3	7
Small-cap U.S. stock	6	9	--
Non-U.S. stock	4	6	9
Emerging Market stock	<1	<1	--
Total Stock	57%	39%	51%
Balanced	11	16	--
Life Style/Asset Allocation	10	14	7
Specialty sector	<1	<1	--
Self-directed window	<1	<1	--
TOTAL	100%	100%	100%

Source: Hewitt Associates: How Well Are Employees Saving and Investing in 401(k) Plans (2006 Hewitt Universe Benchmarks)

Observations

- The large allocation to company stock indicates participants in these plans generally have a high degree of security specific risk. This is not an issue with TSP participants.

- If the results are normalized to TSP's circumstances, and we assume that over 50% of balanced/lifecycle funds are allocated to equities, the equity allocations are more comparable to those of the TSP.

- More specialized asset classes/categories are not commonly used by participants.

The table below shows the asset allocation practices of plans with more than $500 million in assets according to CRA Rogers Casey.

CRA Rogers Casey Annual Defined Contribution Survey
Average Asset Allocation For Plans With More Than $500 Million in Assets

Fund Type	Plans with >$500 million in assets	Allocations Excluding Company Stock	TSP
Cash equivalents/money market	2%	3%	--
Stable Value	21	30	37%
U.S. Bond, Active	3	4	--
U.S. Bond, Passive	1	1	5
Non-U.S. Bond	<1	<1	--
Total Fixed Income	27%	38%	42%
Company stock	25	0%	--
U.S. Large-cap, active	15	21	--
U.S. Large-cap, passive	11	15	35%
U.S. Mid-cap stock	2	3	7
U.S. Small-cap stock	3	4	--
Non-U.S. stock, active	3	4	--
Non-U.S. stock, passive	<1	<1	9
Global Stock	<1	<1	--
Emerging market stock	<1	<1	--
International small-cap stock	<1	<1	--
Specialty sector	<1	<1	--
Total Stock	61%	48%	51%
Balanced	4%	6%	--
Lifestyle/Lifestage	5	7	7%
REITs	<1	<1	--
Mutual fund window	<1	<1	--
Self-directed brokerage	<1	<1	--
Other	1	1	--
TOTAL	100%	100%	100%

Source: CRA RogersCasey Annual Defined Contribution Survey 2004.

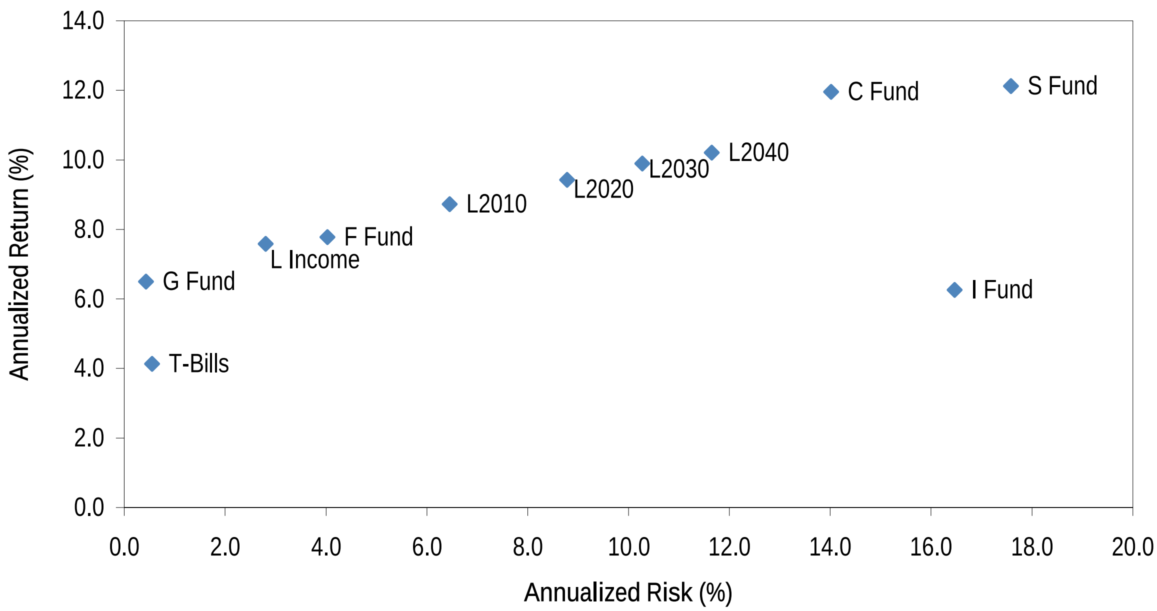
Observations

- The survey data indicates that the types of investment options that receive the majority of participants' allocations, excluding company stock, are similar to those of TSP participants.

- While plans may offer a wider array of investment funds, these options seldom receive a significant portion of participants' assets.

The graph below shows the historical risk-return characteristics of the TSP's current investment funds. Returns are shown on the X-axis and risk (annualized standard deviation of return) is shown along the Y-axis. The L Funds (target retirement date / lifecycle funds) were introduced in August 2005 and comprise of varying proportions of the G, F, C, S, and I Funds. The risk and return characteristics of each L Fund is derived from the performance of the underlying components comprising the L Fund, based on the underlying component weights within each Fund as of December 31, 2005.

Risk-Return
18 Years Ending 12/31/2005



As shown, the investment funds currently offered to participants span the risk-return spectrum from low to high risk.

Summary

TSP participants are offered the type of investment funds predominantly used by participants in peer plans. Importantly, participants are offered five core investment options that span the risk/return spectrum and are offered the option of selecting pre-mixed portfolios (L Funds) that reflect different risk/return characteristics and embrace the key principles of investing – diversification among and within asset classes, low cost, rebalancing to maintain target portfolio weights, and target weights that evolve as an investor's time horizon shortens.

Our review of the program leads us to the conclusion that the "core" of the investment program is well structured and there are no "holes" in the investment line-up. We believe, however, it is worthwhile to review potential alternatives that may afford more investment flexibility to participants and/or an ability to create superior portfolios.

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Having discussed TSP's circumstances and how it compares to peers, we now review the factors that impact participant behavior and our thoughts on how to best implement an investment option structure from a "macro" perspective.

Investment Structure

The investment structure of a participant-directed defined contribution plan refers to the number and type of options offered to participants. This is the most important component of the investment program. It will not only determine the structure of investment options offered to participants but will also:

- Shape how participants invest their assets
- Impact the participants' perceived value of the Plan

We believe a plan's investment options should offer a sufficient range of choice to allow participants to form well-diversified portfolios, given a reasonable range of risk and return circumstances. As such, we recommend that the TSP have a structure that:

- Offers sufficient range of choice – with options that span the risk and return spectrum
- Allows participants to form well-diversified portfolios
- Meets broad participant demand
- Is appropriately comparable with peers

We recommend that at a minimum the TSP offer the investment option types listed below. The investment option types provide representation of all major asset classes typically considered suitable for defined contribution plans and allow for representation of different levels of risk:

- U.S. stock
- Non-U.S. stock
- Diversified fixed income
- Cash equivalent/stable value
- Lifecycle

The TSP currently offers at least one broadly diversified "core" investment fund in each of these categories.

We generally recommend offering only a single option in the cash equivalent/stable value, diversified fixed income, and non-U.S. stock categories, as one option is all that is necessary to provide the asset class exposure required to diversify participant portfolios. Additionally, participants' allocations to these categories are typically modest (<10% of assets).

The two categories where it is appropriate to consider multiple options are lifecycle and U.S. stock. It is appropriate to offer multiple lifecycle funds as a program must meet the needs of participants with materially different time horizons (e.g., 5 years vs. 35 years).

Offering multiple options in U.S. stock is appropriate for the following reasons:

- Participants' knowledge of U.S. stock investing has grown tremendously in recent years – resulting in increased demand for U.S. stock fund alternatives.

- As U.S. stock is generally one of the largest components of a participant's portfolio, a subset of participants typically want to customize their defined contribution plan U.S. stock portfolios to account for personal (taxable and tax-exempt) investments, complement investment funds available in a spouse's plan and/or account for their own investment preferences/risk tolerance.

- It represents contemporary practice.

The types of U.S. stock funds that we generally recommend offering are:

– Core stock index fund
– Larger-cap value
– Larger-cap growth
– Mid/small-cap stock

The TSP does not offer separate large-cap growth and value fund options. We note, however, that participants have access to the entire U.S. stock market, including growth and value stocks, via the C and S Funds.

Guiding Principles

There are three guiding principles we recommend our clients generally employ in structuring their investment fund line-ups. These guiding principles are:

- Employee education is one of the most important components of a participant-directed defined contribution plan. Therefore, the less complex the program is, the higher the likelihood of a successful education program, as participants tend to get overwhelmed if there are too many options
- The more broadly diversified an asset class, asset category, investment style, etc., the better it will serve participants
- The investment options of an investment program should be structured/communicated to participants so they have two paths from which to choose – an array of pre-mixed lifecycle funds and an array of broadly diversified asset class/category specific funds

Number of options: Surveys and studies by Fidelity, Hewitt Associates, Vanguard and academics cite that the greater number of options offered, generally the lower a plan's participation rate and/or the fewer number of investment funds utilized. The unintended consequences of offering too many funds to participants is that instead of selecting the appropriate fund(s) they become overwhelmed and delay their decision to participate. In many cases, they end up not participating at all, or make no investment decision and are mapped to the plan's default fund.

Broadly Diversified Funds: We generally recommend our clients offer participants investment funds that are broadly diversified by security, sector, industry, etc. This assists in avoiding large losses due to an undue concentration in a sector, industry and/or security and assists participants in building broadly diversified portfolios.

Tiering of Investment Options: We recommend that clients communicate their lifecycle and asset class/category funds as different decision paths or “tiers”. The first path or tier is populated with lifecycle funds and is intended for participants uncomfortable in or not inclined to making investment decisions. Participants are able to then focus on the lifecycle fund that best suits their time horizon.

The second tier is comprised of the asset class/category specific funds where participants are able to select and mix funds in order to build portfolios that best suit their needs.

Summary

The TSP’s current practices are reflective of our general advice on how to best structure a participant-directed defined contribution plan. The investment options are well-diversified, the number of options offered in each category, except for U.S. stock and lifecycle funds, are limited to one, and participants have two “paths” or “tiers” to select from when making their investment decisions.

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In this section of the report, we discuss the key criteria we use to evaluate whether or not an asset class or asset category should be considered as an investment fund for inclusion in the Thrift Savings Plan (TSP). We use this criteria to narrow the asset classes/categories we reviewed in-depth as potential alternatives.

Evaluation Criteria

While there are numerous criteria to consider when evaluating the types of investment alternatives to offer in a participant-directed defined contribution plan, we believe the following criteria (individually and collectively) are among the most relevant for the TSP to consider:

- Major diversified asset classes/categories not currently offered as investment options
- Asset class/category is large enough for the TSP to invest in
- Potential diversification benefit for TSP participant portfolios
- Index fund products are available for TSP use
- Practices of peers

We discuss these criteria in more detail below.

Major Diversified Asset Classes/Categories Not Currently Offered to Participants

We believe it is worthwhile to consider the major diversified capital markets that are not currently offered to TSP participants. The TSP currently provides participants the ability to invest in three of the world's largest capital markets (U.S. stock, U.S. bonds and non-U.S. developed markets stock), but not all (e.g., non-dollar denominated debt or emerging market stock). For the major diversified asset classes not currently offered to participants, we believe reviewing the rationale why such an asset class/category would or would not be an appropriate asset class/category to add as an investment option is prudent.

Our review takes into account the advantages and disadvantages of offering an asset class/category individually as well as how it could potentially allow participants to form overall better portfolios.

Asset Class/Category is Large Enough for the TSP to Invest In

Given the extraordinary asset size of the TSP, any investment alternative offered should represent an asset class/category of such significance that the likelihood of the TSP becoming a disproportionately large investor and trader of the asset class/category is minimized. Several of the measures we evaluate are:

- Size of the asset class/category in terms of market capitalization
- Liquidity of the market/category
- Sector diversification within the asset class/category
- Number of securities that comprise the market /category

The criteria we will use within this category include:

Large Capital Market: We define a large capital market by its total market capitalization (the aggregate value of the securities that comprise the asset class/category). We believe the appropriate threshold to use for the TSP is a minimum market capitalization of $1 trillion. This is an important consideration as the extraordinary asset size of the TSP (almost $200 billion and growing) could cause it to own a large portion of a market that is less than $1 trillion in asset size if participants were to allocate just 10% of the Plan's assets to a smaller-sized asset class/category. Moreover, the fact that the TSP offers daily liquidity to its participants and participants have transferred substantial assets into and out of its options (e.g., $300 million) in a single day implies that TSP participants could trade an abnormally large amount of a small market in a single day and significantly impact prices. The market capitalization of each of the benchmarks for the TSP Funds exceeds $3 trillion.

	F Fund	C Fund	S Fund	I Fund
Fund benchmark	Lehman Brothers Aggregate Bond Index	S&P 500 Stock Index	Dow Jones Wilshire 4500 Index	Morgan Stanley Capital International (MSCI) Europe, Australasia, and Far East Stock Index
Market capitalization of benchmark	$8.2 trillion	$11.1 trillion	$3.2 trillion	$9.8 trillion
Number of securities	6,300+	500	4,400+	1,100+

Liquidity: At TSP's current size, the average daily cash flows in and out of its investment options are quite large on an absolute basis. Of particular concern are days wherein cash flows in or out of a particular fund can spike significantly. For instance, the average daily cash flow for the I Fund was $49 million over the past year. On 26 occasions the cash flows exceeded $100 million and on 5 occasions they exceeded $200 million. Markets such as those currently represented by the C, S, I and F Funds are large and liquid enough to accommodate those trades on a daily basis. For instance, 100% of a $200 million trade in C and I Funds constitutes less than 10% of the average daily volume (ADV) of securities in their respective market, i.e. in the case of the C and I Funds, the number of shares of each individual security to be purchased as part of a $200 million trade constitutes less than 10% of the total number of shares of that security traded daily, on average. For a $200 million trade in the S Fund, 96.7% of the trade constitutes less than 10% of the average daily volume (ADV), while 99.8% constitutes less than 20% of ADV.

Some markets/sectors may not be able to absorb large trades without impacting prices in a direction that is adverse to participants. If there is excessive demand to buy a stock relative to its supply, it will drive the price of the stock higher temporarily, and vice versa, resulting in a "buy high, sell low" outcome. Trades that constitute a large portion of the ADV can be expensive; traders generally don't want to be more than 10%, and at most 20% of the ADV in any security.

While markets/sectors, per se, may be liquid, they may not be liquid enough for very large trades, such as those experienced by some of the TSP Funds. Liquidity of markets is more relevant and important to the TSP than to almost any other defined contribution plan.

Sector/Security Diversification: As we discussed earlier, we believe it is important for defined contribution plans to offer broadly diversified investment options to participants so as to potentially limit the impact of large losses on their portfolios. One way to avoid overly concentrated portfolios is to offer options that are diversified by sector, industry and security. Asset classes/categories that are comprised of numerous sectors, industries and securities assist in avoiding large losses as the performance drivers of these sectors, industries and securities are different or diversified.

It was not more than seven years ago when participants and plan sponsors were requesting and demanding technology focused investment options. For those plans that offered this type of option and participants who invested in these funds at the height of the technology bubble, the result was disastrous. This example illustrates the danger that underlies offering investment options that are focused specifically on certain sectors, industries and/or securities.

Index fund products are available for TSP use

We review the availability of daily valued index products within the asset class/category. This is a relevant criterion as the TSP has historically only offered index products and any product that the TSP may offer needs to offer daily liquidity so that it integrates easily with the plan administration. As you will see, many asset classes/categories do not offer daily valued products or a very limited set of daily valued products, and/or no daily valued index product is currently available.

Diversification Benefit

We also review the potential "diversification benefit" that adding an asset class/category could benefit participant portfolios. The diversification benefit is the risk reduction and/or return enhancement an asset class/category could provide by adding it to portfolios at various risk levels. Asset classes/categories that benefit portfolios generally have low correlations relative to the investment funds currently offered and competitive historical and expected risk-return characteristics.

Practices of Peers

In making decisions about the number and types of investment options to offer in a participant-directed defined contribution plan, it is worthwhile to be aware of contemporary practices. This serves as a guide as participants will likely compare the type of options offered in their plan to those of their spouse, friends, and neighbors.

This does not mean that the TSP should be compelled to offer funds just because peer plans offer certain fund types. Rather the types of options to consider should represent a diversified opportunity set that may provide participants exposures not currently available and allow them to form better portfolios.

As we discussed earlier in this report, the TSP offers the types of options that are found in the majority of defined contribution plans and the allocations of TSP's participants to "core" investment options is comparable to that of peers.

Asset Classes/Asset Categories Under Consideration

Based on the criteria we've outlined, we segregate the asset classes/categories that we will review into

- broad asset classes/categories not currently offered to TSP participants
- asset classes/categories that TSP participants have exposure to via the current investment options, but not as a separate fund option
- specialty categories that do not fall under the first two categories

The broad asset classes/categories currently not available to participants in any way that we will review are:

- Non-U.S. bonds
- High yield bonds
- TIPS
- Emerging market stock
- Non-U.S. small-cap stock
- Real estate (private market)
- Private equity
- Commodities

The asset categories that are not explicitly offered to TSP participants currently, but participants are able to obtain some exposure to via the current investment options offered are:

- U.S. value stock
- U.S. growth stock
- REITs

The types of investment options that do not fall under the above two segments that we will review are:

- Socially responsible/corporate governance funds
- Hedge funds

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In this section of the report, we apply the criteria developed to the asset classes/categories identified in Section 4 of our report.

Application of Criteria

In determining the asset classes/categories that the TSP should consider as potential additions to its array of investment funds offered to participants, we first conduct a broad scope review of the possible additions. The purpose of the initial broad scope review is to determine which asset classes/categories are worthwhile to review in-depth and those asset classes/categories that should be eliminated early on in the process. Factors considered included whether:

- the asset class/category benefits participants' portfolios meaningfully
- the asset class/category has a small market capitalization
- the class/category is unduly concentrated
- daily-valued index products are not available
- it is an common investment option among peer plans

The asset classes/categories we initially review are:

Equities	Fixed Income	Alternatives/Other
U.S. Growth Stock	Non-U.S. Bonds	Private Real Estate
U.S. Value Stock	High Yield Bonds	Private Equity
REITs	TIPS	Commodities
Emerging Market Stock		Hedge Funds
Non-U.S. Small-cap Stock		Socially Responsible/ Corporate Governance Funds

Screening Criteria: U.S. Stock, REITs and Non-U.S. Stock

Asset class/asset category	Current Investment Fund provides exposure to:	Fund specific to asset class/category currently offered	Large market capitalization >$1 trillion	Diversified by sector, industry and/or securities	Liquid market	Meaningful portfolio diversifier: correlation of <0.5 relative to current TSP stock funds	Daily valued index product is available	Peer practice
U.S. growth equities	Yes	No	Yes	Yes	Yes	No	Yes	Yes
U.S. value equities	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Public real estate/REITs	Yes; 1% of C and 5% of S Funds	No	No; market capitalization is approximately $400 billion	Yes – security Yes – industry No - sector	Yes; but may be an issue for TSP if cash flows exceed $100 million	Yes	Yes	No
Emerging markets	No	No	Yes	Yes	Yes, but may be an issue for TSP if cash flows exceed $100 million in a day	No, moderate benefit as correlations to C, S and I Funds are <0.8	Yes	No
Non-U.S. small-cap	Yes	No	No; approximately $700 billion	Yes	Yes, but may be an issue for TSP if cash flows exceed $100 million in a day	No, moderate benefit as correlations to C, S and I Funds are <0.8	No	No

Screening Criteria: Fixed Income

Asset class/asset category	Current Investment Fund provides exposure to	Fund specific to asset class/category currently offered	Large market capitalization >$1 trillion	Diversified by sector, industry and/or securities	Liquid market	Meaningful portfolio diversifier: correlation of <0.5 to current TSP bond funds	Daily valued index product is available	Peer practice
Non-U.S. bond	No	No	Yes	Yes	Yes	No	No	No
High yield	No	No	No; market capitalization of $900 billion	Diversified, but has been concentrated in certain sectors and securities historically	Yes, but may be an issue for TSP if cash flows exceed $100 million in a day	Yes, low correlation to F Fund	Yes, but only one current provider	No
TIPS	No	No	No; market cap of $370 billion	No; not a major issue as securities are backed by the full faith and credit of the U.S. government	Yes, but may be an issue for TSP if cash flows exceed $100 million in a day	No; high correlation to F Fund	Yes	No

Screening Criteria: Real Estate, Private Equity and Alternatives/Other

Asset class/asset category	Current Investment Fund provides exposure to	Fund specific to asset class/category currently offered	Large market capitalization: >$1 trillion	Diversified by sector, industry and/or securities	Liquid market	Portfolio diversifier: correlation to current funds is <0.5	Daily valued index product is available	Peer practice
Private real estate	No	No	Yes	Yes – security Yes – industry No - sector	No	Yes; due to its appraisal based valuations	No	No
Private equity	No	No	No	Yes	No	Not applicable; appraisal based valuations made	No	No
Commodities	No	No	Yes via futures instruments	Yes	Yes; most futures markets are liquid	Yes	Yes	No
Hedge funds	No; active management strategy	No	Not applicable; not an asset class	Not applicable; not an asset class	No; most vehicles allow limited liquidity	Not applicable; not an asset class per se	No	No
Socially responsible investing/corporate governance	No	No	Not applicable; SRI is not a separate asset class and represents a style of investing	Yes	Not applicable; difficult to measure as it represents a style of investing	Not applicable unknown	Not applicable; products represent a type of investing as securities are actively selected or excluded	No

Below we discuss the information provided in the tables on pages 5.2 - 5.4 and provide our rationale why we believe an asset class/category should or should not be further considered as an investment fund option. In sections 6 to 11 of this report we provide an in-depth review of the asset classes/categories we believe are worthwhile to examine in detail.

U.S. Stock

We review investment fund alternatives in U.S. stock by style (value and growth).

We highlight our rationale for reviewing U.S. stock investment funds by valuation below:

- Larger-cap growth and value market segments are substantial with $6.5 trillion and $6.3 trillion market capitalizations, respectively
- The market segments are diversified by sector, industry, and securities
- Index products from the major index providers are available
- These market segments are liquid
- Peer practice: a majority of plans offer large-cap growth and value fund options to participants
- Allows participants to better customize their TSP portfolio so that it complements their "total portfolio" – i.e., taxable investments, non-TSP retirement investments and spouse's assets – to better suit their circumstances

We do not review small cap value and growth funds. As each of these markets is relatively small (less than $1 trillion in market capitalization), the TSP could face liquidity issues if cash flows exceed $200 million in a day. Participants have access to these segments via the S Fund, and the amount of assets indexed in this category is modest.

We discuss the merits of offering large-cap growth and value funds in Section 7.

REITs

We review the merits of adding REITs as an investment option.

We review REITs as a potential investment fund alternative for the following reasons:

- REITs have relatively low correlations to the current TSP Funds and have performed well in recent periods
- REITs have grown substantially in market capitalization in recent years
- The major index providers offer REIT index funds
- REITs have garnered much attention over the last several years

We address REITs in Section 10 of this report.

Non-U.S. Stock

We review the merits of offering an emerging markets stock fund.
We eliminate a non-U.S. small-capitalization stock fund from further consideration.

As the I Fund is a large- to mid-cap diversified non-U.S. developed markets index fund, we review two potential additions to the TSP investment line-up, emerging markets stock and non-U.S. small-cap stock.

Emerging Markets

We believe it is appropriate to review the merits of an emerging markets stock fund for the following reasons:

- Large market with total capitalization of $2.0 trillion
- Emerging markets are diversified by country, sector, industry, and securities
- TSP participants do not currently have exposure to emerging markets
- Daily valued index products are available
- Expectations that emerging markets will provide exposure to some of the world's most rapidly expanding economies

There are a number of issues that warrant further discussion regarding the risks of offering an emerging markets stock fund, which include volatility of returns, market liquidity and that the majority of peer plans do not offer this fund type. We discuss the merits of adding an emerging markets stock fund in Section 8.

Non-U.S. Small-cap Stock

We eliminate a non-U.S. small-cap stock fund from further consideration for the following reasons:

- Modest-sized market: MSCI EAFE small-cap has market capitalization of less than $700 billion
- No daily valued non-U.S. small-cap stock index fund is offered by the major index providers
- Non-U.S. small-cap funds are not common practice among peers

Adding non-U.S. small-cap stocks provides limited diversification benefits relative to current investment funds offered.

Fixed Income

We review in-depth the merits of adding a non-U.S. bond fund and a TIPS fund. We eliminate a high yield bond fund from further consideration.

There are three major fixed income asset classes/categories to review for potential addition to the TSP: 1) non-U.S. bonds, 2) high-yield bonds and 3) Treasury inflation-protected securities (TIPS). We believe it is appropriate to further review the merits of non-U.S. bonds and TIPS, but not high yield bonds.

Non-U.S. Bond

We believe it is appropriate to further review non-U.S. bonds for the following reasons:

- Large market: non-U.S. bonds represent approximately 20% of the world's market capitalization at over $18 trillion
- TSP participants do not currently have any exposure to this substantial asset class
- Non-U.S. bond market is well-diversified by country, maturity and issuers
- Non-U.S. bonds have a low correlation to stocks

We discuss the merits of offering a non-U.S. bond fund in Section 6.

TIPS

We believe it is appropriate to further consider TIPS for the following reasons:

- Large and growing market: while the market capitalization of TIPS is less than $1 trillion, the market has grown substantially in recent years (from $0 in 1997 to $370 billion today)
- TSP participants do not currently have exposure to TIPS
- Real return plus inflation tracking component of TIPS are attractive characteristics to many investors
- TIPS offer modest portfolio diversification benefits to a broadly diversified portfolio
- While TIPS are not diversified by issuer, their creditworthiness is backed by the full faith and credit of the U.S. government
- Daily valued index products are available from major index providers

We review the merits of offering a TIPS investment fund in Section 9.

High Yield Bonds

We do not believe high yield bonds warrant further consideration for the following reasons:

- While the high yield market is relatively large at $900 billion, the market has been concentrated in various industries over time (casinos, cable, autos). For example, autos comprise over 10% of the high yield market currently
- Composition of market is driven by issuers – i.e., the high yield market's composition is not necessarily a result of demand by investors as the market's composition may result from sector/industry issuance and/or downgrading of former investment-grade issuers (e.g., Ford and GM)
- One daily valued index product currently exists; generally only actively managed products are available
- Management of a broadly diversified high yield bond index fund is problematic in that the index manager may need to hold securities that are in the process of defaulting or are in default
- While the high yield bond market is relatively liquid, the TSP may have liquidity issues if daily cash flows exceed $100 million
- High yield bonds offer only a modest diversification benefit
- High yield bond funds are not common practice among peers

Private Market Real Estate

We eliminate private market real estate from consideration.

While we generally advocate that our defined benefit plan clients invest in real estate, we eliminate private market real estate from further consideration. No daily valued private market real estate index fund exists. We are aware of two daily valued real estate products that are available to defined contribution plans, but these products place material redemption restrictions on large investors, which would be an issue for the TSP. Moreover, these products are actively managed and no passive alternative is viable as portions of individual properties would need to be held and priced daily.

Private Equity

We eliminate private equity from further consideration.

Private equity is broadly defined as venture capital, leveraged buyouts, mezzanine financing, distressed debt and special situations. We eliminate private equity from further consideration for the following reasons:

- Private equity investment vehicles are highly illiquid, and the assets are valued infrequently - a major issue for TSP administration
- No daily valued index product currently exists
- Private equity investments cannot be passively managed
- Private equity represents a small proportion of the world's overall market capitalization
- Private equity is not a common investment type offered to participants

Hedge Funds

We eliminate hedge funds from further consideration.

While hedge funds have garnered billions of dollars in assets over the past several years, we recommend eliminating hedge funds from further consideration for the following reasons:

- The hedge fund category is not an asset class in and of itself; rather hedge funds represent a broad array of active management strategies
- No daily valued index fund of hedge funds exists
- The majority of hedge funds do not offer daily liquidity
- Hedge funds are not a common investment offering in peer plans

Commodities

We evaluate the merits of offering commodities as an investment option.

We believe it is worthwhile to review commodities as a potential investment option for the following reasons:

- No explicit exposure via current TSP offerings
- Diversified among different types of commodities (e.g., oil, metals, grains)
- Commodities can be a strong portfolio diversifier
- Large and liquid market

There are a number of issues that warrant further discussion regarding the risks of offering commodities, including the index's concentration in energy and that the majority of peer plans do not offer this fund type. We discuss the merits of adding a commodities fund in Section 11.

Socially Responsible/Corporate Governance Funds

We eliminate socially responsible investment (SRI) funds from further consideration.

While SRI investing has gained in popularity over the years, we eliminated SRI from further consideration for the following reasons:

- SRI is a style of investing that can be implemented passively, but the selection of the SRI issue(s) is an active decision to exclude or include a security/company – an approach the TSP has not employed previously
- Application of "social" screening (e.g., tobacco) could conflict with allowed practices under Federal Law
- Identification of an issue(s) would likely draw attention from opposing parties of interest – i.e., difficult to find "perfect" common ground
- SRI funds are not common practice among peers
- SRI did not meet most of the screening criteria established

Summary

We evaluate the merits of offering the following investment fund alternatives in-depth:

- Non-U.S. bonds
- U.S. stock funds by valuation
- Emerging markets stock
- TIPS
- REITs
- Commodities

We conduct an in-depth review of these asset classes/categories in Sections 6 through 11.

We eliminate the following asset classes/categories from further consideration:

- Non-U.S. small-cap stock
- High yield bonds
- Private market real estate
- Private equity
- Hedge funds
- Socially responsible/corporate governance funds

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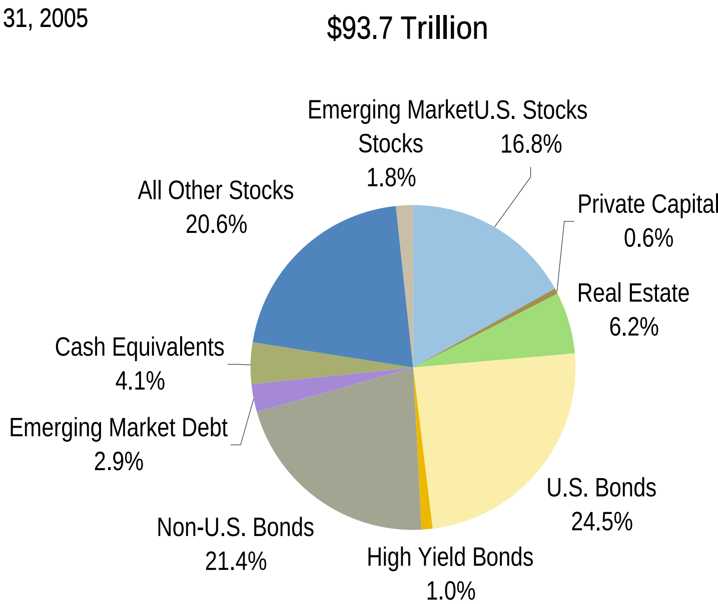
We review the merits of offering a non-U.S. bond fund as an investment fund alternative. The primary rationale for reviewing non-U.S. bonds includes the significance of non-U.S. bonds in terms of size and the fact that it is diversified by security and issuer. We review the asset class in greater detail and provide our recommendation as to whether the FRTIB should offer a non-U.S. bond fund.

Market Size

As shown in the graph below, non-U.S. bonds comprise over 20% of the world's market capitalization with over $18 trillion in assets.

Total Investable Capital Market
December 31, 2005



Source: UBS Global Asset Management, Venture Economics, EnnisKnupp

As one of the world's largest capital markets, it is appropriate to review whether or not the TSP should offer this asset class as a stand alone investment fund. Below we discuss the relevant factors to consider in making this decision, such as historical risk-return characteristics, potential diversification benefits and index product availability. Earlier in our report we noted that non-U.S. bond portfolios were not commonly offered in peer plans.

Historical Performance of Non-U.S. Bonds

In the table below, we show the historical returns of currency unhedged and currency hedged non-U.S. bonds. We show the returns of the CitiGroup World Government Bond Index (CWGBI) as this is the most widely used non-U.S. bond index. We also show the returns of the Lehman Brothers Aggregate Bond Index (benchmark for the F Fund) for comparative purposes.

Annualized Returns (As of June 30, 2006)

Trailing Years	CitiGroup World Government Bond Index (Unhedged)	CitiGroup World Government Bond Index (Hedged)	Lehman Brothers Aggregate Bond Index
1	-0.4%	-0.1%	-0.8%
3	4.2	2.6	2.1
5	8.5	4.4	5.0
10	5.4	6.5	6.2
15	7.2	7.3	6.9
20	7.6	7.3	7.4
21 Years 6 Months (since inception)	9.0	8.0	8.3

The long-term performance of the CWGBI unhedged and hedged indexes is comparable to that of the Lehman Brothers Aggregate Bond Index. The large fluctuations in returns on a calendar year basis for the unhedged CWGBI relative to the hedged CWGBI and the Lehman Aggregate Bond Index are a result of the performance of the U.S. dollar relative to foreign currencies.

The table below shows the volatility (annual standard deviation) of the indexes over several trailing periods.

Annualized Standard Deviation (As of June 30, 2006)

Trailing Years	Citigroup World Government Bond Index (Unhedged)	Citigroup World Government Bond Index (Hedged)	Lehman Brothers Aggregate Bond Index
5	7.2%	2.9%	4.0%
10	6.7	2.9	3.6
15	6.5	3.1	3.9
20	6.7	3.3	4.1
21 Years 6 Months (since inception)	7.0	3.5	4.4

The higher level of volatility of the CWGBI unhedged Index is largely a result of foreign currency performance relative to the U.S. dollar.

Sharpe Ratios for each of the indexes over various periods are shown below. The Sharpe Ratio is a measure of reward per unit of risk (volatility of return) – the higher the Sharpe Ratio the better.

Sharpe Ratios (As of June 30, 2006)

Trailing Years	Citigroup World Government Bond Index (Unhedged)	Citigroup World Government Bond Index (Hedged)	Lehman Brothers Aggregate Bond Index
5	0.91	0.86	0.78
10	0.33	1.11	0.79
15	0.58	1.22	0.87
20	0.50	0.90	0.76
21 Years 6 Months (since inception)	0.65	0.98	0.87

Over the longest periods shown, the Sharpe Ratio for the Lehman Aggregate Bond Index is superior to that of the unhedged CWGBI, but lower than that of the hedged CWGBI.

As the historical returns of the unhedged CWGBI are comparable to those of the hedged CWGBI and Lehman Aggregate, but risk is nearly double that of the other indexes, the unhedged CWGBI is unappealing.

We show the correlations of the unhedged and hedged CWGBI returns relative to the returns of the TSP's current investment funds in the table below. Correlation coefficients can range from +1 to -1. A correlation of +1 between two indexes implies that the returns of the two indexes move in the same direction and in the same proportion, while a correlation of -1 means that the returns move in opposite directions but in the same proportion. Low to negative correlations generally imply a risk diversification benefit.

Correlations (18 years ending December 31, 2005)

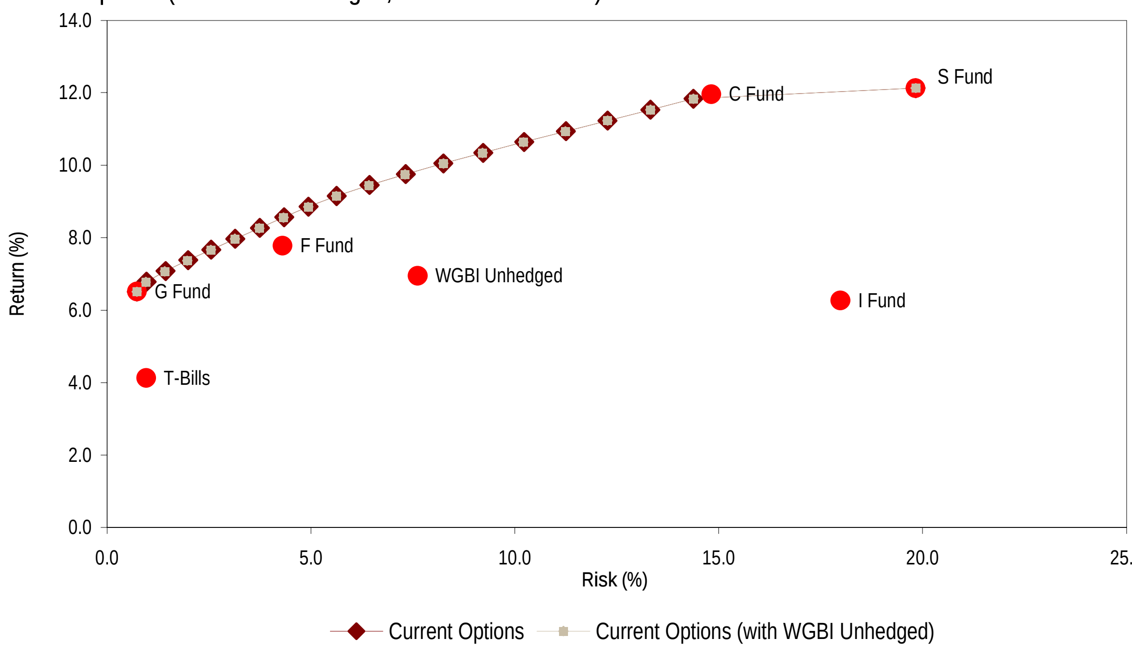
	C Fund	S Fund	I Fund	F Fund	G Fund	CWGBI Hedged	CWGBI Unhedged
C Fund	1.00						
S Fund	0.98	1.00					
I Fund	0.62	0.62	1.00				
F Fund	0.18	0.16	0.08	1.00			
G Fund	0.01	0.02	0.09	0.14	1.00		
CWGBI Hedged	0.17	0.14	0.12	0.88	0.12	1.00	
CWGBI Unhedged	0.05	0.04	0.36	0.54	0.22	0.57	1.00

The overall low correlations of the hedged and unhedged CWGBI to the C, S and I Funds seem appealing at first. However, the F Fund also has low correlations to the C, S and I Funds. Additionally, the hedged CWGBI is highly correlated to the F Fund, and even the unhedged CWGBI has a modestly high correlation with the F Fund, indicating that little diversification benefit is to be had from adding non-U.S. bonds.

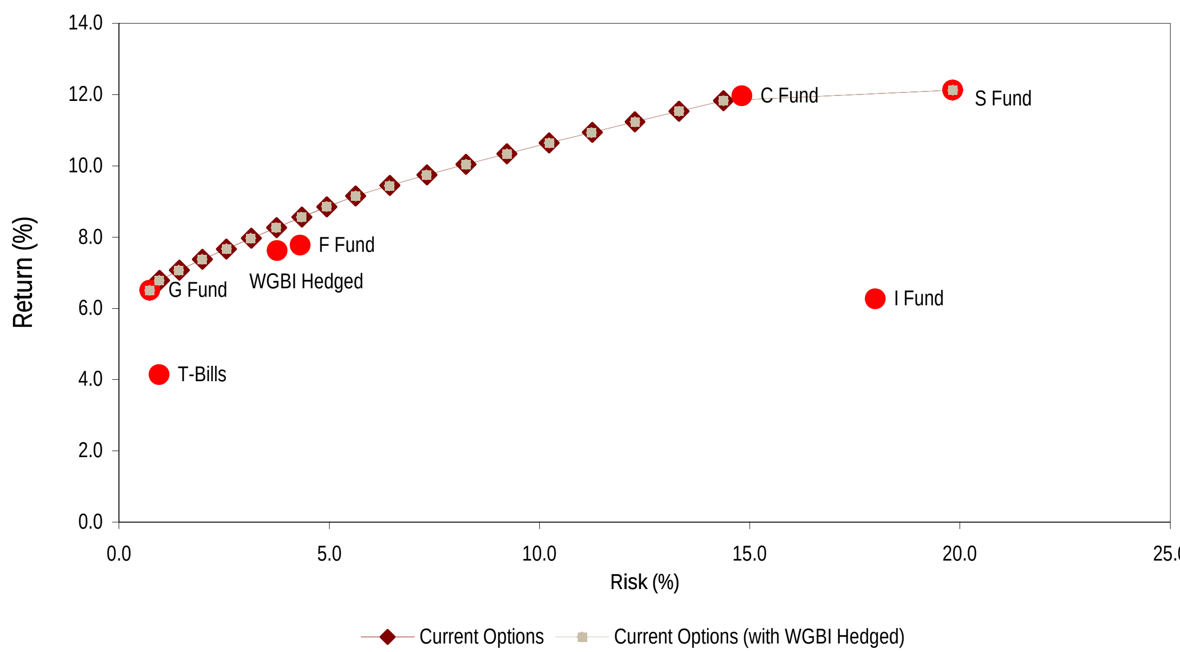
In the graphs below we show the historical efficient frontier for TSP participants using the current TSP investment options and the efficient frontier if the hedged and unhedged CWGBI were part of the investment line-up.

The efficient frontier is the mix of different funds that provides the highest expected return for a given level of risk or the asset mix with the lowest level of risk for a given return.

Efficient Frontier (Based on Historical Data)
Current Options (with WGBI Unhedged; Jan 1988 - Dec 2005)



Efficient Frontier (Based on Historical Data)
Current Options (with WGBI Hedged; Jan 1988 - Dec 2005)



There is little difference in the historical efficient frontiers for the TSP's current investment fund and those that include unhedged or hedged non-U.S. bonds as investment fund alternatives.

The table below shows the amount of assets indexed to non-U.S. bonds by the three largest institutional index fund managers, Barclays Global Investors (BGI), Northern Trust Global Investments (NTGI), and State Street Global Advisors (SSgA).

Non-U.S. Bond Index Fund Products (assets in millions) – All assets

	BGI	NTGI	SSgA
Citigroup World ex-U.S. Government	-	-	$227
JP Morgan Gov't Bond Index Global	-	$34	2,063
Citigroup World Government Bond Index	$802	-	1,869

Non-U.S. Bond Index Fund Products (assets in millions) – Daily-valued DC assets

	BGI	NTGI	SSgA*
Citigroup World ex-U.S. Government	-	-	-
JP Morgan Gov't Bond Index Global	-	$34	-
Citigroup World Government Bond Index	-	-	-

**Daily valued DC asset information was not readily available from SSgA*

As shown above, non-U.S. bond index funds have a minimal level of assets invested.

Considerations

We generally advocate that our clients offer only one investment fund alternative in the diversified fixed income/bond fund category. We advocate simplicity in the bond category as participants generally do not allocate significant assets to bond funds and do not obtain material benefits from specialized bond funds if they have a broadly diversified portfolio. Additionally, it can be difficult to educate participants regarding the drivers of a specialized bond fund's performance (interest rate sensitivity, credit spreads, currency fluctuations, etc.).

Non-U.S. bond funds are not common practice in peer plans and TSP participants are offered material portfolio diversification benefits via the F and G Funds.

Conclusion

While non-U.S. bonds are a material portion of the world's market capitalization, the benefits of adding a non-U.S. bond option are minimal from an expected risk-return and portfolio diversification standpoint for TSP participants. Moreover, adding a non-U.S. bond fund would add complexity to a segment of the plan where we believe additional flexibility is not required and/or meaningful. As such, we recommend the FRTIB not add a non-U.S. bond fund as an investment fund alternative.

Our rationale for reviewing the merits of offering additional broad-based U.S. stock investment funds include:

- Participants' knowledge of U.S. stock investing has grown tremendously in recent years – resulting in increased demand for U.S. stock fund alternatives.

- As the allocation to U.S. stocks is generally one of the largest components of a participant's portfolio, a subset of participants desire to customize their defined contribution plan U.S. stock portfolios to account for personal (taxable and tax-exempt) investments, complement investment funds available in a spouse's plan and/or account for their own investment preferences/risk tolerance.

- It represents contemporary practice.

The types of U.S. stock funds that we generally recommend offering are:

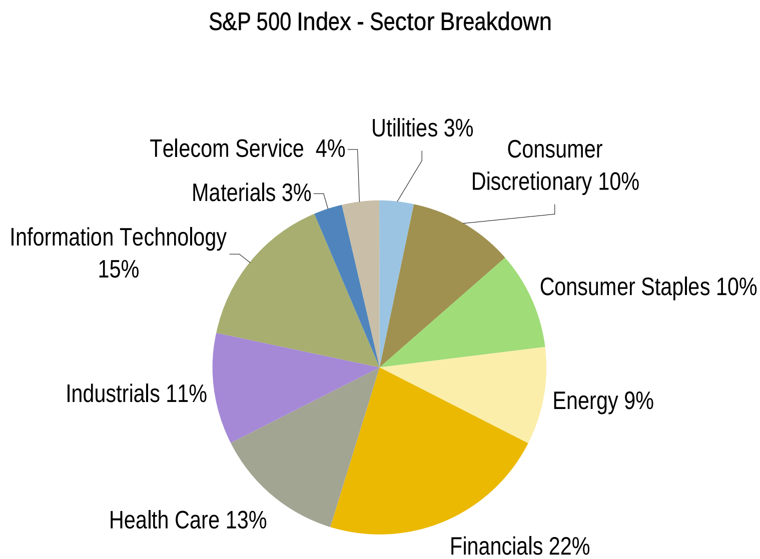
- Core stock index fund
- Larger-cap value
- Larger-cap growth
- Mid-/small-cap stock

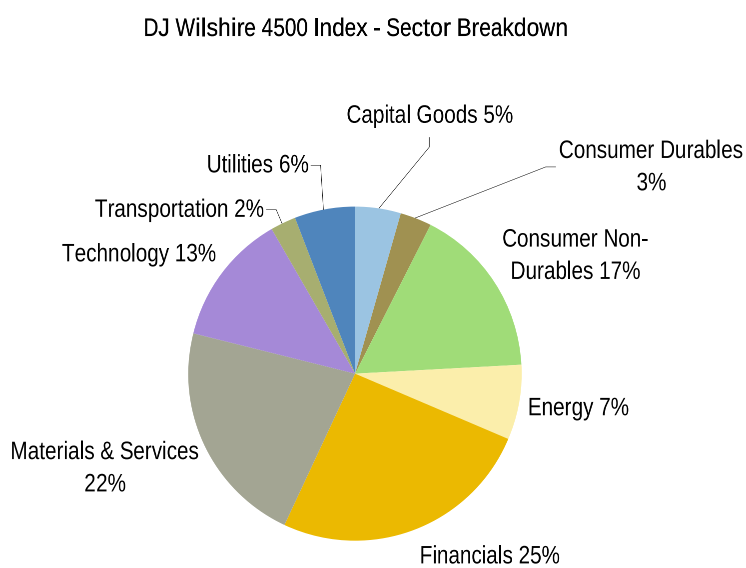
Depending upon a plan's circumstances, four to eight U.S. stock funds are typically offered to participants. The number of options offered is generally influenced by the number of active and passive funds offered and how finely each of the categories is defined.

The TSP plan already offers access to large cap stocks and mid/small cap stocks via the C and S Funds, respectively. In this section of the report, we focus our attention on large cap value and growth options.

Current Stock Funds Composition

Below we show the sector composition of the U.S. stock funds (C and S Funds) currently offered to participants according to the Funds' benchmarks, the S&P 500 and Dow Jones Wilshire 4500, respectively. The current C and S Funds benchmarks are well diversified by sector.





Growth stocks are generally thought of as those that have a high earnings growth rate, high price-to-book and high price-to-earnings ratios. Value stocks on the other hand are thought of as those that have a high dividend yield, low price-to-book and low price-to-earnings ratios.

We show the historical returns, volatility (annualized standard deviation) and Sharpe Ratios for the Russell 1000 Growth and Value Indexes. We have used the Russell family of U.S. stock indexes as these are the most popularly followed style indexes. Russell utilizes two major factors in determining whether a stock is a value stock or a growth stock – book-to-price ratio, and the long-term growth rate mean obtained from analysts' estimates. Lower book-to-price ratios would denote growth characteristics.

Annualized Returns (As of June 30, 2006)

Trailing Years	Russell 1000 Growth Index	Russell 1000 Value Index	S&P 500 Index
1	6.1%	12.1%	8.6%
3	8.4	15.7	11.2
5	-0.8	6.9	2.5
10	5.4	10.8	8.3
15	8.7	12.7	10.7
20	9.4	12.1	11.0
27 Years 6 Months (Since inception)	11.7	14.3	13.2

Annualized Standard Deviation (As of June 30, 2006)

Trailing Years	Russell 1000 Growth Index	Russell 1000 Value Index	S&P 500 Index
5	15.0%	13.1%	13.6%
10	19.6	14.5	15.7
15	17.1	12.9	13.9
20	18.0	14.2	15.2
27 Years 6 Months (Since inception)	17.7	14.0	15.0

Sharpe Ratio (As of June 30, 2006)

Trailing Years	Russell 1000 Growth Index	Russell 1000 Value Index	S&P 500 Index
5	-0.10	0.44	0.12
10	0.20	0.56	0.38
15	0.37	0.73	0.56
20	0.36	0.59	0.50
27 Years 6 Months (Since inception)	0.40	0.63	0.53

We show the correlations of the various capitalization and valuation segments in the following table.

Correlations (18 years ending December 31, 2005)

	C Fund	S Fund	I Fund	F Fund	G Fund	Russell 1000 Growth	Russell 1000 Value
C Fund	1.00						
S Fund	0.80	1.00					
I Fund	0.62	0.56	1.00				
F Fund	0.18	0.09	0.08	1.00			
G Fund	0.01	0.05	0.09	0.14	1.00		
Russell 1000 Growth	0.95	0.85	0.58	0.14	0.01	1.00	
Russell 1000 Value	0.91	0.68	0.56	0.20	0.02	0.75	1.00

Observations

The historical data suggests that adding a value-oriented investment fund would be appropriate as the value index has performed well relative to its core and growth index counterparts from a return and risk perspective. The value index also has lower correlations and higher Sharpe Ratios to the current U.S. stock funds than the growth index.

While the data indicates value-oriented stocks are appealing to offer as an investment fund alternative relative to growth-oriented stocks, performance figures present a particularly compelling case as a result of their significant outperformance relative to growth stocks over the past six years. However, if this analysis ended on June 30, 2000, it would have led to a different conclusion as growth stocks had materially outperformed value at that point in time and points to “return end-point dependency”.

The common practice in the marketplace for plans that offer style specific funds is to offer both value and growth funds so complementary styles are offered to participants and they have the flexibility to customize their portfolios.

Index Investment Options

The table below shows the amount of assets indexed to large-cap value and growth style equities by the major institutional index fund managers.

U.S. Equity Styles Index Fund Products (assets in millions) – All assets

	BGI	NTGI	SSgA
Russell 1000 Growth Index	$6,704	$5,631	$4,471
Russell 1000 Value Index	11,121	5,185	6,758

U.S. Equity Styles Index Fund Products (assets in millions) – Daily-valued DC assets

	BGI	NTGI	SSgA
Russell 1000 Growth Index	$709	$1,802	$256
Russell 1000 Value Index	1,172	1,659	951

The level of assets currently invested in index funds benchmarked to the Russell 1000 Value Index is material at over $23 billion at BGI, NTGI and SSgA. While a lesser amount, the assets indexed to the Russell 1000 Growth Index are also substantial at over $16 billion.

Considerations

It is generally common practice for peer plans to offer growth- and value-oriented U.S. stock funds, with it being more common to offer larger-capitalization growth and value funds than smaller-capitalization growth and value funds. Larger-capitalization growth and value funds are attractive alternatives from a market size, liquidity, sector and security diversification, and contemporary practice standpoint. The diversification benefits, however, would not be material relative to the current investment funds already available. We do not believe it is necessary for the TSP to offer any additional U.S. stock funds as the C and S Funds provide exposure to the entire U.S. stock market. Offering a more limited number of U.S. stock funds without foregoing material improvement in portfolios would be consistent with avoiding investment choice overload.

Conclusion

On balance, we do not find a compelling reason to add additional U.S. stock funds, as the TSP's current investment line-up provides broad exposure to the U.S. stock market via the C and S Funds.

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We review the merits of offering an emerging markets stock fund as an investment alternative for the following reasons:

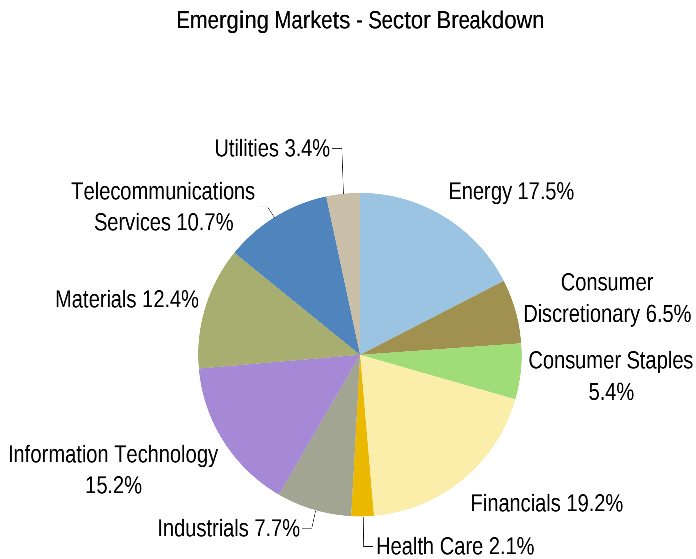
- Large market with total capitalization of $2.0 trillion
- Emerging markets are diversified by country, sector, industry and securities
- TSP participants do not currently have exposure to emerging markets
- Daily valued index products are available
- Expectations that emerging markets will provide exposure to some of the world's most rapidly expanding economies

While "emerging markets" are a commonly used term in today's investment world, there isn't a single concise definition for what constitutes an emerging market economy. In general, countries with developing economies that have low- to mid-per capita income levels and are experiencing positive structural changes to the characteristics of their economic systems can be thought of as emerging market economies. These changes include, but are not limited to, deregulation and privatization of industry, rationalization of monetary and fiscal policies, elimination of trade barriers, enhancement of property rights, etc. In other words, these economies can be thought of as transitional economies – ones that aren't yet perfectly integrated into the global financial system, but making strides to get there.

On the following pages we review the composition of the emerging markets stock index, its historical performance and the potential diversification benefits of adding an emerging markets stock fund.

We use the Morgan Stanley Capital International (MSCI) Emerging Markets (EM) Stock Index, the most widely followed emerging markets stock index, to review the characteristics and performance of emerging markets stocks. The following exhibits show that emerging markets are diversified by sector and country.

The chart below shows the sector composition of the MSCI Emerging Markets Stock Index.



Emerging Market Characteristics (As of September 30, 2006)

Market Capitalization ($ in millions)	$2.0 trillion
Number of Securities	852
Average market capitalization	$2.3 billion

The countries that comprise the MSCI Emerging Markets Stock Index are shown in the table below.

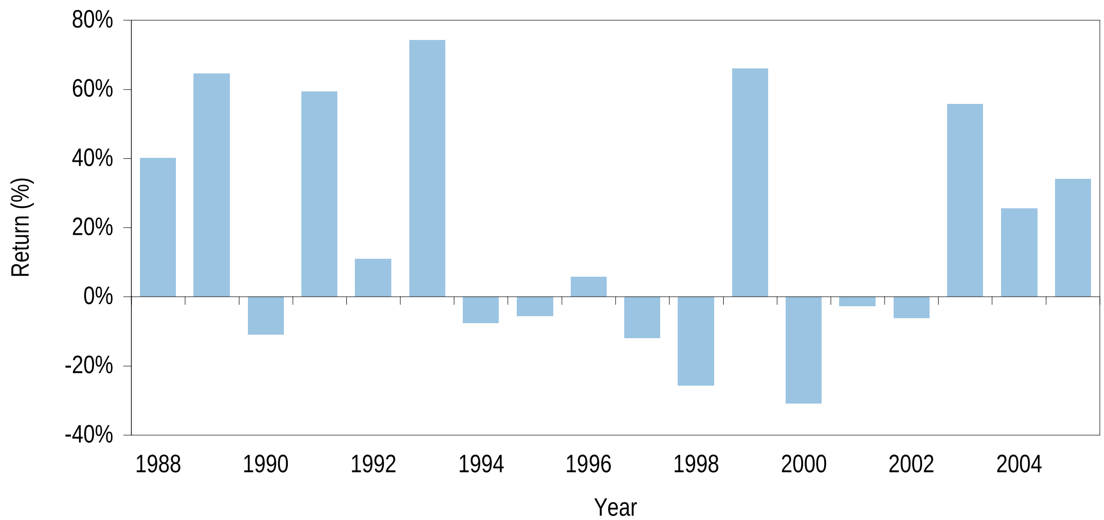
Emerging Market Country Allocation (As of September 30, 2006)

Country/Region	% Allocation
China	9.5%
India	6.7
Indonesia	1.6
Korea	17.5
Pakistan	0.2
Philippines	0.5
Malaysia	2.6
Taiwan	13.0
Thailand	1.6
Asia	53.4%
Czech Republic	0.8%
Egypt	0.9
Hungary	1.0
Israel	2.7
Jordan	0.2
Morocco	0.3
Poland	1.6
Russia	10.7
Turkey	1.5
Europe & Middle East	19.7%
Argentina	0.7%
Brazil	10.0
Chile	1.5
Colombia	0.3
Mexico	6.1
Peru	0.5
Venezuela	0.1
Latin America	19.3%
South Africa	7.7%
Africa	7.7%
TOTAL	100.0%

Historical Performance

In the following chart, we show the annual returns of emerging markets over time. As seen in the chart, emerging market investments exhibit a very high degree of variability (volatility) from year to year.

Emerging Markets - Annual Returns



We show the annualized returns, volatility and Sharpe Ratios for the MSCI Emerging Markets Stock Index in the following tables.

Annualized Returns (As of June 30, 2006)

Trailing Years	MSCI Emerging Markets Index
1	35.5%
3	34.3
5	21.2
10	6.4
15	9.8
18 Years 6 Months (since inception)	14.0

Annualized Standard Deviation (As of June 30, 2006)

Trailing Years	MSCI Emerging Markets Index
5	20.5%
10	24.3
15	22.3
18 Years 6 Months (since inception)	23.0

Sharpe Ratio (As of June 30, 2006)

Trailing Years	MSCI Emerging Markets Index
5	0.96
10	0.24
15	0.38
18 Years 6 Months	0.51

The table below shows the historical correlations of the MSCI Emerging Markets Stock Index relative to the current TSP Funds.

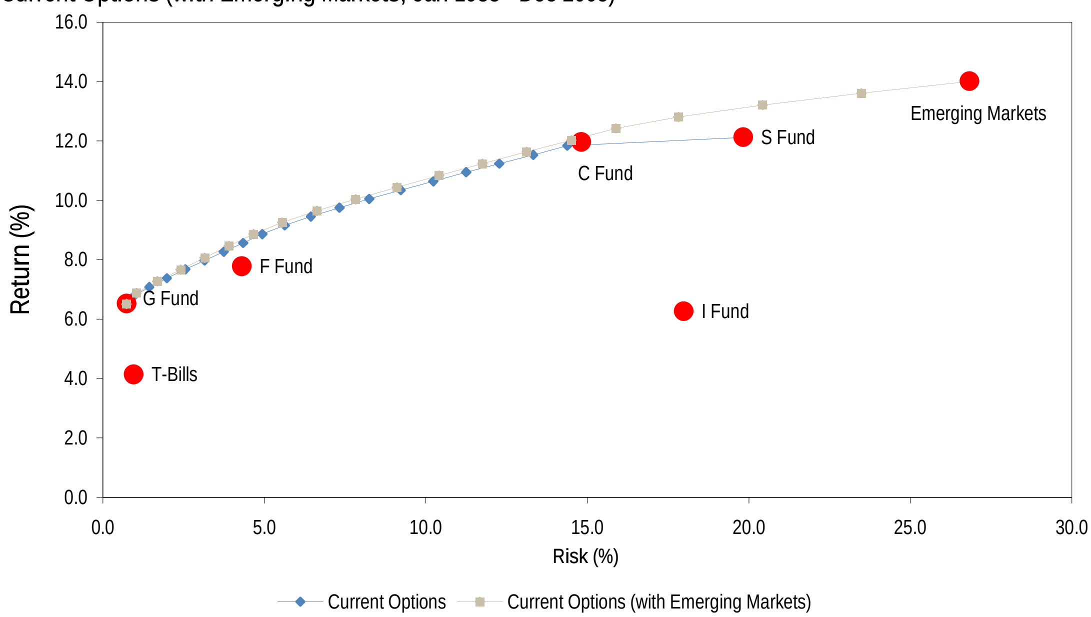
Correlations (18 years ending December 31, 2005)

	C Fund	S Fund	I Fund	F Fund	G Fund	MSCI EM Index
C Fund	1.00					
S Fund	0.80	1.00				
I Fund	0.62	0.56	1.00			
F Fund	0.18	0.09	0.08	1.00		
G Fund	0.01	0.05	0.09	0.14	1.00	
MSCI EM Index	0.59	0.64	0.57	-0.04	0.07	1.00

Emerging market returns are modestly correlated to the C, S and I Fund and uncorrelated to the F and G Funds.

Below we show the efficient frontiers, based on historical data, using the TSP Funds with and without emerging markets as an investment fund alternative.

Efficient Frontier (Based on Historical Data)
Current Options (with Emerging Markets; Jan 1988 - Dec 2005)



As shown, the efficient frontier with emerging markets as an investment fund alternative changes only modestly at low to fairly high risk levels (1% to 15% risk or annualized standard deviation of return), providing a slight improvement in the risk/return profile. At the highest risk levels, the benefit is more pronounced (risk from 15% to 25%). We believe the improvement in the efficient frontier would be of little benefit to the majority of TSP participants as most would not likely construct highly risky portfolios.

The tables below show the amount of assets indexed to emerging market equities by the major institutional index fund mangers.

Emerging Markets Index Fund Products (assets in millions) – All assets

	BGI	NTGI	SSgA
MSCI Emerging Markets Index	$2,596	$130	$4,194

Emerging Markets Index Fund Products (assets in millions) – Daily-valued DC assets

	BGI	NTGI	SSgA
MSCI Emerging Markets Index	--	--	$181

The total assets indexed to emerging market stocks amongst the leading index fund providers is approximately $7.0 billion.

Considerations

Emerging markets have received much attention recently as performance has been very strong, and the world's developing economies are expected to experience strong secular growth. These strong expectations, however, come with considerable risk in terms of volatility of returns and political risk that is not typically present in the developed markets. Emerging markets have seen materially negative results over certain periods, more frequently than in their developed markets counterparts. This causes us to pause when considering such an option for a defined contribution plan, where a participant could potentially put all their assets in a single fund. Emerging market funds are not commonly found in peer plans as stand alone investment options.

Conclusion

While emerging markets are a large asset class, expected to experience secular growth, and provide a benefit to portfolios at the highest levels of risk, we have concerns with the TSP offering emerging markets as a stand alone investment fund. The high risk associated with emerging markets has resulted in material losses over relatively short periods of time and is difficult for participants (or for any investor) to bear. Additionally, there are limited benefits to adding emerging market equities to well-diversified low to moderate risk portfolios.

Overall, we believe the negatives of offering an emerging markets investment fund outweigh the positives and recommend an emerging market stock fund not be added as an investment fund alternative. Moreover, we believe it is appropriate to monitor the possibility of accessing the emerging markets via the I Fund in the future, as index fund managers may offer a daily valued index fund that provides exposure to both the developed non-U.S. stock markets and emerging markets in their respective market capitalization proportions.

We evaluate Treasury-Inflation Protected Securities (TIPS) as a potential investment fund alternative. Our rationale for recommending an in-depth review of TIPS was based on:

- Large and growing market: while the market capitalization of TIPS is less than $1 trillion, the market has grown substantially in recent years (from $0 in 1997 to $370 billion today)
- Participants do not have exposure to TIPS currently
- Inflation-linked coupon payments and principal associated with TIPS are attractive characteristics to many investors
- TIPS offer modest portfolio diversification benefits
- While TIPS are not diversified by issuer, their creditworthiness is backed by the full faith and credit of the U.S. government
- Daily valued index products are available from major index providers

TIPS are similar to securities issued by the U.S. Treasury such as notes and bonds, but offer protection from inflation. Similar to other instruments issued by the U.S. Treasury, TIPS pay coupon interest on a semi-annual basis and principal on maturity.

The principal value of TIPS is linked to inflation, as measured by the Consumer Price Index (CPI), and accordingly the principal value changes through time – referred to as “adjusted principal”. Increasing inflation results in an increase in the principal value of the TIPS. At maturity, the Treasury pays the original principal or the adjusted principal, whichever is greater. The coupon interest, which is paid on a semi-annual basis, is based on a fixed rate on the adjusted principal value.

Historical Performance

We show the historical performance of Lehman Brothers TIPS Index relative to the Lehman Brothers Aggregate Bond Index, the benchmark for the F Fund, in the tables below.

Annualized Returns (As of June 30, 2006)

Trailing Years	LB TIPS Index	LB Aggregate Bond Index
1	-1.6%	0.8%
3	3.8	2.1
5	7.0	5.0
9 Years 4 months (since inception)	6.7	6.0

Annualized Standard Deviation (As of June 30, 2006)

Trailing Year	LB TIPS Index	LB Aggregate Bond Index
5	6.4%	4.0%
9 Years 4 months (since inception)	5.0	3.5

Sharpe Ratios (As of June 30, 2006)

Trailing Year	LB TIPS Index	LB Aggregate Bond Index
5	0.81	0.78
9 Years 4 months (since inception)	0.70	0.76

The Sharpe ratios of TIPS and the Lehman Brothers Aggregate Bond Index are similar over the longest common time period.

The table below shows the historical correlations of the Lehman Brothers TIPs Index relative to the current TSP Funds.

Correlations (8 years 10 months ending December 31, 2005)

	C Fund	S Fund	I Fund	F Fund	G Fund	LB TIPS Index
C Fund	1.00					
S Fund	0.79	1.00				
I Fund	0.81	0.75	1.00			
F Fund	-0.11	-0.09	-0.13	1.00		
G Fund	-0.01	0.06	0.10	0.15	1.00	
LB TIPS Index	-0.17	-0.14	-0.14	0.77	0.22	1.00

As shown, TIPS returns are negatively correlated to those of the C, S and I Fund, but highly correlated to those of the F Fund. The correlation of returns between TIPS and the G Fund is low as well.

The tables below show the amount of assets indexed to TIPS by the major institutional index fund managers.

TIPS Index Fund Products (assets in millions) – All assets

	BGI	NTGI	SSgA
Lehman Brothers TIPS Index	$2,186	$1,397	$5,054

TIPS Index Fund Products (assets in millions) – Daily-valued DC assets

	BGI	NTGI	SSgA
Lehman Brothers TIPS Index	$120	$447	$1,271

The amount of assets indexed to TIPS among the major index fund providers is approximately $9 billion.

Considerations

As discussed earlier in the report, we generally advocate that our clients offer only one option in the diversified fixed income/bond fund category, but believe it was worthwhile to review TIPS given that they provide inflation protection. We advocate simplicity in the bond category as participants generally do not allocate significant assets to bond funds, and generally do not attain material benefits from specialized bond funds if they have a broadly diversified portfolio. Additionally, it is difficult to educate participants regarding the drivers of a specialized bond fund's performance (interest rate sensitivity, credit risk, etc).

Importantly, TSP participants are offered inflation protection via the G Fund. As yields of nominal U.S. Treasury securities generally reflect expected inflation plus a real return component, if inflation increases or is expected to increase, the yields of Treasuries are expected to increase; and the G Fund's yield should increase as well. The benefit TSP participants have is that the principal value of their G Fund investments does not decline – as a result they do not experience any price volatility. Investors who purchase nominal bonds or TIPS do incur price volatility, which makes the G Fund much more attractive. The characteristics of the G Fund provide a powerful diversification benefit and negate much of the benefits a TIPS fund could provide to TSP participants.

Another issue with offering a TIPS fund is that the fund is a blend of TIPS securities with different maturities and the effective maturity of the portfolio may not match the period that the participant seeks to hedge their inflation risk (e.g., 20 years). A buy and hold strategy of individual TIPS securities may better meet their objective. A participant would generally benefit from investing in a TIPS Fund, but it may not be their ideal solution.

The U.S. Treasury auctions TIPS in three maturities – 5-years, 10-years and 20-years. TIPS are a good hedge against inflation if they are held until maturity – since the coupon payments over the life of the TIPS are based on inflation-adjusted principal, and at maturity the investor receives the higher of the inflation adjusted principal or the original principal. Over shorter periods, however, TIPS may not yield a return comparable with inflation since the prices at which the bonds may be traded (bought and sold) may not be perfectly in sync with inflation over a given holding period.

Conclusion

While TIPS are attractive to investors who want to hedge inflation, the TSP offers a fund (G Fund) that provides similar characteristics over the long-term without negative price volatility, which negates the benefits of offering a TIPS fund. Additionally, a TIPS Fund would provide limited diversification benefits to TSP participants, add complexity to an investment category where we believe additional flexibility is not required, and is not common practice among peer plans. Therefore, we recommend the FRTIB not offer TIPS as an investment fund alternative.

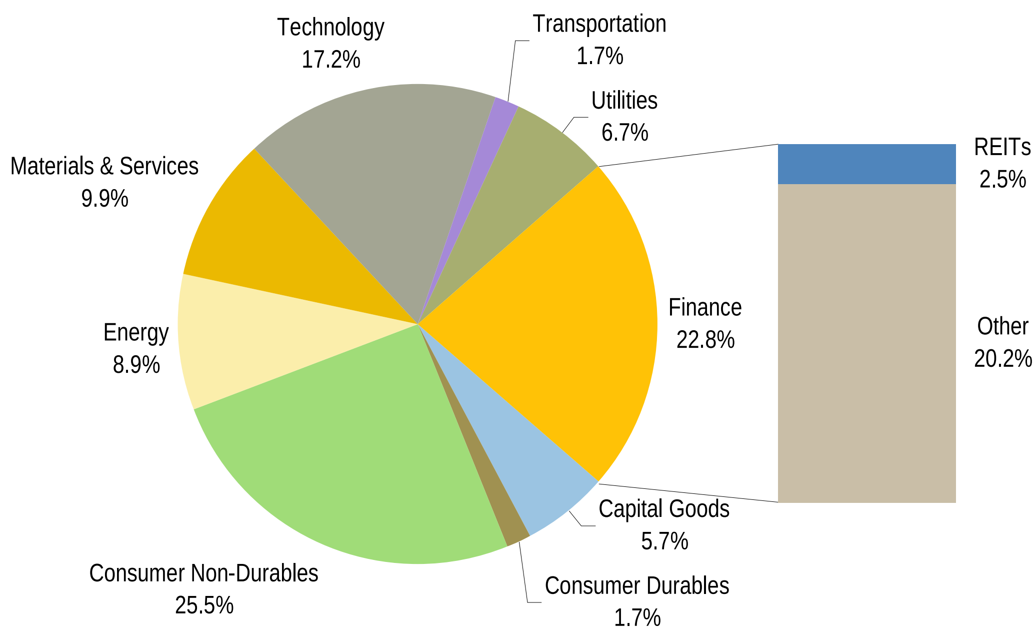
We review the merits of offering a REIT index fund as an investment alternative for the following reasons:

- Low correlation of returns relative to major market indexes
- REITs have grown substantially in market capitalization in recent years
- The major index fund managers offer REIT index funds
- REITs have garnered much attention over the last several years

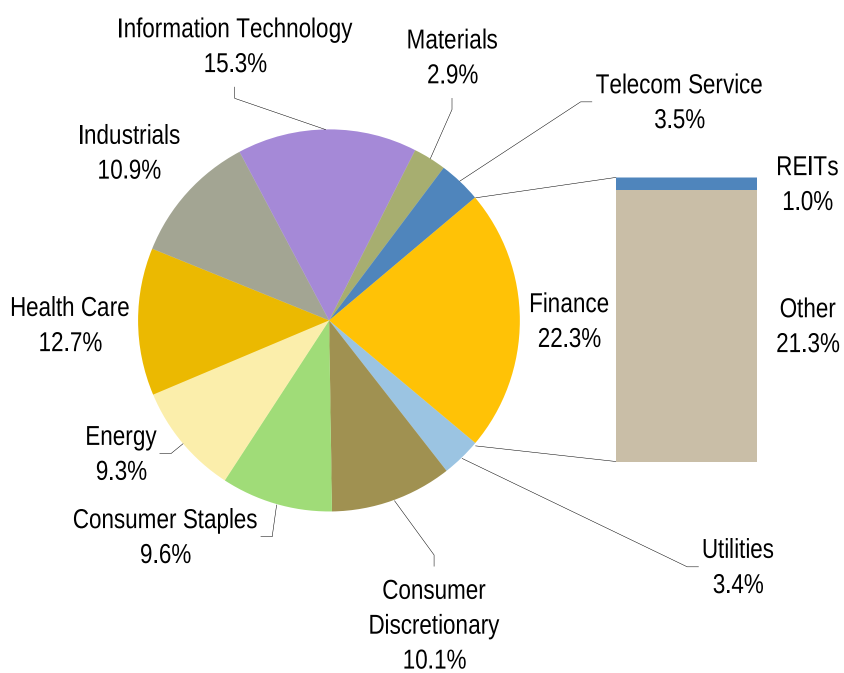
Real Estate Investment Trusts, or REITs are specialized companies that own, and in most cases operate income generating real estate properties. REITs are listed on most major stock markets and can be traded just like shares in any other company. REITs allow smaller investors the ability to share in the ownership of large, income generating real estate such as apartments, offices, hotels, and shopping centers – essentially allowing smaller investors the ability to diversify their exposure to real estate investments through investing in a portfolio of properties rather than an investment in a single or few properties. REITs must distribute at least 90% of their taxable income to shareholders annually.

As REITs are publicly traded securities and listed on U.S. stock exchanges, REITs are included in the major U.S. stock market indexes as part of the finance sector, and as such, we consider REITs a sub-sector, similar to autos within consumer durables, pharmaceuticals within healthcare, or insurance within the finance sector. We show the composition of the broad U.S. stock market, as defined by the Dow Jones Wilshire 5000 Stock Index, the S&P 500 (C Fund) and Dow Jones Wilshire 4500 Stock Index (S Fund) below.

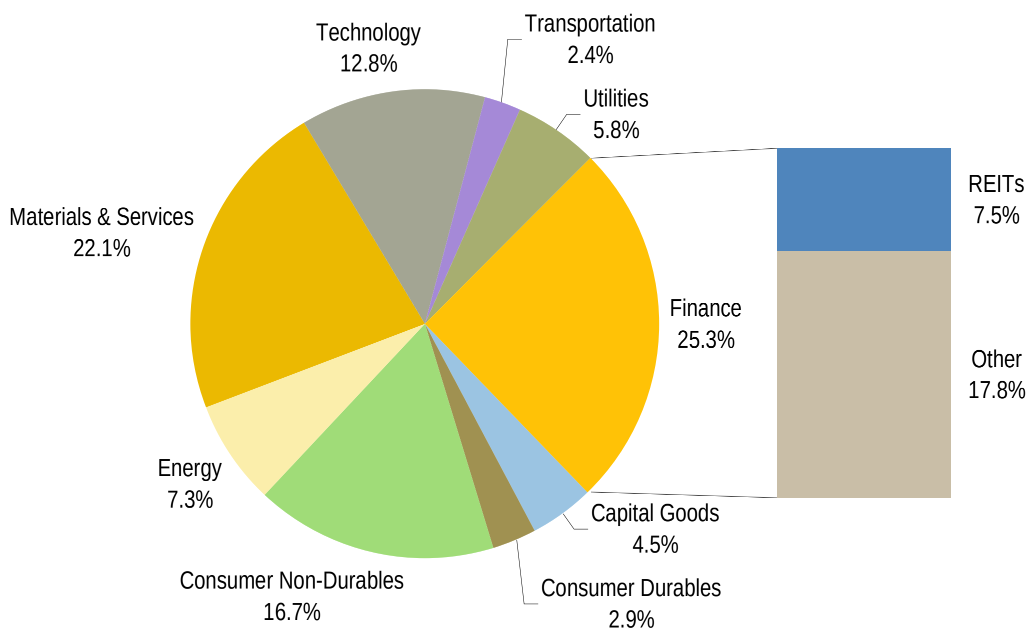
Sector Breakdown of Wilshire 5000 Index



Sector Breakdown of S&P 500 Index



Sector Breakdown of Wilshire 4500 Index



The table below shows the composition of the DJ Wilshire Equity REIT Index. REITs are diversified among many different types of real estate properties.

DJ Wilshire Equity REIT Index – Sector Breakdown

Sector	% Allocation
Retail	27.1%
Multifamily	20.3
Office	19.7
Diversified	11.7
Leisure	7.9
Industrial	7.5
Healthcare	0.0
Self Storage	5.4
Other	0.4

Historical Performance

We show the historical returns, volatility and Sharpe Ratios for three popular REIT Indexes below.

Annualized Returns (As of June 30, 2006)

Trailing Years	DJ Wilshire Equity REIT Index	MSCI REIT Index	FTSE NAREIT Index
1	22.0%	19.6%	19.1%
3	27.7	26.2	26.1
5	20.2	19.4	19.4
10	16.2	15.1	15.1
11 years 6 months (MSCI inception)	15.7	14.8	15.1
15	14.3	--	14.7
20	11.0	--	12.1
28 years 6 months (DJ Wilshire inception)	14.7	--	14.9
34 years 6 months (FTSE NAREIT inception)	--	--	13.6

Annualized Standard Deviation (As of June 30, 2006)

Trailing Years	DJ Wilshire Equity REIT Index	MSCI REIT Index	FTSE NAREIT Index
5	15.1%	14.8%	14.6%
10	14.6	14.4	14.0
11 years 6 months (MSCI inception)	13.9	13.7	13.2
15	13.4	--	12.9
20	13.6	--	12.9
28 years 6 months (DJ Wilshire inception)	14.8	--	13.2
34 years 5 months (FTSE NAREIT inception)	-	--	13.8

Sharpe Ratios (As of June 30, 2006)

Trailing Years	DJ Wilshire Equity REIT Index	MSCI REIT Index	FTSE NAREIT Index
5	1.18	1.15	1.17
10	0.88	0.83	0.85
11 years 6 months (MSCI inception)	0.88	0.83	0.87
15	0.81	-	0.87
20	0.53	-	0.63
28 years 6 months (DJ Wilshire inception)	0.62	-	0.69
34 years 6 months (FTSE NAREIT inception)	-	-	0.58

As shown in the tables above, REITs have performed particularly well over the past five years, with an annualized return exceeding 19%. Over the past ten years, REITs have outpaced large-cap, mid-cap and small-cap U.S. stocks by over two percentage points. For the twenty-year period, however, REIT returns are comparable to the U.S. stock market and their Sharpe ratios are also similar -- 0.43 for the DJ Wilshire REIT Index, 0.50 for the S&P 500 Stock Index and 0.42 for the Dow Jones Wilshire 4500 Stock Index.

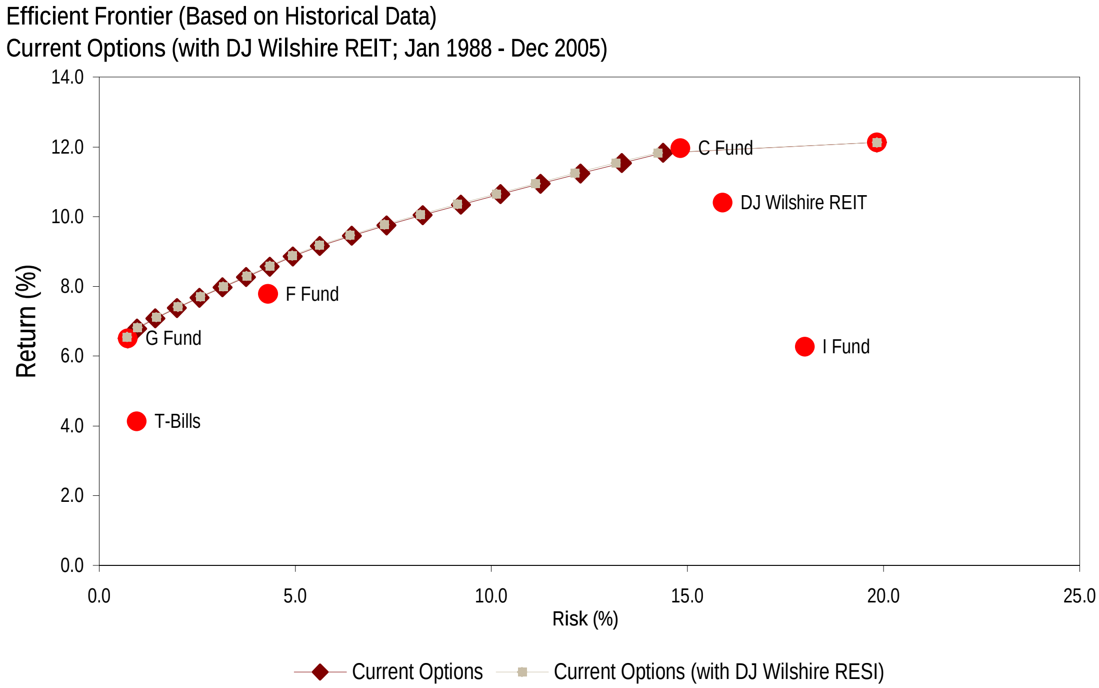
We show the historical correlations of REITs to those of the current TSP investment funds in the table below.

Correlations (11 years ending December 31, 2005)

	C Fund	S Fund	I Fund	F Fund	G Fund	MSCI US REIT Index	FTSE NAREIT US REIT	DJ Wilshire Equity REIT Index
C Fund	1.00							
S Fund	0.78	1.00						
I Fund	0.77	0.72	1.00					
F Fund	-0.04	-0.08	-0.12	1.00				
G Fund	-0.01	0.04	0.07	0.17	1.00			
MSCI US REIT Index	0.28	0.34	0.29	0.05	0.04	1.00		
FTSE NAREIT Index	0.29	0.35	0.29	0.06	0.06	1.00	1.00	
DJ Wilshire Equity REIT Index	0.27	0.33	0.28	0.04	0.04	1.00	0.99	1.00

As shown in the table above, REITs have had a low correlation of returns to each of the investment funds that the TSP currently offers.

We show the historical efficient frontiers using the current TSP Funds with and without REITs as an investment fund alternative. We use the DJ Wilshire REIT Index as a proxy for REITs. The DJ Wilshire REIT Index is more investable than the FTSE NAREIT Index, and better represents the opportunity set available to the TSP. Little to no assets are passively managed to the FTSE NAREIT Index, largely due to its lower investability. The FTSE NAREIT Index is also not widely used to benchmark actively managed REIT portfolios. We use the DJ Wilshire REIT Index over the MSCI U.S. REIT Index as it has a much longer return history.



As shown, there is very little difference in the efficient frontiers with and without REITs as an investment fund alternative. REITs provide a diversification benefit due to the low to negative correlation of returns with the existing TSP investment options. However, some of the diversification benefit is offset by its lower return and relatively higher risk.

We show the amount of assets indexed to REITs at BGI, NTGI and SSgA.

REITs Index Fund Products (assets in millions) – All assets

	BGI	NTGI	SSgA
MSCI U.S. REIT Index	$941	--	--
DJ Wilshire REIT Index	518	--	$2,747
NAREIT U.S. REIT Index	--	--	--

REITs Index Fund Products (assets in millions) – Daily-valued DC assets

	BGI	NTGI	SSgA
MSCI U.S. REIT Index	$941	--	--
DJ Wilshire REIT Index	--	--	$152
NAREIT U.S. REIT Index	--	--	--

The three leading institutional index fund providers listed above have in aggregate approximately $4 billion in assets indexed to the REIT indices. The total assets (including mutual funds) indexed to REITs have increased significantly in recent years to over $10 billion.

Considerations

REITs have gained in popularity in recent periods due to their strong performance, low correlation of returns to many of the major capital markets, improved liquidity, and overall growth of the REIT market. This has caused many investors to review whether or not they should have an explicit exposure to REITs. While TSP participants invest in REITs through their investments in the C and S Funds, a REIT option would allow participants to make a specific above-market allocation to the sector. The number of defined contribution plans offering a REIT option has increased over the years.

While the returns and low correlations are attractive, REITs are a sub-sector of the U.S. stock market and the current market capitalization of REITs is materially below those of the capital markets currently offered to participants – approximately $380 billion for REITs versus trillions of dollars for the indexes currently tracked. The extraordinary asset size of the TSP could cause it to become a disproportionately large investor and trader of REITs if only 5% or 10% of plan assets were allocated to REITs. While liquidity in the REITs market has improved significantly, accommodating cash flows in excess of $200 million on some days (a distinct possibility based on the TSP's experience with the I Fund), may be challenging, which could negatively impact participants. Moreover, while REITs have low correlations with TSP's current investment options, its addition to the portfolio mix does not result in any material improvement in the efficient frontier. While the number of plans offering a REIT option has increased, only 1 in every 6 plans offers such an option even today, and where offered, utilization rates tend to be low.

Conclusion

REITs are a sub-sector of the U.S. stock market with a market capitalization of less than $400 billion. TSP participants currently can attain exposure to REITs in market weights via the C and S Funds. The low correlation of REIT returns to major capital markets has the potential of providing a diversification benefit, but the benefit of offering REITs does not significantly improve TSP participant portfolios. It is also not common practice among peers to offer a stand alone REIT option. Overall, we believe the negatives more than outweigh the potential benefit of REITs. We recommend the FRTIB <u>not</u> offer REITs as an investment fund alternative.

Over the last few years, investing in commodities has caught the attention of institutional investors. Steep declines in equity markets from 2000 to 2002 coupled with strong returns from commodities have contributed to this phenomenon.

Commodities include energy (crude oil, natural gas, etc.), precious metals (gold, silver, etc.), base metals (copper, aluminum, etc.), and agricultural products (pork bellies, soybeans, etc.). Commodities provide a strong diversification benefit, as they tend to have low or even negative correlations with other asset classes. Investing in commodities is typically achieved using futures contracts, as investing in physical commodities is generally not feasible; most investors don't have the ability to buy and store crude oil or grains.

Futures contracts can be bought by placing a margin deposit with the futures broker. The margin is typically a small fraction of the value of the futures contract and is adjusted (marked-to-market) on a daily basis depending on the change in the value of the contract. In order to gain exposure to the underlying commodity / financial instrument, the investor need only place a fraction of the value of the exposure desired in the margin account, implying that purchasing futures contracts on margin essentially results in the use of leverage. In order to maintain an un-levered exposure to the underlying commodity, an investor can buy the necessary futures contract on margin and place the remaining investments in cash or a cash-like instrument.

As a result, the returns from a long-only un-levered investment in futures contracts can be decomposed as follows:

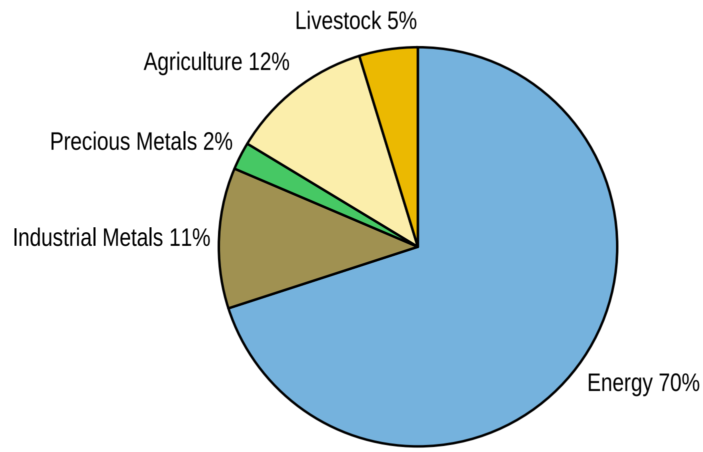
Spot Return – Return attributable to the change in the price level of the underlying commodity represented by the futures contract

Roll Return – Return associated with "rolling" the futures contract at each contract maturity date. Futures contracts have a finite life. In order to maintain continuous exposure to the underlying assets, investors need to sell near-dated futures contracts at expiration and buy longer-dated contracts. The process of trading the futures to maintain exposure to the underlying commodity is referred to as rolling the futures. The roll process can result in either a profit or a loss.

Collateral Return – The yield on the cash instrument held as collateral against the futures investment.

The chart below shows the sector breakdown of the Goldman Sachs Commodities Index (GSCI), which is the most widely tracked commodities index.

GSCI Sector Composition



Historical Performance

We show the historical performance of the Goldman Sachs Commodities Index, the more widely tracked commodity index, below.

Annualized Returns (As of June 30, 2006)

Trailing Years	GSCI
1	13.4%
3	20.2
5	14.6
10	8.1
15	7.6
20	11.6
36 Years and 6 Months (since inception)	12.3

Annualized Standard Deviation (As of June 30, 2006)

Trailing Years	GSCI
5	22.3%
10	21.6
15	18.8
20	18.6
36 Years and 6 Months (since inception)	18.7

Sharpe Ratios (As of June 30, 2006)

Trailing Years	GSCI
5	0.64
10	0.32
15	0.30
20	0.46
36 Years and 6 Months (since inception)	0.41

The Sharpe ratios for commodities over the 20-year period are comparable to the S&P 500 (0.50) and Dow Jones Wilshire 4500 (0.42), higher than the MSCI EAFE Index (0.31) and lower than the Lehman Aggregate Bond Index (0.76).

Correlations (18 years ending December 31, 2005)

	C Fund	S Fund	I Fund	F Fund	G Fund	GSCI
C Fund	1.00					
S Fund	0.80	1.00				
I Fund	0.62	0.56	1.00			
F Fund	0.18	0.09	0.08	1.00		
G Fund	0.01	0.05	0.09	0.14	1.00	
GSCI	-0.09	0.02	0.00	-0.03	0.04	1.00

As shown in the table above, commodities have had very low correlation of returns relative to the TSP's current investment funds.

Below we show the amount of assets indexed to commodities with the leading index fund providers.

Commodities Index Fund Products (assets in millions) – All assets

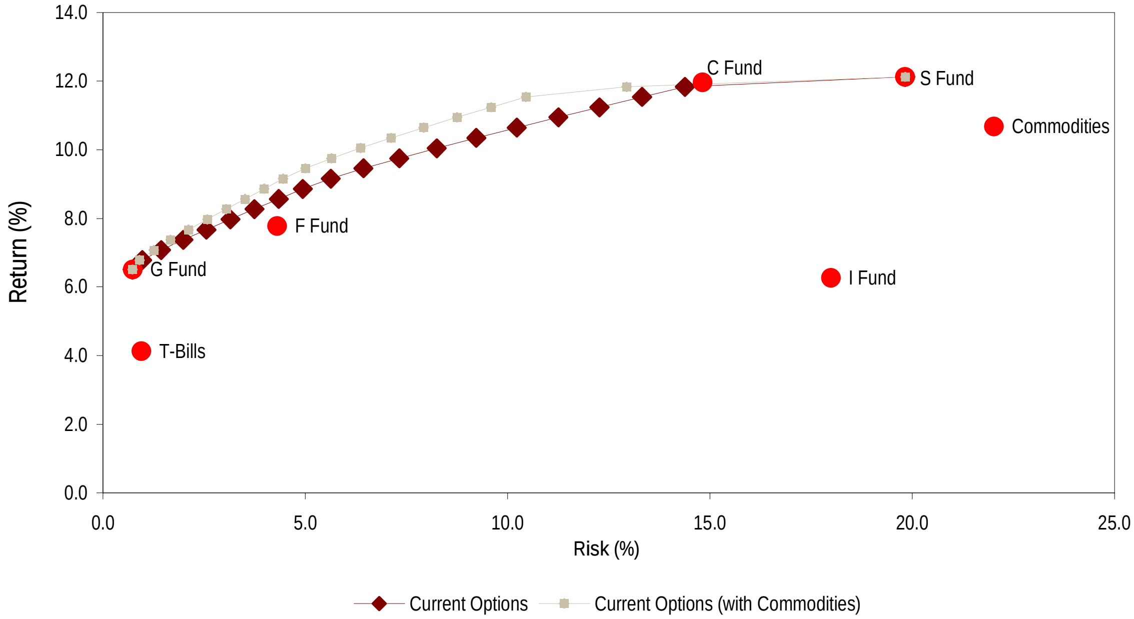
	BGI	NTGI	SSgA
GSCI	$166	-	$437
DJ AIG	-	-	$447

Commodities Index Fund Products (assets in millions) – Daily-valued DC assets

	BGI	NTGI	SSgA
GSCI	-	-	-
DJ AIG	-	-	-

Below we show the efficient frontier using the TSP Funds without and with commodities as an investment alternative. We show the efficient frontiers using historical data.

Efficient Frontier (Based on Historical Data)
Current Options (with Commodities; Jan 1988 - Dec 2005)



As shown, the efficient frontier with commodities as an investment fund alternative is superior to the efficient frontier with only the current TSP investment funds.

Considerations

Commodities futures offer a significant diversification benefit, and a potential hedge against inflation. They have also achieved strong returns in the past, comparable to U.S. equities. We note that spot commodities have actually underperformed both cash and inflation over the long term; commodity futures have outperformed because of the roll return and collateral yield. Unlike other capital assets such as equities or fixed income securities, commodities do not represent the capitalization of a stream of future cash flows. Commodity prices and consequently returns, are driven by current and expected supply/demand; we have no means to expect the roll returns of the past to continue in the future. In addition, the Goldman Sachs Commodities Index (GSCI), the most widely tracked commodities index, has a substantial allocation (70%) to the energy sector. As compared to other investment options offered in the TSP, which are well diversified investments, an allocation to commodities results in a significant concentration to one sector of the market. While there are other commodity indexes that are better diversified within the different commodity sectors as compared to the GSCI, the allocations between the sectors are constrained on an arbitrary basis.

Participants' general knowledge of the intricacies of the working of commodity futures is likely to be minimal, which could result in inappropriate allocations to such an investment fund in the program. We also note that it is not a commonly offered investment option in defined contribution programs.

Conclusion

Commodity futures offer a diversification benefit, as well as the potential to hedge against inflation. However, commodity prices are influenced by demand/supply considerations rather than the intrinsic value of a security, and future return expectations are uncertain. Most individual investors will have difficulty in determining an appropriate allocation to commodities, and commodities have a concentration in the energy sector. Commodity funds are also not a common investment option in defined contribution plans. We recommend that the FRTIB not offer commodities as an investment option in the TSP.

In the previous sections of this report we:

- Reviewed the current circumstances of the TSP and compared its practices to peer plans
- Identified key criteria for evaluating investment fund alternatives
- Applied the key criteria to a broad array of investment fund alternatives to identify investment funds appropriate for an in-depth review
- Reviewed the appropriateness of six asset classes/categories in-depth as potential investment fund alternatives

The key points of our report and our recommendations are summarized below

Current Practices and Comparison to Peers

- TSP participants are offered the type of investment funds predominantly used by participants in peer plans. Importantly, participants are offered five core investment options that span the risk/return spectrum and are offered the option of selecting pre-mixed portfolios (L Funds) that reflect different risk/return characteristics and embrace the key principles of investing – diversification among and within asset classes, low cost, rebalancing to maintain target portfolio weights, and target weights that evolve as an investor's time horizon shortens.

- Our review of the program leads us to the conclusion that the core of the investment program is well structured and there are no gaps in the investment line-up.

Investment Structure

The investment fund types offered to TSP participants match those we believe that the TSP should be offering.

- U.S. stock
- Non-U.S. stock
- Diversified fixed income
- Cash equivalent/stable value
- Lifecycle

Our recommendations regarding the TSP's investment structure are influenced by our beliefs that:

- Employee education is one of the most important components of a successful defined contribution plan
- The number of options should not overwhelm participants
- The more broadly diversified an asset class/asset category, the better it will serve participants over the long-term
- Participants should be provided with two decision-making paths – an array of lifecycle funds and an array of broadly diversified asset class/category funds

Key Evaluation Criteria For Investment Fund Alternatives

In evaluating the types of investment fund alternatives to offer in the TSP, we believe the following criteria (individually and collectively) are the most relevant to consider:

- Major diversified asset class/category not currently offered as an investment option
- Asset class/category is large enough for the TSP to invest in
- Potential diversification benefit for TSP participant portfolios
- Index fund products are available
- Practices of peers

Application of Key Criteria

In applying the key criteria, we eliminated the following asset classes/categories from further consideration:

- Non-U.S. small-cap stock
- High yield bonds
- Private market real estate
- Private equity
- Hedge funds
- Socially responsible/corporate governance funds

We then reviewed the merits of offering the following investment fund alternatives in detail:

- Non-U.S. bonds
- U.S. stock funds by valuation
- Emerging markets stock
- Treasury Inflation-Protected Securities (TIPS)
- Real Estate Investment Trusts (REITs)
- Commodities

Recommendations

After reviewing the six asset classes/categories in detail and taking the TSP's circumstances into account, we did not find any of the six compelling as investment fund additions. We recommend the FRTIB not add any additional investment funds to its investment program.

Value and Growth U.S. Stock Funds

We examined the potential addition of larger-capitalization growth and value stock funds, but did not find this a compelling alternative as TSP participants have significant exposure to those segments already; the TSP's investment line-up currently provides broad exposure to the entire U.S. stock market via the C and S Funds.

If the FRTIB desired to offer additional options from a flexibility standpoint, we believe offering larger-capitalization growth and value funds would be the logical first additions as it is common practice, the asset categories are large, liquid, diversified. and a material level of assets are indexed to these type of investment products.

Non-U.S. Bonds

While non-U.S. bonds are a material portion of the world's investable market capitalization, the benefits of adding a non-U.S. bond fund are minimal from an expected risk-return and portfolio diversification standpoint for TSP participants. Moreover, adding a non-U.S. bond fund would add complexity to a segment of the plan where we believe additional flexibility is not required and/or meaningful.

Emerging Markets

Emerging markets are appealing in that the asset class provides diversification at the highest risk levels and TSP participants do not have an explicit exposure to the asset class currently. The drawback of emerging markets is the high risk historically associated with the asset class, and therefore it is not appropriate to offer as a stand alone investment alternative.

TIPS

TIPS are an appealing asset class as the inflation protection attributes are commonly sought by investors, and TSP participants do not currently have exposure to the asset class. TSP participants, however, are well served by the G Fund as an investment fund alternative that assists in hedging the risk of inflation and as such, the benefits of offering a TIPS funds are offset.

REITS

REITs have received much attention as a result of their strong recent performance and low correlation of returns relative to other assets classes. While these are attractive attributes, we do not believe these positive attributes outweigh the potential issues with offering a sub-sector of the U.S. stock market as an investment fund alternative. REITs are a relatively small asset category when compared to the asset classes/categories that are currently offered to TSP participants and the potential diversification benefits are modest. The TSP could also face the issue of becoming a disproportionately large owner and trader of REITs if participants allocated a moderate amount of the TSP's total assets to REITs. Additionally, REITs are not a common investment fund alternative in peer plans.

Commodities

Commodities have also received a great deal of attention recently from investors as a result of their strong performance and potential diversification benefit. Commodities, however, are a complex asset class as investors do not hold the physical commodity and attain exposure via derivative instruments. The way in which the asset class is accessed could be difficult to explain to participants and much of the performance and risk associated with commodities is attributable to the energy sector, implying participants could be making a bet on future energy prices if they were to allocate assets to a commodities investment fund.

Annual Returns (1970 – 2005)

Year	C Fund	S Fund	I Fund	F Fund	G Fund	MSCI EAFE Small Cap Index
1970	4.0%	--	-11.7%	--	--	--
1971	14.3	--	29.6	--	--	--
1972	18.9	--	36.3	--	--	--
1973	-14.8	--	-14.9	--	--	--
1974	-26.5	--	-23.2	--	--	--
1975	37.2	--	35.4	--	--	--
1976	23.9	--	2.5	15.6%	--	--
1977	-7.2	--	18.1	3.0	--	--
1978	6.6	--	32.6	1.4	--	--
1979	18.6	--	4.8	1.9	--	--
1980	32.5	--	22.6	2.7	--	--
1981	-4.9	--	-2.3	6.2	--	--
1982	21.5	--	-1.9	32.6	--	--
1983	22.6	--	23.7	8.4	--	--
1984	6.3	-1.7	7.4	15.1	--	--
1985	31.7	32.0	56.2	22.1	--	--
1986	18.7	11.8	69.4	15.3	--	--
1987	5.3	-3.5	24.6	2.8	--	--
1988	16.6	20.5	28.2	7.9	8.8%	--
1989	31.7	23.9	10.4	14.5	8.8	--
1990	-3.1	-13.6	-23.6	9.0	8.9	--
1991	30.5	43.5	12.2	16.0	8.1	--
1992	7.6	11.9	-12.2	7.4	7.2	--
1993	10.1	14.6	32.7	9.7	6.1	--
1994	1.3	-2.7	7.8	-2.9	7.2	--
1995	37.6	33.5	11.3	18.5	7.0	--
1996	23.0	17.2	6.1	3.6	6.8	--
1997	33.4	25.7	1.6	9.7	6.8	--
1998	28.6	8.6	20.1	8.7	5.8	--
1999	21.0	35.5	26.7	-0.8	6.0	--
2000	-9.1	-15.8	-14.2	11.6	6.4	0.4%
2001	-11.9	-9.3	-21.4	8.4	5.4	-12.5
2002	-22.1	-17.8	-15.9	10.3	5.0	-7.8
2003	28.7	43.8	38.6	4.1	4.1	61.3
2004	10.9	18.1	20.2	4.3	4.3	30.8
2005	4.9	10.0	13.5	2.4	4.5	26.2

Annual Returns (1970 – 2005)

Year	ML High Yield Index	Citigroup WGBI Hedged	Citigroup WGBI Unhedged	Russell 1000 Growth Index	Russell 1000 Value Index	MSCI Emerging Markets Index
1970	--	--	--	--	--	--
1971	--	--	--	--	--	--
1972	--	--	--	--	--	--
1973	--	--	--	--	--	--
1974	--	--	--	--	--	--
1975	--	--	--	--	--	--
1976	--	--	--	--	--	--
1977	--	--	--	--	--	--
1978	--	--	--	--	--	--
1979	--	--	--	23.9%	20.5%	--
1980	--	--	--	39.6	24.4	--
1981	--	--	--	-11.3	1.3	--
1982	--	--	--	20.5	20.0	--
1983	--	--	--	16.0	28.3	--
1984	--	--	--	-1.0	10.1	--
1985	--	16.3%	27.3%	32.9	31.5	--
1986	4.0%	13.6	23.0	15.4	20.0	--
1987	4.5	5.7	18.4	5.3	0.5	--
1988	13.4	8.2	4.4	11.3	23.2	40.1%
1989	2.3	8.9	4.3	35.9	25.2	64.6
1990	-4.4	5.9	12.0	-0.3	-8.1	-10.8
1991	39.2	13.2	15.8	41.2	24.6	59.4
1992	17.4	7.9	5.5	5.0	13.8	11.0
1993	16.7	12.4	13.3	2.9	18.1	74.3
1994	-1.0	-3.7	2.3	2.7	-2.0	-7.6
1995	20.5	18.1	19.0	37.2	38.3	-5.5
1996	11.3	8.7	3.6	23.1	21.6	5.7
1997	13.3	10.6	0.2	30.5	35.2	-11.8
1998	3.0	11.0	15.3	38.7	15.6	-25.6
1999	2.5	1.3	-4.3	33.1	7.3	66.0
2000	-5.1	10.7	1.6	-22.4	7.0	-30.8
2001	4.5	6.3	-1.0	-20.4	-5.6	-2.6
2002	-1.9	8.0	19.5	-27.9	-15.5	-6.2
2003	28.1	2.0	14.9	29.8	30.0	55.8
2004	10.9	4.8	10.4	6.3	16.5	25.6
2005	2.7	5.1	-6.9	5.3	7.1	34.0

Annual Returns (1970 – 2005)

Year	MSCI U.S. REIT Index	DJ Wilshire REIT Index	FTSE NAREIT Equity REITS	Lehman Brothers Inflation Linked Index	Goldman Sachs Commodity Index
1970	--	--	--	--	15.1%
1971	--	--	--	--	21.1
1972	--	--	8.0%	--	42.4
1973	--	--	-15.5	--	75.0
1974	--	--	-21.4	--	39.5
1975	--	--	19.3	--	-17.2
1976	--	--	47.6	--	-11.9
1977	--	--	22.4	--	10.4
1978	--	11.0%	10.3	--	31.6
1979	--	49.0	35.9	--	33.8
1980	--	33.1	24.4	--	11.1
1981	--	17.9	6.0	--	-23.0
1982	--	20.9	21.6	--	11.6
1983	--	32.2	30.6	--	16.3
1984	--	21.9	20.9	--	1.1
1985	--	6.5	19.1	--	10.0
1986	--	19.7	19.2	--	2.0
1987	--	-6.6	-3.6	--	23.8
1988	--	17.5	13.5	--	27.9
1989	--	2.7	8.8	--	38.3
1990	--	-23.4	-15.4	--	29.1
1991	--	23.8	35.7	--	-6.1
1992	--	15.1	14.6	--	4.4
1993	--	15.1	19.7	--	-12.3
1994	--	2.7	3.2	--	5.3
1995	12.9%	12.2	15.3	--	20.3
1996	35.9	37.0	35.3	--	33.9
1997	18.6	19.7	20.3	2.1%	-14.1
1998	-16.9	-17.0	-17.5	3.9	-35.7
1999	-4.6	-2.6	-4.6	2.4	40.9
2000	26.8	31.0	26.4	13.2	49.7
2001	12.8	12.4	13.9	7.9	-31.9
2002	3.6	3.6	3.8	16.6	32.1
2003	36.7	36.2	37.1	8.4	20.7
2004	31.5	33.1	31.6	8.5	17.3
2005	12.1	13.8	12.2	2.8	25.6

Correlations (Based on 18-years of data ending December 31, 2005)

	C Fund	S Fund	I Fund	F Fund	G Fund
C Fund	1.00	--	--	--	--
S Fund	0.80	1.00	--	--	--
I Fund	0.62	0.56	1.00	--	--
F Fund	0.18	0.09	0.08	1.00	
G Fund	0.01	0.05	0.09	0.14	1.00
MSCI EAFE Small Cap Index[1]	0.70	0.76	0.88	-0.11	0.11
ML High Yield Index	0.49	0.54	0.36	0.27	0.20
Citigroup WGBI Hedged	0.17	0.06	0.13	0.88	0.13
Citigroup WGBI Unhedged	0.05	0.01	0.36	0.54	0.22
Russell 1000 Growth Index	0.95	0.85	0.58	0.14	0.01
Russell 1000 Value Index	0.91	0.68	0.56	0.20	0.02
MSCI Emerging Markets Index	0.59	0.64	0.57	-0.04	0.07
MSCI U.S. REIT Index[2]	0.28	0.34	0.29	0.05	0.04
DJ Wilshire REIT Index	0.34	0.41	0.24	0.16	0.09
FTSE NAREIT Equity REITS	0.37	0.44	0.27	0.20	0.10
Lehman Brothers TIPS Index[3]	-0.17	-0.14	-0.14	0.77	0.22