MINNESOTA STATE BOARD OF INVESTMENT

STATE BOARD OF INVESTMENT
MEETING
November 30, 2022

Governor Tim Walz

State Auditor Julie Blaha

Secretary of State Steve Simon

Attorney General Keith Ellison

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STATE BOARD OF INVESTMENT MEETING

AGENDA

November 30, 2022

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AGENDA
STATE BOARD OF INVESTMENT MEETING
Wednesday, November 30, 2022
10:00 a.m.

G23 Senate Committee Room
State Capitol
75 Rev. Dr. Martin Luther King Jr. Boulevard
St. Paul, MN

		TAB	
1.	**Call to Order**		
2.	**Approval of Minutes of August 24, 2022**		**Motion Needed**
3.	**Performance Summary** (Jill Schurtz)	**A**	
4.	**Executive Director's Administrative Report** (Jill Schurtz) 1. Executive Director's First Thirty Days Overview 2. Report on Budget and Travel 3. FY22 Audit Report 4. Draft of FY22 Annual Report 5. Meeting Dates for Calendar 2023 6. Russia/Belarus Update 7. Sudan Update 8. Iran Update 9. Thermal Coal Update 10. Litigation Update	**B**	
5.	**Private Markets Investment Program Report** (Jill Schurtz / Gary Martin)	**C**	
6.	**SBI Administrative Committee Report** (Jill Schurtz / Karl Procaccini)	**D**	**Motion Needed**
7.	**Other Items**		

REPORTS

- **Public Markets Investment Program Report**
- **Participant Directed Investment Program and Non-Retirement Investment Program Report**
- **SBI Environmental, Social, and Governance (ESG) Report**
- **Aon Market Environment Report**
- **Meketa Capital Markets Outlook & Risk Metrics Report**
- **SBI Comprehensive Performance Report**

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Approval of
August 24, 2022
SBI Meeting Minutes

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Minutes
State Board of Investment Meeting
August 24, 2022

Notice of Meeting

The State Board of Investment (SBI) met at 10:15 a.m. Wednesday, August 24, 2022 in G23 Senate Committee Room, State Capitol, located in Saint Paul, Minnesota and over the phone. Attendance and all votes are conducted with a roll call.

Prior to the quarterly meeting, each Board member reviewed and discussed the material with the Executive Director and investment consultants.

Call to Order

Governor Tim Walz, Chairperson of the SBI, called the meeting to order. Governor Tim Walz, State Auditor Julie Blaha, Secretary of State Steve Simon, and Attorney General Keith Ellison were present.

Approval of Minutes

The minutes of the May 25, 2022 SBI meeting were approved by roll call vote.

Performance Summary

Executive Director Mansco Perry referred members to the June 30, 2022 Performance Summary provided in Tab A of the meeting materials. Mr. Perry informed the Board that as of June 30, 2022 the SBI was responsible for $125 billion in assets, of which the Combined Funds represent $81.3 billion. Mr. Perry reported that the Combined Funds continue to exceed its long-term objectives by outperforming its Composite Index for the ten year period ending June 30, 2022 (Combined Funds 9.4% vs. Combined Fund Composite Index 9.0%) and provided a real rate of return above inflation over a 20 year time-period (Combined Funds 8.2% vs CPI-U 2.5%). The Combined Funds slightly underperformed the composite index for the year and matched or exceeded the composite index for all other reporting periods. Mr. Perry noted that the Combined Funds actual asset mix is in-line with the asset allocation targets. He commented that the negative performance for the year is primarily due to public equities in each of the three equity asset groups and from each of the fixed income sub-asset groups. Private markets, which has a quarterly lag, continues to be the strongest asset class in the Combined Funds. Lastly, given the large equity weight in the Combined Funds portfolio, the Combined Funds return ranked in the bottom quartile for the quarter and bottom half for the year relative to peers.

Executive Director's Administrative Report

Mr. Perry referred members to Tab B of the meeting materials for the Executive Director's Administrative Report. Mr. Perry noted that the SBI actual expenses in the Administrative Budget were under budget by almost $2 million for the fiscal year, which gets refunded back to its clients. He stated that Staff is back traveling again to meet with investment managers as outlined in the Travel Summary. Next, Mr. Perry stated that the Russia and Belarus holdings are consolidated in one account to help with the liquidation process as outlined in statute; and noted the Sudan and Iran updates. Lastly, Mr. Perry noted that there is no litigation against the SBI.

Meketa Climate Change Investment Analysis: Phase III
Governor Walz recognized Mr. Allan Emkin from Meketa Investment Group to present on the final phase of Meketa's Climate Change Investment Analysis, which was included in Tab C of the meeting materials. Mr. Emkin noted that the analysis Meketa completed was in three separate phases but should be viewed together. The first phase looked at the trends that are going on globally; the second phase presented survey results on what other institutional investors are doing to address climate risk; and phase three of the analysis reviews potential risks and opportunities associated with climate change specific to the SBI's portfolio. Mr. Emkin emphasized that data around this space is uncertain. As a result, he would encourage Staff to look at all available information and strategies from other sources; to consider the approaches identified by Meketa in the final phase of the report; and to provide a recommended course of action that Staff believes is the most beneficial to the investment portfolio. In response to questions from the Board, Mr. Emkin stated that the investment community is seeking solutions to the best of their ability that are consistent with their mandate as fiduciaries.

The Board members thanked Mr. Emkin for Meketa's climate change analysis and acknowledged the hard work that went into this report.

Contractual Recommendations
Governor Walz recognized Mr. Perry to present the four contractual items that are up for renewal. Mr. Perry noted that the information on the RFP process and Staff's recommendation for each service provider is included in Tab E through H of the meeting materials.

State Auditor Blaha moved approval of the following recommendations:

Master Custodial Service:
"**The Investment Advisory Council endorsed the Executive Director and SBI Staff's recommendation to the SBI Board to authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute a contract with State Street Corporation, Boston, MA, for Master Custodian Services for a period of up to five years.**

Approval by the SBI of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligation on the State Board of Investment and neither the State of Minnesota, the State Board of Investment or its Executive Director have any liability for reliance by State Street Corporation upon this approval. Until a formal agreement is executed by the Executive Director on behalf of the SBI, further due diligence and negotiations may result in the imposition of additional terms and conditions on State Street Corporation or reduction or termination of the commitment."

Contact and Document Management Database Service:
"**The Investment Advisory Council endorsed the Executive Director and SBI Staff's recommendation to the SBI Board to authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute a contract with Dynamo Software Inc. (Dynamo) to provide contact and document management database services to the SBI for a period of up to five years.**

Approval by the SBI of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligation on the

State Board of Investment and neither the State of Minnesota, the State Board of Investment or its Executive Director have any liability for reliance by Dynamo upon this approval. Until a formal agreement is executed by the Executive Director on behalf of the SBI, further due diligence and negotiations may result in the imposition of additional terms and conditions on Dynamo or reduction or termination of the commitment."

Foreign Tax Advisory Services:
"The Investment Advisory Council endorsed the Executive Director and SBI Staff's recommendation to the SBI Board to authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute a contract with Ernst and Young LLP (EY) for the SBI's Foreign Tax Advisory Services for a period of up to five years.

Approval by the SBI of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligation on the State Board of Investment and neither the State of Minnesota, the State Board of Investment or its Executive Director have any liability for reliance by EY upon this approval. Until a formal agreement is executed by the Executive Director on behalf of the SBI, further due diligence and negotiations may result in the imposition of additional terms and conditions on EY or reduction or termination of the commitment."

Custodian Services for State's Cash Accounts:
"The Investment Advisory Council endorsed the Executive Director and SBI Staff's recommendation to the SBI Board to authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute a contract with Principal Bank, Des Moines, IA, to provide the SBI with banking custodial services for the State's cash accounts for up to five years.

Approval by the SBI of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligation on the State Board of Investment and neither the State of Minnesota, the State Board of Investment or its Executive Director have any liability for reliance by Principal Bank upon this approval. Until a formal agreement is executed by the Executive Director on behalf of the SBI, further due diligence and negotiations may result in the imposition of additional terms and conditions on Principal Bank or reduction or termination of the commitment." The motion passed by roll call vote.

Update from Executive Director Search Committee
Governor Walz recognized Gary Martin, Chair of the Executive Director Search Committee who presented on the comprehensive process used to conduct a national search, the key criteria considered when evaluating the qualified pool of candidates, and the rationale for the candidate recommendation for the SBI Executive Director position. Mr. Martin noted the key criteria in the evaluation of the candidate was to have investment knowledge, management and leadership experience, communication skills, and a cultural fit, which means this candidate would be able to conform and adapt to core values and collective behaviors that make up the SBI. Mr. Martin introduced Michael Kennedy, Senior Client Partner with Korn/Ferry who presented on the sourcing and preliminary assessment of candidates for the SBI Executive Director position. Mr. Kennedy stated that after an initial round of interviews with nine candidates, then a second

round of interviews with four of the candidates, and completion of Korn/Ferry's proprietary Executive Assessment Test, the Committee reached a consensus to recommend Candidate A.

State Auditor Blaha moved to make the name of Candidate A public to further the selection process. The motion passed by roll call vote.

Governor Walz announced that Candidate A is Jill Schurtz, who is now a finalist for the SBI Executive Director position. Governor Walz recognized Ms. Schurtz to answer questions from the Board. After discussion, Governor Walz presented a resolution (**Attachment A**) that delegates authority to finalize the terms and conditions of employment to Mr. Martin and the Executive Director Search Committee. Secretary of State Simon moved to adopt the resolution concerning the new Executive Director of the SBI, Jill Schurtz. The motion passed by roll call vote.

Governor Walz thanked Executive Director Perry for his extraordinary service to state employees and retirees during this long tenure at the State Board of Investment. Governor Walz also thanked Mr. Martin for his leadership on the selection committee to find an incredible candidate and Mr. Kennedy and his team for their expert advice to the selection committee throughout the entire process.

Other Items and Reports
The remainder of the reports in the meeting materials include the following: Private Markets Investment Program; Public Markets Investment Report; Participant Directed Investment Program and Non-Retirement Investment Program Report; SBI ESG Report; Aon Market Environmental Report; Meketa Capital Markets Outlook & Risk Report; and the SBI Comprehensive Performance Report.

Public Testimony
Governor Walz recognized Meredith Aby-Keirstead representing The Anti-War Committee; Lisa Franchett, representing the Minnesota Divestment Coalition; Bonnie Beckel, retired member of the Minneapolis Federation of Teachers as well as Education Minnesota; Lucia Everist and Merik Schaefer, representing Divest Global; and Angela Bonfiglio and Jimmy Harris representing Renters United for Justice. Governor Walz thanked the public speakers for their testimony.

Adjournment of Meeting
Secretary of State Simon moved approval to adjourn the meeting. The motion passed by roll call vote. The meeting adjourned at 11:22 a.m.

Respectfully submitted,

Mansco Perry TJ

Mansco Perry III
Executive Director and
Chief Investment Officer

Board Members:
Governor Tim Walz, Chair
State Auditor Julie Blaha
Secretary of State Steve Simon
Attorney General Keith Ellison

Executive Director & Chief Investment Officer:
Mansco Perry III

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RESOLUTION OF THE MINNESOTA STATE BOARD OF INVESTMENT CONCERNING SELECTION OF A NEW EXECUTIVE DIRECTOR

WHEREAS, in late 2021, the Executive Director & Chief Investment Officer of the Minnesota State Board of Investment (MSBI) announced his intention to retire in 2022;

WHEREAS, on December 1, 2021, the MSBI adopted a resolution forming a Search Committee tasked with reviewing the Executive Director & Chief Investment Officer's job description, engaging a national search firm to assist in conducting a national search, recruiting and vetting candidates for the position, and making recommendations to fill the position;

WHEREAS, the Search Committee oversaw a request for proposal process that led to the engagement of Korn Ferry—a well-regarded national search firm, solicited public feedback on considerations related to the selection process, vetted numerous candidates, and conducted two rounds of interviews;

WHEREAS, pursuant to the Minnesota Data Practices Act (Minn. Stat. 13.43, subd.3), an applicant's identity is private until that applicant has been selected for an interview by the appointing authority;

WHEREAS, the Search Committee has now recommended an exceptionally qualified candidate for the position of Executive Director & Chief Investment Officer; and

WHEREAS, on August 24, 2022, at a public meeting, the Board met with and conducted an interview of the recommended candidate.

NOW THEREFORE BE IT RESOLVED:

1. The Minnesota State Board of Investment expresses its heartfelt gratitude to Executive Director & Chief Investment Officer Mansco Perry III for his many years of dedicated service and successful stewardship of the MSBI's funds, and wishes him well in all of his future endeavors;

2. The Board thanks Search Committee Chair Gary Martin, who has volunteered his time and tirelessly led the Search Committee for the benefit of the State and all of the current and former employees who benefit from the MSBI's expert management;

3. The Board also expresses gratitude to the members of the Search Committee, and to Michael Kennedy and his team at Korn Ferry, for their expert work overseeing a nationwide search and vetting candidates for this important position;

4. The Board offers the position of Executive Director & Chief Investment Officer to Jill Schurtz; and

5. The Board delegates to the Search Committee, with the advice of legal counsel, the authority necessary to finalize expeditiously the terms and conditions of Jill Schurtz's employment, consistent with the relevant compensation plan.

Adopted this 24th day
of August, 2022

BY: ______________________________
Tim Walz
Governor & Chair
Minnesota State Board of Investment

TAB A

Quarterly Performance Summary

September 30, 2022

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Performance Summary

September 30, 2022

Description of SBI Investment Programs

The Minnesota State Board of Investment is responsible for the investment management of various retirement funds, trust funds and cash accounts.

Combined Funds

The Combined Funds represent the assets for both the active and retired public employees in the statewide retirement systems, the biggest of which are the Public Employees Retirement Association (PERA), the Teachers Retirement Association (TRA), and the Minnesota State Retirement System (MSRS). The SBI commingles the assets of these plans into the Combined Funds to capture investment efficiencies. All assets in the Combined Funds are managed externally by investment management firms retained by contract.

Fire Plans + Other Retirement Plans

Fire Plans and Other Retirement Plans include assets from volunteer fire relief plans and other public retirement plans with authority to invest with the SBI, if they so choose. Fire Plans that are not eligible to be consolidated with Public Employees Retirement Association (PERA) or elect not to be administered by PERA may invest their assets with the SBI using the same asset pools as the Combined Funds. The Statewide Volunteer Firefighter Retirement Plan is administered by PERA and has its own investment vehicle called the Volunteer Firefighter Account.

Participant Directed Investment Program

The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. Investment goals among the PDIP’s many participants are varied. In order to meet the variety of goals, participants may allocate their investments among one or more accounts that are appropriate for their needs within statutory requirements and rules established by the participating organizations.

Non-Retirement Funds

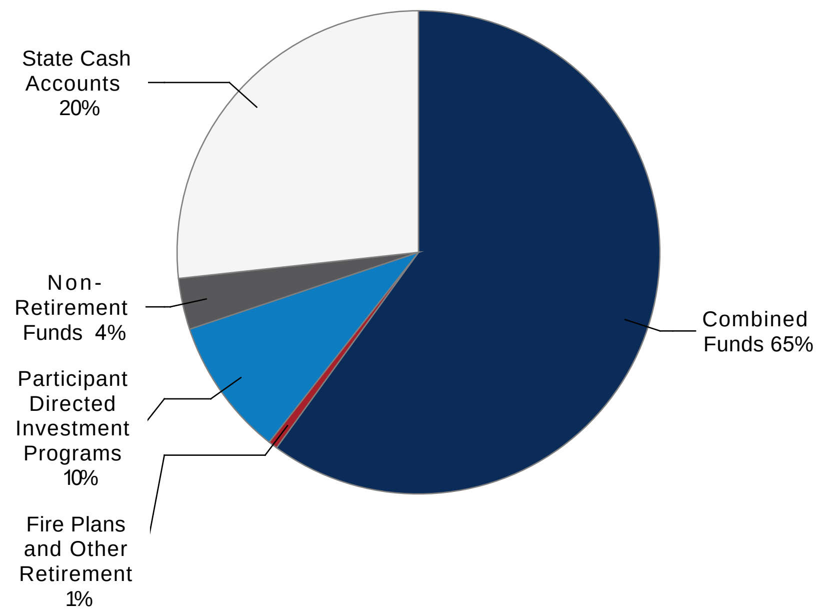
The Non-Retirement Funds are funds established by the State of Minnesota and other government entities for various purposes which include the benefit of public schools, the environment, other post-employment benefits, workers compensation insurance, and other purposes.

State Cash

The State Cash accounts are cash balances of state government funds including the State General Fund. Most accounts are invested by SBI staff through a short-term pooled fund referred to as the Treasurer's Cash Pool. It contains the cash balances of special or dedicated accounts necessary for the operation of certain State agencies and non-dedicated cash in the State Treasury. Because of special legal restrictions, a small number of cash accounts cannot be commingled.

Funds Under Management

	$ Millions
Combined Funds	**$77,122**
Fire Plans + Other Retirement Plans	**781**
Participant Directed Investment Program	**11,872**
State Deferred Compensation Plan	8,138
Health Care Savings Plan	1,565
Unclassified Employees Retirement Plan	311
Hennepin County Supplemental Retirement Plan	147
PERA Defined Contribution Plan	79
Minnesota College Savings Plan	1,604
Minnesota Achieving a Better Life Experience Plan	28
Non-Retirement Funds	**4,412**
Assigned Risk Plan	232
Permanent School Fund	1,665
Environmental Trust Fund	1,374
Closed Landfill Investment Fund	109
Miscellaneous Trust Funds	306
Other Postemployment Benefits Accounts	727
State Cash	**23,747**
Invested Treasurer's Cash	23,584
Other State Cash Accounts	163
Total SBI AUM	**117,934**



Note: Differentials within column amounts may occur due to rounding

Quarterly Report

Comparison to Objective

Match or Exceed Composite Index (10 yr.)

Outperform a composite market index weighted in a manner that reflects the long-term asset allocation of the Combined Funds over the latest 10 year period.

	10 Year
Combined Funds	8.4%
Combined Funds Composite Index	8.0
Excess	0.4

Provide Real Return (20 yr.)

Provide returns that are 3-5 percentage points greater than inflation over the latest 20 year period.

	20 Year
Combined Funds	8.6%
CPI-U	2.5
Excess	6.0

Note:

Throughout this report performance is calculated net of investment management fees, differentials within column amounts may occur due to rounding, and returns for all periods greater than one year are annualized.

STATE STREET.

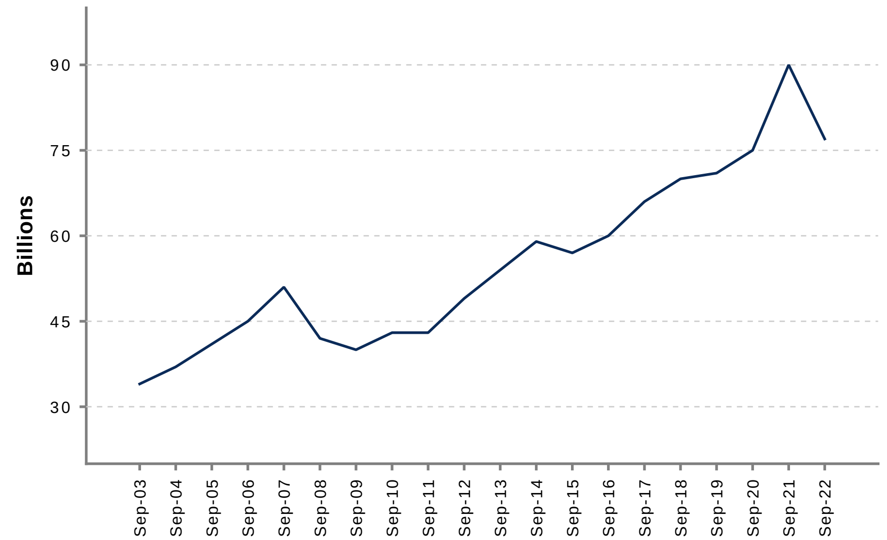
Combined Funds Summary

Combined Funds Change in Market Value ($Millions)

	One Quarter
Combined Funds	
Beginning Market Value	$81,320
Net Contributions	-710
Investment Return	-3,489
Ending Market Value	77,122

The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

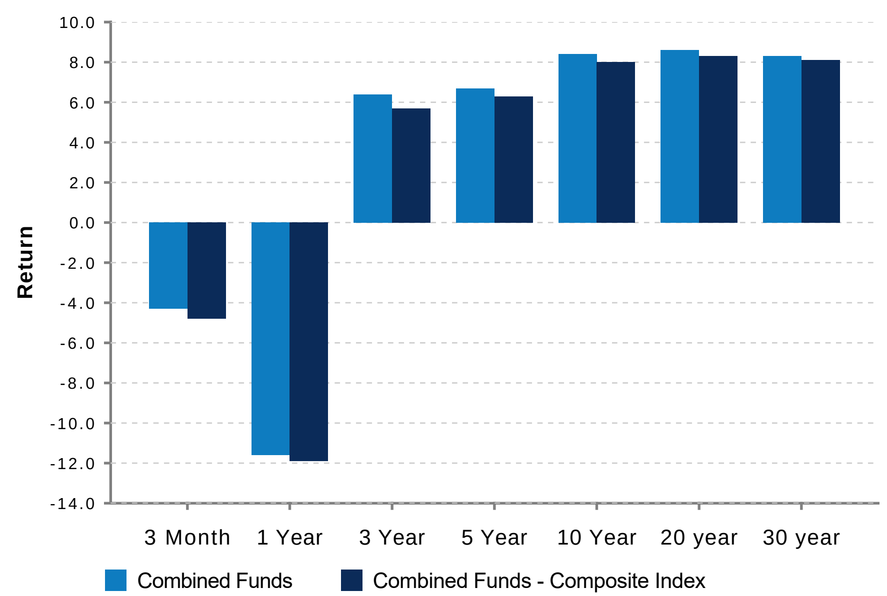
Asset Growth



Performance (Net of Fees)

The Combined Funds' performance is evaluated relative to a composite of public market index and private market investment returns. The Composite performance is calculated by multiplying the beginning of month Composite weights and the monthly returns of the asset class benchmarks.

	Qtr	FYTD	1 Yr	3 Yr	5 Yr	10 Yr	20 Yr	30 Yr
Combined Funds	-4.3%	-4.3%	-11.6%	6.4%	6.7%	8.4%	8.6%	8.3%
Combined Funds - Composite Index	-4.8%	-4.8%	-11.9%	5.7%	6.3%	8.0%	8.3%	8.1%
Excess	0.5%	0.5%	0.3%	0.7%	0.4%	0.4%	0.3%	0.3%

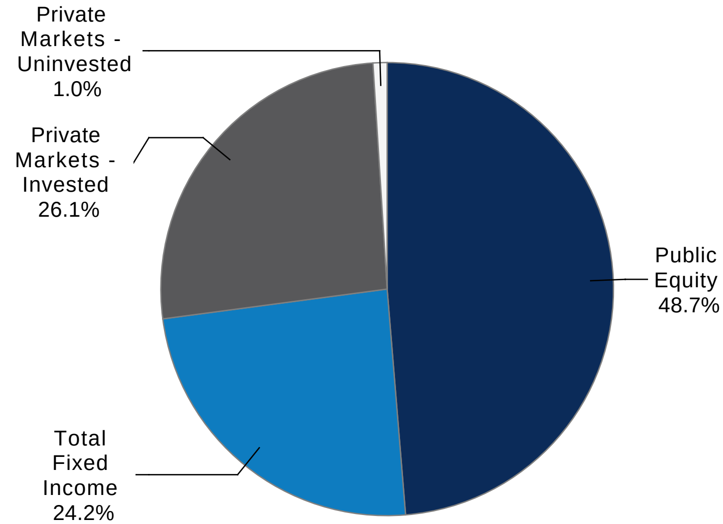


Combined Funds Summary

Asset Mix

The Combined Funds actual asset mix relative to the Strategic Asset Allocation Policy Target is shown below. Any uninvested portion of the Private Markets allocation is held in Public Equity.

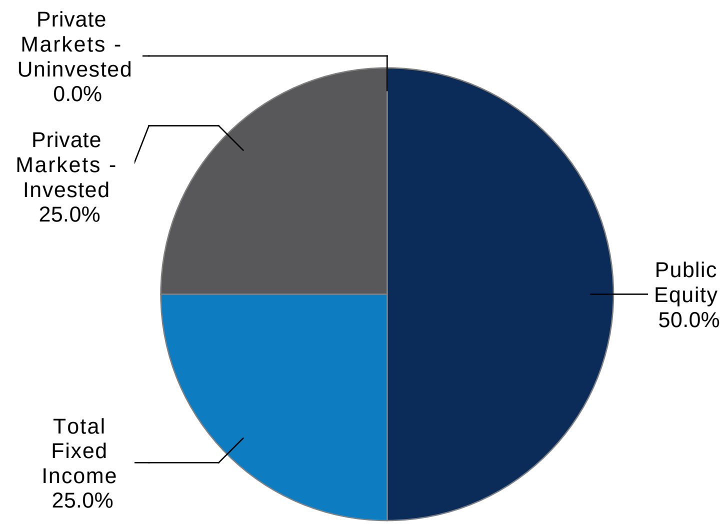
	(Millions)	Actual Mix	Policy Target
Public Equity	$37,572	48.7%	50.0%
Total Fixed Income	18,641	24.2	25.0
Private Markets - Total	20,908	27.1	25.0
Private Markets - Invested	20,155	26.1	
Private Markets - Uninvested	754	1.0	
TOTAL	77,122	100.0	



Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target. Asset class weights for Private Markets - Invested and Private Markets - Uninvested are reset at the start of each month. The Combined Funds Composite weighting shown below is as of the first day of the quarter.

	Policy Weight	Market Index
Public Equity	50.0%	Public Equity Benchmark
Total Fixed Income	25.0	Total Fixed Income Benchmark
Private Markets - Invested	25.0	Private Markets
Private Markets - Uninvested	0.0	S&P 500



Combined Funds Asset Class Performance Summary

Public Equity

The Combined Funds Public Equity includes Domestic Equity, International Equity and Global Equity.

The Public Equity benchmark is 67% Russell 3000 and 33% MSCI ACWI ex US (net).

	Market Value	Actual Weight	Policy Weight	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year
Public Equity	$37.6	48.7%	50.0%	-5.4%	-5.4%	-19.3%	5.3%	5.9%	9.2%	9.0%	8.5%
Public Equity Benchmark				-6.3	-6.3	-20.1	4.6	5.4			
Excess				0.9	0.9	0.8	0.7	0.4			
Domestic Equity	25.6	33.2	33.5	-4.4	-4.4	-18.0	7.9	8.6	11.4	9.8	9.3
Domestic Equity Benchmark				-4.5	-4.5	-17.6	7.7	8.6	11.4	9.9	9.4
Excess				0.0	0.0	-0.4	0.2	0.1	0.0	-0.1	-0.1
International Equity	11.2	14.5	16.5	-7.2	-7.2	-21.3	0.6	0.5	4.1	6.9	5.9
International Equity Benchmark				-9.9	-9.9	-25.2	-1.6	-0.8	3.0	6.3	5.1
Excess				2.7	2.7	3.9	2.2	1.3	1.1	0.5	0.8
Global Equity	0.8	1.0	0.0	-8.9	-8.9	-31.2					
MSCI AC World Index Net				-6.8	-6.8	-20.7					
Excess				-2.1	-2.1	-10.6					

Note:

Prior to 6/30/16 the returns of Domestic and International Equity were not reported as a Total Public Equity return. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

Combined Funds Asset Class Performance Summary

Total Fixed Income

The Combined Funds Fixed Income program includes Core/Core Plus, Return Seeking Fixed Income, Treasuries and Laddered Bond + Cash.

The Total Fixed Income benchmark is 40% Bloomberg U.S. Aggregate Index/ 40% Bloomberg Treasury 5+ Years Index/ 20% ICE BofA US 3-Month Treasury Bill.

	Market Value	Actual Weight	Policy Weight	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year
Total Fixed Income	$18.6	24.2%	25.0%	-4.3%	-4.3%	-14.4%	-2.6%	0.7%	1.7%	3.7%	5.0%
Total Fixed Income Benchmark				-4.6%	-4.6%	-13.8%	-2.9%				
Excess				0.3%	0.3%	-0.7%	0.3%				
Core/Core Plus	$4.1	5.3%	5.0	-4.7%	-4.7%	-16.0%	-2.8%	0.1%	1.4%	3.6%	4.9%
Core Bonds Benchmark				-4.8%	-4.8%	-14.6%	-3.3%	-0.3%	0.9%	3.1%	4.5%
Excess				0.1%	0.1%	-1.4%	0.4%	0.4%	0.5%	0.5%	0.4%
Return Seeking Fixed Income	$3.8	5.0%	5.0	-2.6%	-2.6%	-14.5%					
Bloomberg U.S. Aggregate				-4.8%	-4.8%	-14.6%					
Excess				2.1%	2.1%	0.1%					
Treasury Protection	$7.2	9.3%	10.0	-6.9%	-6.9%	-19.7%	-5.5%				
Bloomberg Treasury 5+ Year				-6.9%	-6.9%	-19.6%	-5.6%				
Excess				-0.0%	-0.0%	-0.0%	0.1%				
Laddered Bond + Cash	$3.6	4.6%	5.0	0.4%	0.4%	0.1%	0.4%	1.1%	0.7%	1.5%	3.1%
ICE BofA US 3-Month Treasury Bill				0.5%	0.5%	0.6%	0.6%	1.1%	0.7%	1.3%	2.4%
Excess				-0.1%	-0.1%	-0.5%	-0.2%	-0.1%	0.1%	0.2%	0.7%

Note:

Since 12/1/2020 the Total Fixed Income includes allocations to Core/Core Plus Bonds, Return Seeking Bonds, Treasuries and Laddered Bond + Cash. From 7/1/2020 to 11/30/2020 Total Fixed Income was Core Bonds, Treasuries and Cash. From 2/1/2018-6/30/20 Total Fixed Income was Core Bonds and Treasuries. Prior to 2/1/2018, Total Fixed Income was Core Bonds. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

STATE STREET.

Combined Funds Asset Class Performance Summary

Private Markets

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 Year	30 Year
Private Markets - Invested	-2.5%	-2.5%	11.3%	17.1%	15.0%	13.4%	14.0%	13.2%	13.3%
Private Markets - Uninvested (1)	-4.5%	-4.5%	-14.8%						
Private Equity	-4.1%	-4.1%	6.1%	20.5%	18.8%	16.9%	15.8%	14.6%	15.6%
Private Credit	1.1%	1.1%	16.0%	12.9%	12.7%	13.2%	12.8%	12.8%	
Resources	3.3%	3.3%	29.5%	7.7%	5.1%	3.5%	13.4%	11.4%	13.0%
Real Estate	1.4%	1.4%	32.2%	18.7%	15.5%	14.0%	10.4%	10.7%	9.6%

Private Markets

The time-weighted rates of return for the Private Markets portfolio are shown here. Private Markets included Private Equity, Private Credit, Resources, and Real Estate. Some of the existing investments are relatively immature and returns may not be indicative of future results.

Private Equity Investments - The objectives of the Private Equity portfolio, which may include leveraged buyouts, growth equity, venture capital and special situations, are to achieve attractive returns and to provide overall portfolio diversification to the total plan.

Private Credit Investments - The objectives of the Private Credit portfolio, which may include mezzanine debt, direct lending, and other forms of non-investment grade fixed income instruments, are to achieve a high total return over a full market cycle and to provide some degree of downside protection and typically provide current income in the form of a coupon. In certain situations, investments in the Private Credit portfolio also provide an equity component of return in the form of warrants or re-organized equity.

Resource Investments - The objectives of the Resources portfolio, which may include energy, infrastructure, and other hard assets, are to provide protection against the risks associated with inflation and to provide overall portfolio diversification to the total plan.

Real Estate Investments - The objectives of the Real Estate portfolio, which may include core and non-core real estate investments, are to achieve attractive returns, preserve capital, provide protection against risks associated with inflation, and provide overall portfolio diversification to the total plan.

The SBI also monitors Private Markets performance using money-weighted return metrics such as Internal Rate of Return and Multiple of Invested Capital. For money-weighted return metrics please refer to the Combined Funds Performance Report.

(1) The Uninvested portion of the Private Markets allocation is invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash.

Source: State Street Bank

SBI Combined Funds Strategic Allocation Category Framework

	9/30/2022 ($ millions)	9/30/2022 Weights	Category Range	
Growth - Appreciation				
Public Equity	$ 38,325.4	49.7%		
Private Equity	$ 14,367.1	18.6%		
Non-Core Real Assets	$ 3,585.4	4.6%		
	$ 56,278.0	**73.0%**	*50%*	*75%*
Growth - Income-oriented				
Core Fixed Income	$ 4,095.9	5.3%		
Private Credit	$ 1,616.8	2.1%		
Return-Seeking Fixed Income	$ 3,818.1	5.0%		
	$ 9,530.9	**12.4%**	*15%*	*30%*
Real Assets				
Core Real Estate		0.0%		
Real Assets	$ 581.9	0.8%		
	$ 581.9	**0.8%**	*0%*	*10%*
Inflation Protection				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	*0%*	*10%*
Protection				
U.S. Treasuries	$ 7,152.1	9.3%		
	$ 7,152.1	**9.3%**	*5%*	*20%*
Liquidity				
Cash	$ 3,578.4	4.6%		
	$ 3,578.4	**4.6%**	*0%*	*5%*
Opportunity				
Opportunity		**0.0%**		
		0.0%	*0%*	*10%*
Total	**$ 77,121.5**	**100%**		
Illiquid Asset Exposure	**$ 20,151.3**	**26.1%**	*0%*	*30%*

Volatility Equivalent Benchmark Comparison

	As of September 30, 2022							
	1-year	*3-year*	*5-year*	*10-year*	*15-year*	*20-year*	*25-year*	*30-year*
SBI Combined Funds Return	**-11.6%**	**6.4%**	**6.7%**	**8.4%**	**6.5%**	**8.6%**	**7.0%**	**8.3%**
Volatility Equivalent Benchmark Return			**2.8%**	**4.8%**	**3.9%**	**6.2%**	**5.2%**	**6.3%**
Value Added			**4.0%**	**3.6%**	**2.6%**	**2.4%**	**1.8%**	**2.1%**

Standard Deviation: Benchmark = Combined Funds			**10.7%**	**8.7%**	**10.2%**	**9.4%**	**9.9%**	**9.5%**
Benchmark Stock Weight			**58%**	**58%**	**57%**	**58%**	**61%**	**61%**
Benchmark Bond Weight			**42%**	**42%**	**43%**	**42%**	**39%**	**39%**

The Volatility Equivalent Benchmark stock and bond weights are adjusted to equal the standard deviation of the SBI Combined Funds portfolio. Then a return is calculated. The bond return used is the Bloomberg U.S. Aggregate. The stock return used is the MSCI AC World Net Return Index. Prior to 12/31/98 it was the MSCI ACWI Total Return Index and pre-11/1/1993 it was the Wilshire 5000 adjusted for various SBI divestment mandates.

Combined Funds Summary

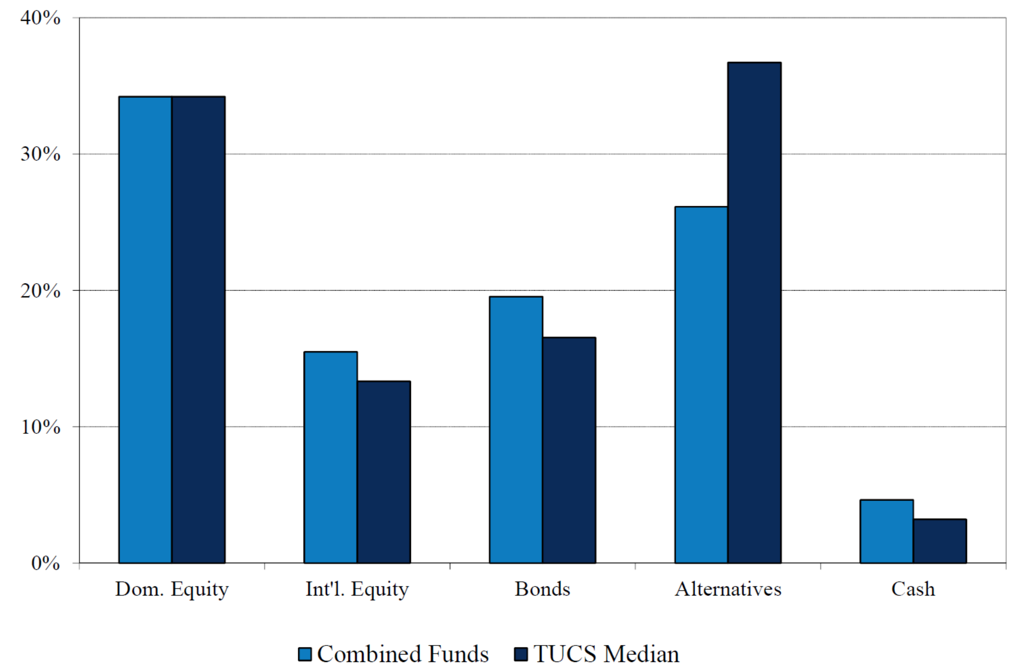
Asset Mix Compared to Other Pension Funds

The comparison universe used by the SBI is the Trust Universe Comparison Service (TUCS). Only funds with assets over $20 billion are included in the comparisons shown in this section.

Comparisons of the Combined Funds' asset mix to the median allocation to stocks, bonds and other assets of the public funds in TUCS over $20 billion are shown below:

Combined Funds Asset Mix

	($Millions)	Actual Mix
Public Equity	37,572	48.7
Total Fixed Income	18,641	24.2
Private Markets - Invested	20,155	26.1
Private Markets - Uninvested	754	1.0
TOTAL	77,122	100.0



	Domestic Equity	International Equity	Bonds	Alternatives	Cash
Combined Funds	34.2%	15.5%	19.5%	26.1%	4.6%
Median in TUCS	34.2%	13.3%	16.5%	36.7%	3.2%

Combined Funds Summary

Performance Compared to Other Pension Funds

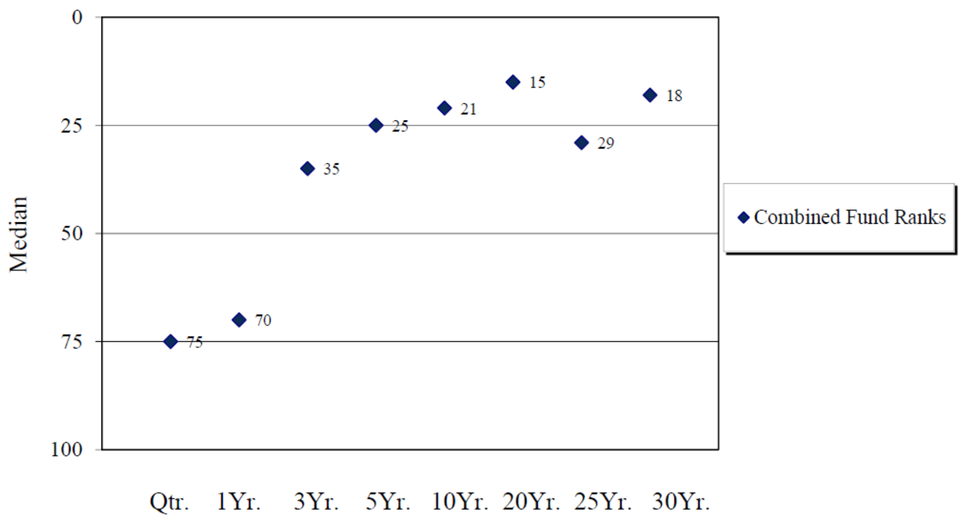
While the SBI is concerned with how its returns compare to other pension investors, universe comparisons should be used with great care. There are several reasons why such comparisons will provide an "apples to oranges" look at performance:

- Differing Allocations. Asset allocation will have a dominant effect on return. The allocation to stocks among the funds in TUCS typically ranges from 20-90%, a very wide range for meaningful comparison. This further distorts comparisons among funds.

- Differing Goals/Liabilities. Each pension fund structures its portfolio to meet its own liabilities and risk tolerance. This will result in different asset mix choices. Since asset mix will largely determine investment results, a universe ranking is not relevant to a discussion of how well a plan sponsor is meeting its long-term liabilities.

With these considerations in mind, the performance of the Combined Funds compared to other public pension funds in Trust Universe Comparison Service (TUCS) are shown below.

The SBI's returns are ranked against public plans with over $20 billion in assets. All funds in TUCS report their returns gross of fees.



Periods Ended 09/30/2022

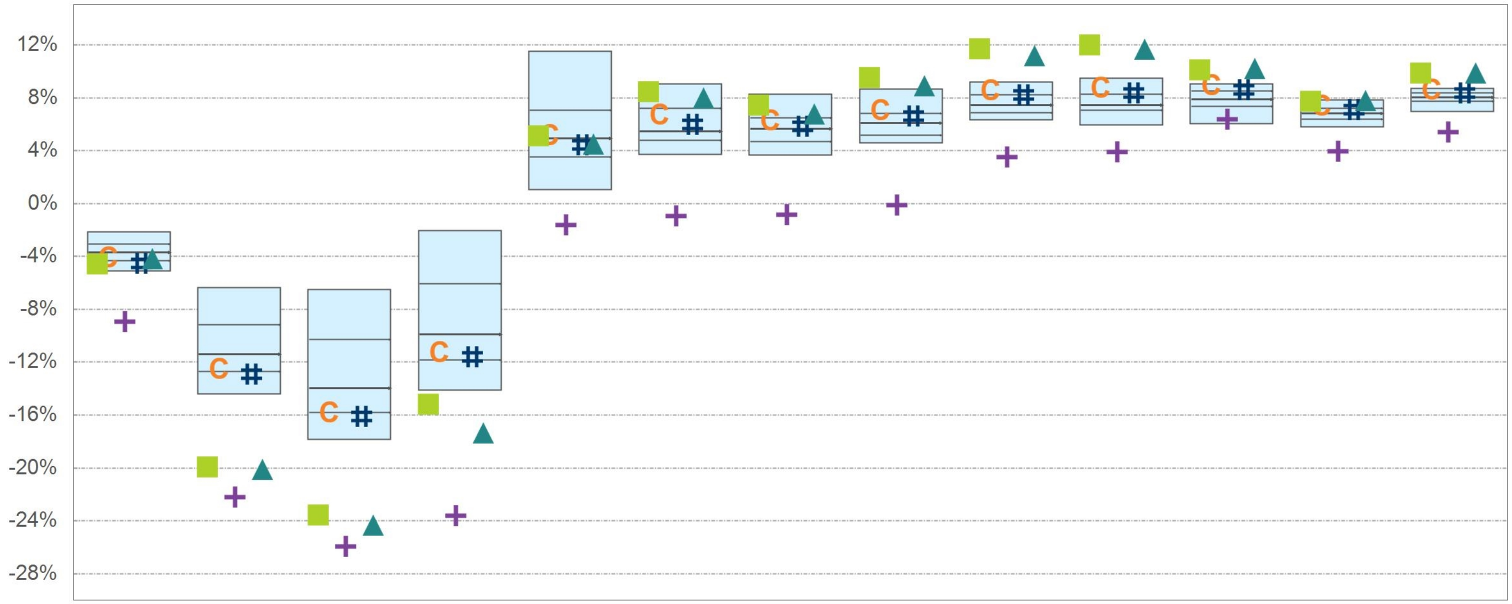
	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	25 Yrs	30 Yrs
Combined Funds	75th	70th	35th	25th	21st	15th	29th	18th
Percentile Rank in TUCS								

Wilshire

Minnesota State Board of Investments
Performance Comparison

Total Returns of Master Trusts - Public : Plans > $20 Billion

Cumulative Periods Ending : September 30, 2022

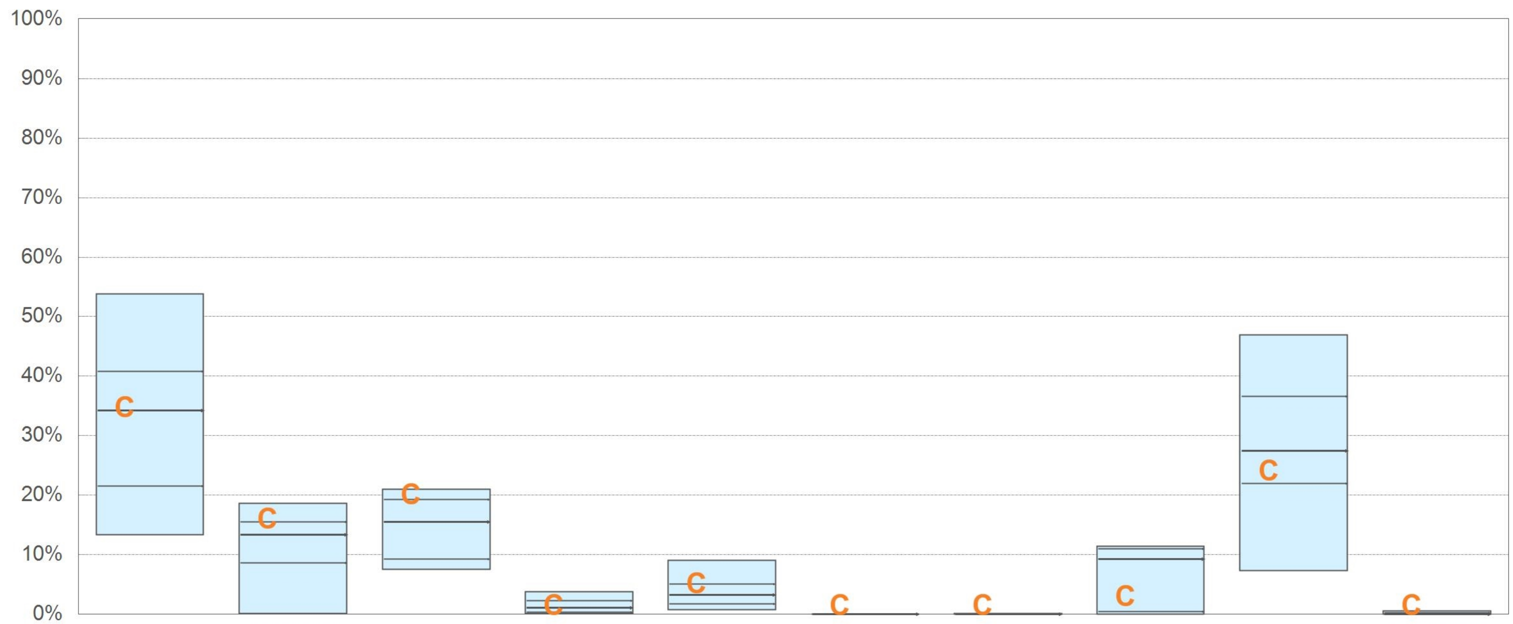


Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	-2.13	-6.34	-6.52	-2.07	11.50	9.06	8.26	8.65	9.21	9.47	9.03	7.85	8.72
25th	-3.06	-9.16	-10.29	-6.09	7.08	7.20	6.48	6.81	8.23	8.26	8.51	7.20	8.35
50th	-3.71	-11.38	-13.96	-9.90	4.91	5.46	5.65	6.08	7.42	7.46	7.89	6.80	8.01
75th	-4.32	-12.69	-15.83	-11.83	3.51	4.79	4.69	5.18	6.84	7.07	7.34	6.38	7.74
95th	-5.11	-14.38	-17.85	-14.13	1.07	3.70	3.65	4.60	6.32	5.96	6.05	5.79	6.98
No. Of Obs	28	27	27	27	27	27	26	26	26	26	24	23	19

C Combined Funds	-4.32 (75)	-12.75 (79)	-16.06 (79)	-11.48 (70)	4.91 (50)	6.47 (35)	6.04 (37)	6.81 (25)	8.32 (21)	8.52 (21)	8.69 (15)	7.13 (29)	8.36 (18)
# SBI Combined Funds Ind	-4.82 (87)	-13.20 (87)	-16.41 (79)	-11.89 (75)	4.16 (62)	5.72 (39)	5.57 (50)	6.31 (41)	7.94 (33)	8.05 (37)	8.31 (29)	6.81 (45)	8.08 (40)
S&P 500	-4.88 (87)	-20.20 (99)	-23.87 (99)	-15.48 (95)	4.83 (54)	8.16 (9)	7.17 (13)	9.24 (1)	11.40 (1)	11.70 (1)	9.84 (1)	7.45 (5)	9.56 (1)
Russell 3000	-4.46 (75)	-20.42 (99)	-24.62 (99)	-17.64 (99)	4.22 (62)	7.69 (9)	6.48 (25)	8.61 (5)	10.90 (1)	11.39 (1)	9.93 (1)	7.48 (5)	9.56 (1)
+ MSCI Wld Ex US (Net)	-9.20 (99)	-22.50 (99)	-26.23 (99)	-23.91 (99)	-1.89 (99)	-1.21 (99)	-1.15 (99)	-0.40 (99)	3.21 (99)	3.62 (99)	6.11 (94)	3.68 (99)	5.10 (100)

Wilshire Trust Universe Comparison Service® (TUCS®)

Minnesota State Board of Investments
Asset Allocation of Master Trusts - Public : Plans > $20 Billion
Quarter Ending September 30, 2022



Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	53.80	18.60	20.96	3.73	9.03	0.00	0.14	11.45	46.88	0.50
25th	40.80	15.49	19.24	2.27	5.09	0.00	0.00	10.99	36.64	0.20
50th	34.21	13.33	15.45	1.09	3.20	0.00	0.00	9.30	27.41	0.00
75th	21.49	8.66	9.27	0.36	1.70	0.00	0.00	0.47	21.98	0.00
95th	13.40	0.15	7.50	0.06	0.79	0.00	0.00	0.00	7.27	0.00
C Combined Funds	34.21 (50)	15.49 (25)	19.54 (15)	0.00 (100)	4.64 (31)	0.00 (100)	0.00 (100)	2.51 (56)	23.62 (62)	0.00 (99)

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TAB B

Executive Director's Administrative Report

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EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: November 23, 2022

TO: Members, State Board of Investment

FROM: Jill E. Schurtz
Executive Director & Chief Investment Officer

1. Executive Director's First Thirty Days Overview

The Executive Director will give a verbal overview regarding the first thirty days in the role.

2. Reports on Budget and Travel

A report on the SBI's administrative budget for the fiscal year to date through September 30, 2022, is included as **Attachment A**.

A report on travel for the period from July 1, 2022 – September 30, 2022 is included as **Attachment B**.

3. FY22 Audit Report

The Legislative Auditor is working on the financial audit of SBI operations for FY22. We will inform you of the results upon completion of the audit.

4. Draft of FY22 Annual Report

A draft of the SBI's annual report for FY22 will be available to the Board Members/Designees and IAC Members upon completion of the FY22 audit. We will notify you when available.

5. Meeting Dates for Calendar 2023

IAC	**SBI**
Tuesday, February 21, 2023	Thursday, March 2, 2023
Monday, May 15, 2023	Thursday, May 25, 2023
Monday, August 14, 2023	Wednesday, August 23, 2023
Monday, November 13, 2023	Wednesday, November 29, 2023

6. Russia/Belarus Update

Each quarter, staff provides a report to the Board on steps taken to implement *Minnesota Statutes*, section 11A.245 that requires SBI actions concerning companies with operations in Russia and Belarus.

During the 2022 legislative session, the Minnesota Legislature passed a bill requiring the SBI to liquidate its holdings in companies with their principal place of business in Russia or Belarus. The bill was signed into law and became effective on April 2, 2022. The statute prohibits any new investment in target companies and requires the SBI to identify and liquidate, to the extent practicable, 50% of its direct holdings in target companies within nine months of the effective date; and 100% of its holdings within 15 months of the effective date.

SBI utilizes information from data service providers, including MSCI, Factset and Bloomberg, to develop a list of target companies with their principal place of business in Russia or Belarus. Staff receives monthly reports from the SBI's custodian bank concerning SBI holdings of companies on the restricted list.

In the third quarter, the liquidation manager sold 17 bond holdings and one equity holding. The liquidation manager indicated that the market for equity trading remained effectively closed to foreign investors during the quarter due to sanctions imposed by the United States and its allies as well as retaliatory actions taken by the Russian government to restrict foreign capital flows.

On September 23, 2022, staff sent a letter to each applicable external manager (international equity, domestic equity, global equity and fixed income) containing the most recent restricted list.

7. Sudan Update

Each quarter, staff provides a report to the Board on steps taken to implement *Minnesota Statutes*, section 11A.243 that requires SBI actions concerning companies with operations in Sudan. Staff receives periodic reports from the Eiris Conflict Risk Network (CRN) about the status of companies with operations in Sudan.

The SBI is restricted from purchasing stock in the companies designated as highest offenders by the CRN. Accordingly, staff updates the list of restricted stocks and notifies investment managers that they may not purchase shares in companies on the restricted list. Staff receives monthly reports from the SBI's custodian bank concerning SBI holdings of companies on the CRN list and writes letters as required by law.

According to the law, if after 90 days following the SBI's communication, a company continues to have active business operations in Sudan, the SBI must divest holdings of the company according to the following schedule:

- at least 50% shall be sold within nine months after the company appeared on the scrutinized list; and

- 100% shall be sold within fifteen months after the company appeared on the list.

In the third quarter, there were three companies on the SBI restricted list, two companies on the SBI divestment list, and no shares sold.

On September 23, 2022, staff sent a letter to each applicable external manager (international equity, domestic equity and global equity) containing the most recent restricted list and the list of stocks to be divested in compliance with Minnesota law.

8. Iran Update

Each quarter, staff provides a report to the Board on steps taken to implement *Minnesota Statutes*, section 11A.244 that requires SBI actions concerning companies with operations in Iran.

SBI receives information on companies with Iran operations from Institutional Shareholder Services, Inc. (ISS). Staff receives monthly reports from the SBI's custodian bank concerning SBI holdings of companies on the restricted list and writes letters as required by the law.

According to the law, if after 90 days following the SBI's communication a company continues to have scrutinized business operations, the SBI must divest all publicly traded securities of the company according to the following schedule:

- at least 50% shall be sold within nine months after the company appeared on the scrutinized list; and

- 100% within fifteen months after the company appeared on the scrutinized list.

In the third quarter, there was one company on the SBI restricted list, and no shares sold.

On September 23, 2022, staff sent a letter to each applicable external manager (international equity, domestic equity, global equity and fixed income) containing the most recent restricted list and the list of companies to be divested in compliance with Minnesota law.

9. Thermal Coal Update

The Minnesota State Board of Investment approved a resolution at its May 2020 meeting requiring the removal of any publicly traded company deriving more than 25% of its revenue from thermal coal production (exploration/mining). The SBI has contracted with Moody's ESG, to identify companies that meet the criteria according to the resolution.

The resolution required removal of identified companies in a prudent and expeditious manner by December 31, 2020. Beginning with the Board's regularly scheduled third quarter 2020 meeting and continuing each quarter thereafter, staff reports to the Board on the status of any action authorized by this resolution.

In the third quarter, there was one company on the SBI divestment list, and 4,797,000 shares sold.

On June 23, 2022, staff sent a letter to each applicable external manager (domestic equity, international equity, global equity, fixed income, non-retirement, stable value fund, and invested treasurer's cash) containing the most recent restricted list. This list will be updated annually in June.

10. Litigation Update

SBI legal counsel will give a verbal update on the status of any litigation at the meeting.

ATTACHMENT A

STATE BOARD OF INVESTMENT
FISCAL YEAR 2023 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH SEPTEMBER 30, 2022

ITEM	FISCAL YEAR 2023 BUDGET	FISCAL YEAR 2023 9/30/2022
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	$ 7,723,000	$ 1,677,300
PART TIME EMPLOYEES	10,000	8,681
OVERTIME AND PREMIUM PAY	0	0
MISCELLANEOUS PAYROLL	300,000	0
SUBTOTAL	**$ 8,033,000**	**$ 1,685,981**
STATE OPERATIONS		
RENTS & LEASES	390,000	93,464
REPAIRS/ALTERATIONS/MAINTENANCE	21,000	1,460
PRINTING & BINDING	12,000	1,089
PROFESSIONAL/TECHNICAL SERVICES	550,000	33,028
COMPUTER SYSTEMS SERVICES	191,000	132,909
COMMUNICATIONS	25,000	2,437
TRAVEL, IN-STATE	3,000	0
TRAVEL, OUT-STATE	300,000	18,634
SUPPLIES	50,000	11,139
EQUIPMENT	93,985	3,763
EMPLOYEE DEVELOPMENT	219,000	10,864
OTHER OPERATING COSTS	125,000	35,182
INDIRECT COSTS	300,000	51,380
SUBTOTAL	**$ 2,279,985**	**$ 395,349**
TOTAL ADMINISTRATIVE BUDGET	**$ 10,312,985**	**$ 2,081,329**

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ATTACHMENT B

STATE BOARD OF INVESTMENT

Travel Summary by Date
July 1, 2022 - September 30, 2022

Purpose	Name	Destination / Date	Total Cost
Conference: PPI Summer Roundtable	A. Christensen	Vancouver, BC, Canada July 13-15, 2022	$ 2,516.59
Manager Monitoring **Public Markets Manager:** Zevenbergen	T. Brusehaver	Seattle, WA July 25-26, 2022	1,125.58
Manager Monitoring **Public Markets Manager:** Zevenbergen	D. Covich	Seattle, WA July 25-26, 2022	1,210.00
Manager Monitoring **Public Markets Manager:** McKinley	E. Pechacek	Chicago, IL August 11, 2022	377.71
Manager Monitoring **Public Markets Manager:** McKinley	E. Sonderegger	Chicago, IL August 11, 2022	534.56
Manager Monitoring **Private Markets Managers:** Thoma Bravo, KKR **Manager Search** **Private Markets Managers:** Brighton Park Capital, Atlantic Street Capital	J. Stacy	New York, NY September 6-8, 2022	1,590.54
Manager Monitoring **Private Markets Managers:** Thoma Bravo, KKR, Lexington Partners	S. Zahar	New York, NY September 6-8, 2022	1,780.41

STATE BOARD OF INVESTMENT

Travel Summary by Date
July 1, 2022 - September 30, 2022
(Continued)

Purpose	Name	Destination / Date	Total Cost
Manager Monitoring **Private Markets Manager:** Rockwood Capital **Manager Search** **Private Markets Manager:** Torchlight AGM **Conference:** Rockwood Annual General Partners Conference	M. Ndungu	New York, NY September 12-15, 2022	$ 2,065.31
Manager Monitoring **Private Markets Managers:** Carlyle Group, Blackstone Group **Manager Search** **Private Markets Manager:** Wheelock Street Capital	M. Clancey	New York, NY September 12-14, 2022	1,711.71
Manager Monitoring **Private Markets Manager:** Clearlake **Manager Search** **Private Markets Managers:** Freeman Spogli, Vance Street Capital	J. Stacy	Los Angeles, CA September 13-15, 2022	1,323.80
Manager Monitoring **Private Markets Managers:** Marathon, Hellman & Friedman **Conference:** Marathon Investor Summit	M. Ndungu	New York, NY September 19-22, 2022	1,962.36
Conference: 2022 National Association of State Investment Officers (NASIO) Annual Conference	M. Perry	Seattle, WA September 18-21, 2022	3,149.61

STATE BOARD OF INVESTMENT

Travel Summary by Date
July 1, 2022 - September 30, 2022
(Continued)

Purpose	Name	Destination / Date	Total Cost
Manager Monitoring **Public Markets Managers:** Wellington, Martingale, Acadian, Fidelity, Macquarie **Manager Search** **Public Markets Managers:** GMO, Arrowstreet	D. Covich	Boston, MA September 19-22, 2022	$ 2,005.00
Manager Monitoring **Public Markets Managers:** Acadian, Macquarie, Fidelity, Martingale **Manager Search** **Public Markets Managers:** Arrowstreet	E. Pechacek	Boston, MA September 20-22, 2022	1,492.52
Conference: Council of Institutional Investors Fall 2022 Conference	J. Mulé	Boston, MA September 20-23, 2022	2,320.82
Manager Monitoring **Private Markets Manager:** Asia Alternatives Annual Meeting and Advisory Board Meeting	M. Perry	San Francisco, CA September 26-28, 2022	1,592.59
Manager Monitoring **Private Markets Manager:** Asia Alternatives Annual Meeting and Advisory Board Meeting	A. Christensen	San Francisco, CA September 26-30, 2022	2,176.39
Manager Monitoring **Private Markets Manager:** Asia Alternatives Annual Meeting and Advisory Board Meeting	A. Krech	San Francisco, CA September 26-30, 2022	1,735.93

STATE BOARD OF INVESTMENT

Travel Summary by Date
July 1, 2022 - September 30, 2022
(Continued)

Purpose	Name	Destination / Date	Total Cost
Manager Monitoring **Private Markets Manager:** Windjammer **Manager Search** **Private Markets Manager:** JMI Equity	J. Stacy	Los Angeles, CA September 28-30, 2022	$ 1,960.45
Manager Monitoring **Private Markets Manager:** Merit Capital **Manager Search** **Private Markets Manager:** CVIC	S. Zahar	Chicago, IL September 28-29, 2022	960.53

TAB C

Private Markets Program Report

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DATE: November 23, 2022

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: SBI Private Markets Program Report

This report provides the current status of the SBI private markets commitments.

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A. Status of SBI Current Private Markets Commitments

Minnesota State Board of Investment
Combined Funds
September 30, 2022

Combined Funds Market Value $77,121,570,382

	% of Combined Funds	Current Level	Target Level [1]	Difference
Market Value (MV)	26.1%	$20,154,677,487	$19,280,392,595	($874,284,891)
Policy Target	*25%*			
Statutory Limit	*35%*			
MV +Unfunded	41.8%	$32,208,496,839	$34,704,706,672	$2,496,209,832
Policy Limit	*45.0%*			

Asset Class	% of Combined Funds	Market Value	Unfunded Commitment	Total
Private Equity	18.6%	$14,367,159,093	$8,065,128,900	$22,432,287,994
Private Credit	2.1%	$1,616,841,746	$1,612,034,570	$3,228,876,316
Real Assets	2.9%	$2,228,049,180	$609,881,328	$2,837,930,508
Real Estate	2.5%	$1,939,321,063	$1,766,774,555	$3,706,095,619
Other[2]		$3,306,404		$3,306,404
Total		$20,154,677,487	$12,053,819,353	$32,208,496,839

Cash Flows
September 30, 2022

Calendar Year	Capital Calls	Distributions	Net Invested
2022	$2,797,817,600	($2,544,575,003)	$253,242,597
2021	$4,556,450,698	($3,672,823,834)	$883,626,864
2020	$2,786,134,001	($2,318,825,278)	$467,308,723
2019	$2,543,614,503	($2,080,037,860)	$463,576,642
2018	$1,992,000,341	($2,049,733,815)	($57,733,474)
2017	$2,021,595,780	($2,383,863,711)	($362,267,931)

[1] There is no target level for MV + Unfunded. This amount represents the maximum allowed by policy
[2] Represents in-kind stock distributions from the liquidating portfolio managed by T.Rowe Price and cash accruals.

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TAB D

SBI Administrative Committee Report

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DATE: November 23, 2022

TO: Members, State Board of Investment

FROM: SBI Administrative Committee and SBI Staff

SUBJECT: SBI Administrative Committee Report

The SBI Administrative Committee met on November 14, 2022, to discuss updates to the SBI Space Planning Project Work Plan and the SBI Space Planning Project Budget.

Given the recent SBI Executive Director transition, the Committee also discussed the merits of a revised FY23 Executive Director work plan and evaluation process. The Committee determined that a revised work plan would be advisable and that a revised evaluation process should be considered. The SBI Administrative Committee will convene in early February 2023 to review the revised work plan and determined an evaluation process for the SBI Executive Director. The information will be presented at the May 2023 SBI Board Meeting.

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On November 14, 2022, the SBI Administrative Committee reviewed and approved the Actions set forth below. The SBI Administrative Committee recommends these Actions for the Board's consideration.

1. Updates to the SBI Space Planning Project Work Plan and Budget

A. Work Plan

The SBI Executive Director recommends, and the SBI Administrative Committee concurs, that the Board approve the proposed changes to the Executive Director's Fiscal Year 2023 Work Plan, which are attached hereto. On May 2, 2022, the SBI Administrative Committee approved the former Executive Director's work plan and accompanying materials. At such time, the Administrative Committee also anticipated that revisions could be appropriate upon the arrival of the new Executive Director.

Given current space constraints for existing and projected SBI staff and the space needs of the pension systems, the SBI anticipates relocating to a reconfigured space. The FY23 work plan addresses the SBI's move to a new office space and lays out a timeframe for completion of the project. The timelines originally established in the work plan were estimates and require modification given ongoing conversations with the pension systems.

We continue to work with the pension systems to determine the best course of action regarding our future space, with an emphasis on seeking solutions that would consolidate the SBI team on a single floor. At this point, the soonest the SBI would likely be able to move would be the end of calendar-year 2023, depending on a variety of factors. The proposed changes reflect a timeline that is consistent with staff's discussions with the Department of Administration and pension system directors (see **Attachment A on pages 5; redline on page 7**).

B. Budget

To facilitate the space planning project, the SBI Executive Director recommends, and the SBI Administrative Committee concurs, that the FY23 Administrative budget be amended to provide for funding of the construction/remodel of the SBI offices.

The Administrative budget is funded by dedicated receipts by billing the pension systems that invest with the SBI. To accommodate this project, the SBI is adding $3.5 million to the FY23 budget (see explanation below). If the construction/remodel project carries over into FY24, we will modify the budget when the FY24 and 25 budget plan is prepared in April/May of 2023.

The proposed budget amendment is included as **Attachment B on pages 9 and 11.**

The Retirement Systems Building Redesign Space Budget Report compiled by the Department of Administration is included as **Attachment C on page 13**. The $3.5 million amount is derived from the estimate referenced in the Attachment under Option #2: Significant Construction. This amount was increased by approximately 10% to account for potential cost increases and plan modifications.

RESOLUTION:

The State Board of Investment hereby approves the proposed amendments to the SBI Executive Director's Fiscal Year 2023 Work Plan as set forth in Attachment A and the amended SBI Administrative Budget as set forth in Attachment B.

ATTACHMENT A

STATE BOARD OF INVESTMENT

Project Summary
FY23

ADMINISTRATION AND MANAGEMENT
SBI Space Planning Project

GOAL: To plan and transition the SBI's move to a new office space.

BACKGROUND: SBI staff are currently undertaking a project to redesign the SBI's offices to accommodate a probable move within the pension system building, the addition of staff, and a goal of consolidating the team on a single floor. Over the past few years, SBI staff has been discussing a potential move with the pension systems. While the SBI's lease with the pension systems will run for several more years, staff anticipate a move occurring within the next one to two years.

The project will move through several phases before the move can occur. Currently, SBI staff are working with the pension systems and the Department of Administration on addressing the SBI's needs in a new office space. Once the needs assessment is complete, SBI staff will work with an architect and contractors to determine the final blueprint for the office space. Staff anticipate that final plans will be complete by the end of FY23, with final cost determined and approved at that time. After the final plans and budget are approved, staff will work with and monitor contractors until completion of the project. The timeline below is an estimate and subject to change.

RESPONSIBLE: Assistant Executive Director, Investment Strategy and Administration; Assistant Executive Director, Portfolio Management and Risk Analysis; Director, Legal and Policy Services

---

Conduct Space Needs Assessment.	Jan. – Aug. 2022
Review, approve budget construction plan.	Fiscal Year 2023
Construction Completed.	Fiscal Year 2024
Move Completed.	Fiscal Year 2024

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STATE BOARD OF INVESTMENT

Project Summary
FY23

ADMINISTRATION AND MANAGEMENT
SBI Space Planning Project

GOAL: To plan and transition the SBI's move to a new office space.

BACKGROUND: SBI staff are currently undertaking a project to redesign the SBI's offices to accommodate a probable move within the pension system building, ~~and~~ the addition of staff, and a goal of consolidating the team on a single floor. Over the past few years, SBI staff has been discussing a potential move with the pension systems. ~~The likely result of the project will be the SBI moving to the first floor offices, which were previously vacated by the Secretary of State.~~ While the SBI's lease with the pension systems will run for several more years, staff anticipate a move occurring within the next one to two years.

The project will move through several phases before the move can occur. Currently, SBI staff are working with the pension systems and the Department of Administration on addressing the SBI's needs in a new office space. Once the needs assessment is complete, SBI staff will work with an architect and contractors to determine the final blueprint for the office space. Staff anticipate that final plans will be complete ~~over the next 6-10 months~~by the end of FY23, with final cost determined and approved at that time. After the final plans and budget are approved, staff will work with and monitor contractors until completion of the project. The timeline below is an estimate and subject to change.

RESPONSIBLE: Assistant Executive Director, Investment Strategy and Administration; Assistant Executive Director, Portfolio Management and Risk Analysis; Director, Legal and Policy Services

Conduct Space Needs Assessment.	Jan. – Aug. 2022
Review, approve~~,~~ budget construction plan.	~~Aug. 2022~~Fiscal Year 2023
Construction Completed.	~~Feb. 2023~~Fiscal Year 2024
Move Completed.	~~Apr. – May 2023~~Fiscal Year 2024

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ATTACHMENT B

Amended Administrative Budget Plan
Fiscal Year 2023 and 2024

The Fiscal Year 2023 Administrative budget is being amended to fund the construction/remodel of the SBI offices. The Administrative budget is funded by dedicated receipts by billing Plans that invest with the SBI. The SBI is adding a budget of $3.5 million to Fiscal Year 2023 for the project. We have included the entire budget in Fiscal Year 2023. If the construction/remodel is scheduled to carry over into Fiscal Year 2024 we will modify the budget when the Fiscal Years 2024 and 2025 budget plan is prepared in April/May of 2023.

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State Board of Investment
Amended Administrative Budget Plan
Fiscal Years 2023 and 2024
Prepared November 2022

	FY23 Original	FY2023 Amended	FY2024 Original
Personnel Services			
Full Time Employees	$ 8,033,000	$ 8,033,000	$ 8,247,000
Other Benefits	300,000	300,000	100,000
Subtotal	$ 8,333,000	$ 8,333,000	$ 8,347,000
State Operations			
Rents & Leases	390,000	390,000	390,000
Printing & Binding	12,000	12,000	12,000
Professional/Technical Services (1)	250,000	550,000	250,000
Computer Systems Services	191,000	191,000	191,000
Communications	25,000	25,000	25,000
Travel, In-State	3,000	3,000	3,000
Travel, Out-State	300,000	300,000	300,000
Employee Development	219,000	219,000	219,000
Supplies	50,000	50,000	50,000
Repairs/Alterations/Maintenance (2)	21,000	3,221,000	21,000
Indirect Costs	300,000	300,000	300,000
Other Operating Costs	125,000	125,000	125,000
Equipment	75,300	75,300	75,300
Subtotal	$ 1,961,300	$ 5,461,300	$ 1,961,300
Total MSBI Operating Fund	$ 10,294,300	$ 13,794,300	$ 10,308,300
Percent Increase (Decrease) Over Original Budget		34.0%	

1. Professional/Technical Services line item was amended by $300,000 for the architectural and planning services of the first floor.
2. Repairs/Alterations/Maintenance line item was amended by $3,200,000 for the construction and remodel of the first floor.

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Attachment C

Budget Report compiled by Department of Administration

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RSB Redesign Space 1st Floor & 4th Floor at Retirement Systems Building

RECS Project Number: 63SP0028

Budget Report

5/18/2022

DEPARTMENT OF ADMINISTRATION

Prepared For:

MINNESOTA DEPARTMENT OF ADMINISTRATION
REAL ESTATE AND CONSTRUCTION SERVICES

STATE BOARD OF INVESTMENT

Prepared By:

COLLABORATIVE DesignGroup, inc.

125 MAIN STREET SE, SUITE 240
MINNEAPOLIS, MINNESOTA 55414
PROJECT NUMBER 22044.00

CONSULTANT

Collaborative Design Group
125 Main Street SE, Suite 240
Minneapolis, MN 55414
(612) 332-3654

Martina Foss Ashworth, AIA, NCARB
Johona Harris, CID

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The State Board of Investment (SBI) desires to relocate its office within the Retirement Systems Building (RSB) to two (2), 1st Floor suites and retain their existing 4th Floor suite. Renovations to all three spaces are required to better support SBI's current program needs and plan for future growth. SBI is considering two options for renovation: Existing/No Construction and Significant Construction. The budget cost to execute the renovations is summarized below and described in detail within the Budget Report and associated documents.

Option #1: Existing/No Construction

Budget Summary

Design Cost:	$ 170,000
Construction Cost:	$ 2,109,716
TOTAL:	**$ 2,279,716**

Option #2: Significant Construction

Budget Summary

Design Cost:	$ 220,000
Construction Cost:	$ 3,033,819
TOTAL:	**$ 3,253,819**

PROJECT OVERVIEW

PROJECT CONCEPT

The State Board of Investment (SBI) desires to relocate its office within the Retirement Systems Building (RSB) to two (2), 1st Floor suites and retain their existing 4th Floor suite. Renovations to all three spaces are required to better support SBI's current program needs and plan for future growth. To develop an understanding of the cost for such a project, Real Estate and Construction Services (RECS) invited Collaborative Design Group (CDG) to prepare this budget report. The budget is intended to sufficiently cover all hard project costs, allow for appropriate contingencies, and identify alternates and allowances.

SBI provided a series of documents they utilized to guide their relocation and renovation plans, including block plans and a space needs assessment. In addition, CDG conducted a budget meeting to highlight needs in the new spaces and ask key questions that have cost implications for the project. SBI and RECS then also provided existing, measured floor plans for the Retirement Systems Building as well as the State of Minnesota's Space Guidelines.

Both the provided documents and the discussion with SBI serve as the foundation for the Outline Specifications. These specifications identify the scope of work, indicate alternates, discuss schedule and phasing, and provide a detailed narrative about the expected scope of work. The specifications also describe what cannot be seen on the block plans, because the project has not yet been fully designed.

SBI inherently understands the magnitude of cost associated with renovating the spaces within RSB. As such, they requested that CDG develop the budget for two (2) renovation options: 1) Existing/No Construction and 2) Significant Construction. These are represented primarily in the Block Plans provided but also by key notes within the Outline Specifications.

PROJECT SCOPE

The Budget Report for the RSB Renovation for SBI consists of the following components:

- **Outline Specifications**, including:
    - Short scope of work
    - Information about schedule and phasing
    - Details and direction for Divisions 1-28
- **Budget Summary**, which:
    - Addresses each design option
    - Provides an appropriate fee range for the Design Cost
    - Anticipates an onsite construction start date of Spring 2023
- **Timeline**, including:
    - Durations in weeks
    - Phases and Milestones
- **Appendix**, including:
    - Cost Estimate
    - Block Plan Drawings
    - Existing Floor Plan drawings
    - Owner Reference Documentation

OUTLINE SPECIFICATIONS

PART 1 GENERAL REQUIREMENTS

1.01 Scope of Work: This specification outlines the scope of work for the redesign of the 1st Floor and 4th Floor office suites in the Retirement Systems Building for the State Board of Investment (SBI). Retirement Systems Building (RSB) was originally constructed in 2001 and designed by Hammel, Green and Abrahamson. The building has four levels and its various suites have undergone tenant improvement projects and finish upgrades over time. The main objectives of this project are as follows:

A. Renovate the existing, vacant tenant spaces on 1st floor previously occupied by the Secretary of State.

B. Renovate the existing 4th floor suite, currently occupied by SBI.

C. Provide collaborative and hybrid working spaces.

D. Upgrade finishes (paint and carpet) within the suites.

E. Provide furniture and furniture systems within the suites.

F. Reconfigure HVAC systems to provide balanced heating and cooling.

G. Upgrade lighting to LED fixtures and connect to State lighting control system.

H. Replace existing drop ceilings as required by the HVAC and electrical work.

1.02 Existing Conditions:

A. This project is a tenant improvement project; existing exterior wall conditions are to remain.

B. Existing offices, doors and casework to remain unless indicated otherwise.

C. Existing mechanical and electrical systems are to remain; upgrades to components may be required to reconfigure spaces but a wholesale replacement is not required.

D. Restrooms are located on each floor of the building but exist outside of the tenant suite. Specific fixtures needed will be called out in the specification.

E. Stairs and elevators give access to each floor of the building but exist outside of the tenant suite.

F. Card access currently exists in the building and within the suites.

1.03 Schedule: At this time a schedule for this work is unknown. If SBI moves forward with design within the 2022 fiscal year, the earliest construction start date could be 2nd quarter 2023.

1.04 Phasing: The 4th floor suite is currently occupied and may remain occupied during construction. Work will need to be performed in phases such that 1st floor suites are first, followed by the 4th floor suite, to allow upgrades throughout the space.

1.05 Hazardous Materials: The presence of hazardous materials is unknown but unlikely.

1.06 Cost Estimate: The intent of the project is to complete all work indicated in this Outline Specification and on the Block Plan Drawings. For budgeting purposes, provide general construction costs, separated by discipline. Include appropriate contingencies for design, construction and market volatility. Please also provide inflation rates for 5-year planning purposes.

For budgeting purposes, provide costs broken out as follows:

A. General construction cost, including general conditions, contingencies, and fees.

B. Alternates for “Existing/No Construction” and “Significant Construction”

PART 2 DEMOLITION

2.01 Carefully demolish all walls and ceilings identified on the drawings.

2.02 Remove all carpeting throughout the three (3) suites.

2.03 Demolish all non-LED light fixtures throughout the suite.

2.04 Demolish existing offices, including ceiling tile and grid, interior glazing and doors, as indicated on plans.

2.05 Demolish all furniture systems. Conference room furniture and all seating to remain. See Division 12.

2.06 Protect all surfaces and finishes not to be demolished.

PART 5 METALS

5.01 Miscellaneous Metals: Provide all miscellaneous metals including but not limited to; lintels, counter supports, top of wall bracing, braces, and mechanical equipment supports.

PART 6 WOOD, PLASTICS AND COMPOSITES

6.01 Blocking: Install wood blocking in stud walls to support shelving, cabinets, and other accessories.

6.02 Millwork: Provide and install plastic laminate cabinetry in new break room and copy/work rooms as required. Match existing type and quality – see photos.

6.03 Countertops: Mother’s room and break room countertops shall be quartz in colors selected from the manufacturer’s full range with an undermount sink.

PART 8 ENTRANCES, STOREFRONTS, AND CURTAIN WALLS

8.01 Windows and Glazing: Exterior glazing is existing to remain. Interior glazing at entry doors, offices and other spaces is to remain unless otherwise noted.

A. Interior windows and storefront:

i. Provide single-glazed, clerestory windows at conference room and private office walls.

ii. Provide an alternate for DIRRT wall systems for private offices and conference spaces.

8.02 Entry Doors: Suite entry doors are existing to remain.

8.03 Doors, Frames, and Hardware:

A. Typical interior doors shall be 3'-0" x 7'-0" flush solid core wood veneer - cherry, with a lifetime warranty, sealed and stained to match existing suite doors. Interior frames shall be fully welded hollow metal.

PART 9 FINISHES

9.01 New Interior Partitions: New typical interior partitions shall be constructed with light gauge metal framing and 5/8" gypsum board from floor to deck above. Partitions will be filled with batt insulation and acoustic sealed at their perimeter.

9.02 Existing Interior Partitions: Patch all holes and defects to create uniform surface in gypsum board walls.

9.03 Gypsum Ceilings: Gypsum ceilings and soffits are existing to remain.

9.04 Acoustical Tile Ceilings: USG #414, frost, ClimaPlus, 2'x2' tegular tiles, typical throughout the suite. Typical ceiling height is 10'-0" AFF.

9.05 Wall Finishes: Typical wall finishes include wallcovering and paint as indicated in the specification.

A. Provide an alternate to skim coat and paint walls in lieu of replacing wall covering. See below for more information.

B. Provide a contingency for repair of wall surfaces with heavy damage to wall covering and/or gypsum finish.

9.06 Interior Finishes:

A. Lobby Area, Corridors, Open Work Areas:

i. Floors: Carpet

ii. Base: 4" Straight rubber base

iii. Walls: Wallcovering, except exterior walls Paint

iv. Ceilings: 2x2 Acoustical tile ceilings with gypsum board soffits.

B. Conference Rooms & Private Offices:

i. Floors: Carpet

ii. Base: 4" Straight rubber base

iii. Walls: Wallcovering, except exterior walls Paint

iv. Ceilings: 2x2 Acoustical ceilings with gypsum board soffits.

C. Mother's Room and Break Room:

i. Floors: LVT

ii. Base: 4" Straight rubber base

iii. Walls: Tile or Solid Surface on wall behind sink. All other walls Paint

iv. Ceilings: 2x2 Acoustical ceilings with gypsum board soffits.

PART 10 SPECIALTIES

10.01 Window Coverings: All exterior window coverings are existing to remain.

10.02 Marker Boards: Ceramic-enamel-faced markerboard panel on minimum 1/2-inch-thick particleboard, with steel backing sheet.

PART 12 FURNISHINGS

12.01 Furniture Systems: MSRS utilizes Herman Miller office furniture and furniture systems. SBI desires to move in that direction and provide ergonomic workstation setup for all employees. Wholesale replacement of existing furniture systems is required to achieve this goal. Other specific information related to furniture systems and the State of Minnesota space guidelines are as follows:

A. The typical Resident Employee workstation size is 6' x 8'. Assume this size for all workstations whether employees are always in-office or hybrid. Typical panel heights range from 39" to 53" to allow access to daylight views.

B. Typical Private Office size is 10' x 12'. Private offices are to be situated at the core of the building footprint where possible. See block plans.

C. Refer to page 4 and page 8 for Herman Miller workstation images related to cubicle workstation and private office workstation arrangements expected.

D. Existing conference room tables and associated seating to be retained and moved to the renovated suites.

PART 21 FIRE SUPPRESSION

21.01 Fire protection systems: Modify layout of existing fire protection systems as required.

PART 22 PLUMBING

22.01 Plumbing system

A. Provide new sinks as required at mother's room and break room(s).

B. Restrooms reside outside of the suite and are existing to remain.

PART 23 HVAC

23.01 HVAC System: Modify layout of existing system as required to optimize supply/return and return and balance the system to improve thermal comfort.

23.02 Controls: Assume connection to existing building automation system.

PART 26 ELECTRICAL

26.01 Electrical System: Existing electrical system to remain. Provide new equipment as follows:

A. Lighting

i. Install ceiling-mounted, occupancy sensors in all rooms.

ii. All new light fixtures shall be LED. Existing light fixtures have been re-lamped with LED lamps but the State of Minnesota desires LED fixtures throughout.

iii. Lighting incorporated in acoustical tile ceilings shall be 4'-0" linear pendant fixtures. See photos for comparable non-LED fixture for intent.

iv. Provide lighting controls system as required by all new construction on the Minnesota State Capitol Complex.

B. Power

i. Provide furniture whips as required for workstation layout. Existing furniture whips to be reused to the extent possible.

PART 27 AUDIO VISUAL SYSTEMS & EQUIPMENT

27.01 Sound masking systems: Modify layout of existing sound masking systems as required and provide new equipment where new offices/conference rooms are added.

27.02 Audio/Visual Systems: Conference rooms and collaboration spaces require A/V connections and equipment. Existing spaces are picture in the photos, and equipment is to remain in rooms not renovated.

The A/V system requirements by space are as follows:

A. Collaborative Spaces: Data/Power at floor or nearest wall, LED monitor depending on size of space

i. Small: seats 2-3, no monitor

ii. Medium: seats 4-6, wall-mounted monitor

iii. Large: seats 10-12, wall mounted monitor

B. Conference Spaces: Data/Power at floor, furniture with cable cubbies, LED monitor or mechanized screen

i. Small: seats 1-2, wall mounted monitor, set up for virtual conferencing

ii. Medium: seats 4-6, wall mounted monitor

iii. Large: seats 6-10, mechanized screen and podium with controls

iv. X-Large: seats 15-18, mechanized screen and podium with controls

PART 28 ACCESS CONTROL

28.01 Access Control: Existing suite entry doors have card access, which is to remain. New card access locations are indicated in the drawings.

END OF OUTLINE SPECIFICATIONS

PROJECT BUDGET & TIMELINE

BUDGET SUMMARY

The budget tables below seek to give the Owner Team an understanding of the project budget, as it relates to both the design fee and the construction cost for the expected work. Both design and construction budgets are provided as two design options, one for "Existing/No Construction and the second for "Significant Construction".

The Design Budget is based on CDG's past experience in developing fees for and executing projects of similar size and scale. It is the combined design fee for all disciplines – Architectural, Interior Design, Structural, Mechanical, Plumbing, Electrical, Fire Protection, Low Voltage, and Cost Estimating. The spread of the fee across the design phases is based on the design schedule provided below and expected work in each phase. The Design Budget can be used as a benchmark when procuring the project via RFP.

The Construction Budget is based on detailed cost estimating by our consultant, Loeffler Construction and Consulting. This budget accounts for hard construction costs for materials and labor, design and construction contingencies, as well as a factor for market volatility. In addition, the Construction Budget includes an escalation factor that assumes an onsite start date of Spring 2023.

In general, the Construction Budget includes all hard costs as provided in the Outline Specifications, pertaining to the layout of the Block Plan, and as noted in photos provided to the estimator. The building area slated for renovation is 12,375 square feet. The projects is split between three (3) suites and two floors. While two of the suites are largely open, the extent of the work varies between the two design options. Because of this, Option #1 is estimated at having a cost of $161.11/SF, which addresses the open space and minimal partition construction. Option #2, however, has an estimated cost of $224.03, which reflects the higher amount of demolition and reconfiguration across all suites.

The cost estimate does not include two specific items: alternates and allowances. For this project, we have provided an allowance that accounts for reusing existing conference room furniture and the purchase of new furniture for private offices and furniture systems for workstations. For the alternate, we solicited a number from Loeffler and added it as a line-item in the table.

Additionally, there are three key cost items that are not covered, including abatement, testing and moving. The need for abatement and testing is not anticipated for this project, but if required it is the responsibility of the Owner to direct and authorize these items. Moving costs are a soft cost that could not be included in the budget, so as SBI works to move the project forward towards design, they should solicit a moving proposal.

For the complete construction cost estimate, refer to the Appendix.

Design Budget – Option #1 – Existing/No Construction		
Item #	**Scope & Description**	**Design Cost**
1	Schematic Design	$ 23,800
2	Design Development	$ 40,800
3	Construction Documents	$ 45,900
4	Bidding & Negotiation	$ 5,100
5	Construction Administration	$ 54,400
	Total	**$ 170,000**

Construction Budget – Option #1 – Existing/No Construction		
Item #	**Scope & Description**	**Construction Cost**
1	General Conditions	$ 223,483
2	Divisions 01 – 28, including all materials and labor	$ 1,174,570
	Subtotal	**$ 1,398,053**
3	Design Contingency (10%)	$ 141,203
4	Estimate Contingency / Market Volatility (10%)	$ 159,207
5	Insurance and Bonds (3.25%)	$ 52,768
6	Contractor Fee (3.5%)	$ 61,293
7	Escalation (10%)	$ 181,252
	Total	**$ 1,993,776**
8	Alternate #1: Skim coat walls with wallcovering & paint	Deduct $ 19,060
9	Allowance: Furniture by Owner	$ 135,000
	Grand Total	**$ 2,109,716**

Design & Construction Budget, Option #1:

Design Cost: $ 170,000
Construction Cost: $ 2,109,716

TOTAL: $ 2,279,716

CDG Project #22044.00

Design Budget – Option #2 – Significant Construction		
Item #	**Scope & Description**	**Design Cost**
1	Schematic Design	$ 37,400
2	Design Development	$ 48,400
3	Construction Documents	$ 48,400
4	Bidding & Negotiation	$ 8,800
5	Construction Administration	$ 77,000
	Total	**$ 220,000**

Construction Budget – Option #2 – Significant Construction			
Item #	**Scope & Description**		**Construction Cost**
1	General Conditions		$ 308,711
2	Divisions 01 – 28, including all materials and labor		$ 1,635,263
	Subtotal		**$ 1,943,974**
3	Design Contingency (10%)		$ 196,341
4	Estimate Contingency / Market Volatility (10%)		$ 221,375
5	Insurance and Bonds (3.25%)		$ 73,373
6	Contractor Fee (3.5%)		$ 85,227
7	Escalation (10%)		$ 252,029
	Total		**$ 2,772,319**
8	Alternate #1: Skim coat walls with wallcovering & paint	Deduct	$ 3,500
9	Alternate #2: Provide DIRRT wall systems at new conference room and office pods.	Add	$ 130,000
10	Allowance: Furniture by Owner		$ 135,000
	Grand Total		**$ 3,033,819**

Design & Construction Budget, Option #2:

Design Cost: $ 220,000
Construction Cost: $ 3,033,819

TOTAL: $ 3,253,819

TIMELINE

Based on the anticipated design work, and considering owner review times and procurement, below is the proposed design and construction timeline.

Design & Construction Timeline		
Duration		Project Phase & Milestones
Option #1	Option #2	
8 weeks	**10 weeks**	**Schematic Design**
2	3	Kickoff & Field Verification
4	5	Design Option Development
1	1	Owner Review
1	1	SD Report & Documents Submission
8 weeks	**8 weeks**	**Design Development**
7	7	DD Report & Documents Submission
1	1	Owner Review
8 weeks	**8 weeks**	**Construction Documents**
2	4	95% Construction Documents Submission
2	2	Owner Review
2	2	Prepare 100% Bid Issue & Division 0 Spec
8 weeks	**8 weeks**	**Bidding & Award**
4	4	Bidding Period & Bid Verification
4	4	Award
28 weeks	**36 weeks**	**Construction Administration**
10	10	Kickoff, Submittals, Closeout
18	26	Construction Onsite
Total Duration: 60 - 70 weeks		

APPENDIX

COST ESTIMATE

Preliminary construction cost estimate provided by Loeffler Construction and Consulting

BLOCK PLAN DRAWINGS

Space plans developed by RECS to provide basis for budgeting.

EXISTING PLAN DRAWINGS

Existing plans provided by SBI to provide dimensional cross-check and evaluation of existing conditions.

OWNER REFERENCE DOCUMENTATION

Space planning guidelines provided by Real Estate and Construction Services

LOEFFLER CONSULTING COMPANY

Project Name:	**RSB Redesign Space 1st & 4th Floor**
Project Location:	**Retirement Systems Building**
Description:	**Redesign Space 1st & 4th Floor - Option #1**
Owner:	**MN Dept. of Administration**
Architect:	**Collaborative Design Group, Inc.**
Date:	**Tuesday, May 17, 2022**
Project Lead:	**Talon DeWitz**
Project Team:	**Talon DeWitz**

LOEFFLER CONSULTING COMPANY

Escalation:	**10.00%**
Design Level:	**Pre-Design**
Print Date:	**5/11/2022**
Delivery Method:	**GC-Bid**
Reviewed By:	**JM**

SECTION	DESCRIPTION		TOTAL	SQ. FT. COST
Building Area / Total Cost per SF:			12,375	$161.11
01 00 00	General Conditions	4-Month Phased Construction	$140,948	$11.39
01 00 00	Building Permit, Plan Check Fee and State Surcharge	Estimated	$17,619	$1.42
01 00 00	SAC and WAC and Park Dedication Fees	By Owner	$0	$0.00
01 00 00	Special Inspections / Testing	By Owner	$0	$0.00
01 00 00	Temporary Facilities and Controls	Allowance	$58,728	$4.75
01 00 00	Final Cleaning	Allowance	$6,188	$0.50
02 00 00	Selective Demolition	DNI Abatement	$57,972	$4.68
03 00 00	Concrete		$13,520	$1.09
04 00 00	Masonry		$0	$0.00
05 00 00	Metals		$9,962	$0.81
06 00 00	Wood, Plastics & Composites		$97,568	$7.88
07 00 00	Thermal & Moisture Protection		$3,623	$0.29
08 00 00	Openings		$27,428	$2.22
09 00 00	Finishes		$372,658	$30.11
10 00 00	Specialties		$20,758	$1.68
12 00 00	Furnishings	DNI New Furniture	$21,347	$1.73
21 00 00	Fire Protection Systems		$28,463	$2.30
22 00 00	Plumbing		$32,775	$2.65
23 00 00	HVAC		$162,294	$13.11
26 00 00	Electrical		$239,559	$19.36
27 00 00	Communications (Cabling, Data and Voice)		$50,241	$4.06
28 00 00	Electronic Safety and Security Systems		$36,405	$2.94
	SUBTOTAL COST		**$1,398,053**	**$112.97**
	Subcontractor Bonds	1.00%	$13,981	$1.13
	Design Contingency	10.00%	$141,203	$11.41
	Construction Contingency	5.00%	$77,662	$6.28
	Market Volatility Contingency	5.00%	$81,545	$6.59
	Builders Risk Insurance	0.25%	$4,281	$0.35
	General Liability Insurance	1.00%	$17,167	$1.39
	Performance and Payment Bond	1.00%	$17,339	$1.40
	Contractor Fee	3.50%	$61,293	$4.95
	Escalation to Spring 2023	10.00%	$181,252	$14.65
	TOTAL AMOUNT		**$1,993,776**	**$161.11**

CONCEPTUAL PRICING DETAIL
Project: RSB Redesign Space 1st & 4th Floor
Scope: Redesign Space 1st & 4th Floor - Option #1
Date: Tuesday, May 17, 2022
Architect: Collaborative Design Group, Inc.

LOEFFLER CONSULTING COMPANY

Selective Demolition

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
02 15 00	Demo Single Int. D/F/H/SL	12	EA	$200.00	$2,400	
02 15 00	Remove ACT Ceiling Assemblies - Soffits at Casework to Remain	12,375	SF	$1.00	$12,375	
02 15 00	Remove Flooring Assembly	12,375	SF	$2.00	$24,750	
02 15 00	Remove Interior Partitions	48	LF	$35.00	$1,680	
02 15 00	Remove Casework	15	LF	$40.00	$600	
02 15 00	Demo Millwork/Work Stations	37	LF	$35.00	$1,280	
02 15 00	Remove Existing Storage Equipment	1	LOT	$750.00	$750	
02 15 00	Demolition Tools/Dumpsters/Equipment	1	LS	$6,575.30	$6,575	
02 15 00	Subcontractor O.H. & Profit	15%	LS	n/a	$7,562	
	Total Selective Demolition				**$57,972**	

Self-Leveling Underlayment

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
03 54 00	Prep Floor Surface for New Finish	12,375	SF	$0.95	$11,756	
03 54 00	Subcontractor O.H. & Profit	15%	LS	n/a	$1,763	
	Total Self-Leveling Underlayment				**$13,520**	

Miscellaneous Metals

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
05 50 00	Miscellaneous Metals Allowance	12,375	SF	$0.40	$4,950	Lintels/Counter Supports/Top of Wall Bracing/Mech. Equipment Supports
05 50 00	Subcontractor O.H. & P	15%	LS	n/a	$743	
	Total Miscellaneous Metals				**$5,693**	**Material Only**
	Misc. Metals Erection Subcontract	1	LS		**$4,269**	**Labor Only**

Carpentry

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
06 10 00	Blocking at Shelving, Cabinets, and Accessories	1	LOT	$2,500.00	$2,500	
06 10 00	Elevator Floor/Wall Protection	1	LOT	$1,500.00	$1,500	
06 10 00	Protect Surface and Finishes in Areas Within Area	3,500	SF	$1.00	$3,500	
06 10 00	Remove, Protect, and Reinstall Window Covering	43	EA	$100.00	$4,300	
06 10 00	Stair Floor/Wall Protection	1	EA	$1,000.00	$1,000	
06 10 00	Install Fully-Welded HM Frame w/SL + Solid Core Wood Door	9	EA	$500.00	$4,500	
06 10 00	Install Markerboard	19	EA	$120.00	$2,280	
06 10 00	Interior Commercial Bldg. Blocking, Temp. Partitions, Dust Control, Safety, Phasing	12,375	SF	$2.50	$30,938	
06 10 00	Subcontractor O.H. & P	15%	LS	n/a	$7,578	
	Total Rough Carpentry				**$58,095**	

Finish Carpentry and Millwork

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
06 20 00	P.LAM Upper/Base Cabinetry Allowance at Breakroom	16	LF	$470.00	$7,520	Includes Quartz Countertop
06 20 00	P.LAM Upper/Base Cabinetry Allowance at Copy/Work Rooms	15	LF	$420.00	$6,300	Includes P.LAM Countertop
06 20 00	Quartz Countertops at Mothers Room	1	ALLOW	$1,500.00	$1,500	
06 20 00	Workstation at Corridor	4	LF	$300.00	$1,200	
06 20 00	Complete Interior Trim Carpentry Package	12,375	SF	$0.25	$3,094	Allowance
06 20 00	Subcontractor O.H. & P	15%	LS	n/a	$2,942	
	Total Finish Carpentry Material				**$22,556**	**Material Only**
	Finish Carpentry Labor	1	LS		**$16,917**	**Labor Only**

Insulation

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
07 20 00	Batt Insulation & Perimeter Seal at Partitions	1	LS	$0.00	$0	Included in Assemblies in Div. 09
07 20 00	Subcontractor O.H. & P	15%	LS	n/a	$0	
	Total Insulation				**$0**	

Caulking

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
07 90 00	Interior Hollow Metal Frames	9	EA	$75.00	$675	
07 90 00	Misc. Project Caulking	12,375	SF	$0.20	$2,475	
07 90 00	Subcontractor O.H. & P	15%	LS	n/a	$473	
	Total Caulking				**$3,623**	

Doors, Frames & Hardware

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
08 10 00	Fully-Welded HM Frame w/SL + Solid Core Wood Door	9	EA	$2,150.00	$19,350	
08 10 00	Subcontractor O.H. & P	15%	LS	n/a	$2,903	
	Total Doors, Frames & Hardware				**$22,253**	

Windows & Skylights

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
08 51 00	Clerestory Window Allowance for Conference/Private Rooms	3	ROOM	$1,500.00	$4,500	
08 51 00	Subcontractor O.H. & P	15%	LS	n/a	$675	
	Total Windows & Skylights				**$5,175**	

Drywall Assemblies

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
09 20 00	Contingency for Repair of Wall Surfaces w/Heavy Damage Due to Wall Covering/ and/or Gyp. Finish	12,375	SF	$1.00	$12,375	
09 20 00	2-Sided Wall Infill at Breakroom	54	SF	$30.00	$1,625	
09 20 00	Frame/Infill Opening at Door 176	1	EA	$1,500.00	$1,500	
09 20 00	Infill Mail Storage Pass-Through Openings	2	EA	$750.00	$1,500	
09 20 00	Patch Wall at Removed Casework	18	LF	$50.00	$899	
09 20 00	Patch Demo Scar for Uniform Surfaces	5	EA	$200.00	$1,000	
09 20 00	Gyp. Soffit Allowance	1	ALLOW	$5,000.00	$5,000	
09 20 00	Subcontractor O.H. & P	15%	LS	n/a	$3,585	
	Total Drywall Assemblies				**$27,484**	

Tile

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
09 30 00	Tile Wall Finish Behind at Sink Walls	80	SF	$30.00	$2,400	
09 30 00	Subcontractor O.H. & Profit	15%	LS	n/a	$360	
	Total Tile				**$2,760**	

Acoustical Ceilings

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
09 50 00	2x2 ACT (ClimaPlus)	12,375	SF	$5.50	$68,063	
09 50 00	Subcontractor O.H. & P	15%	LS	n/a	$10,209	
	Total Acoustical Ceilings				**$78,272**	

Flooring

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
09 65 00	LVT Flooring w/4" Rubber Base	410	SF	$12.00	$4,925	Includes 5% Waste Factor - Typ.
09 68 00	CPT Flooring w/4" Rubber Base	1,400	SY	$55.00	$77,000	
09 65 00	Subcontractor O.H. & P	15%	LS	n/a	$12,289	
	Total Flooring				**$94,214**	

CONCEPTUAL PRICING DETAIL
Project: RSB Redesign Space 1st & 4th Floor
Scope: Redesign Space 1st & 4th Floor - Option #1
Date: Tuesday, May 17, 2022
Architect: Collaborative Design Group, Inc.

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Painting

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
09 90 00	Remove and Replace Wall Covering Finish	1,461	LY	$65.00	$94,981	
09 90 00	Paint Interior Wall	24,160	SF	$2.00	$48,320	
09 90 00	Paint Drywall Soffits	1	ALLOW	$750.00	$750	
09 90 00	Seal Wood Doors	9	EA	$150.00	$1,350	Includes Barn Doors
09 90 00	Enamel Hollow Metal Frames	9	EA	$125.00	$1,125	
09 90 00	Misc. Painting Not Specified	12,375	SF	$0.10	$1,238	
09 90 00	Subcontractor O.H. & P	15%	LS	n/a	$22,165	
	Total Painting				**$169,928**	

Specialties

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
10 00 00	Ceramic-Enamel-Faced Markerboard w/Steel Backing Sheet	19	EA	$950.00	$18,050	
10 00 00	Subcontractor O.H. & P	15%	LS	n/a	$2,708	
	Total Specialties				**$20,758**	

Furnishings

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
12 00 00	Reuse and Reconfigure Furniture Systems	12,375	SF	$1.50	$18,563	Allowance
12 00 00	Subcontractor O.H. & P	15%	LS	n/a	$2,784	
	Total Furnishings				**$21,347**	

Fire Protection Systems

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
21 00 00	Modify Existing Fire Protection System as Required for New Layout	12,375	SF	$2.00	$24,750	
21 00 00	Subcontractor O.H. & P	15%	LS	n/a	$3,713	
	Total Fire Protection Systems				**$28,463**	

Plumbing

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
22 00 00	F&I New Sink Fixture at Mothers Room and Break Rooms	3	EA	$9,500.00	$28,500	
22 00 00	Subcontractor O.H. & P	15%	LS	n/a	$4,275	
	Total Plumbing Systems				**$32,775**	

HVAC

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
23 00 00	Connection to Existing Building Automation System	1	LOT	$5,000.00	$5,000	
23 00 00	Modify Layout of Existing System to Optimize Supply/Return and Balancing of the System	12,375	SF	$10.00	$123,750	
23 00 00	Reconfigure HVAC Systems to Provide Balanced Heating and Cooling	12,375	SF	$1.00	$12,375	
23 00 00	Subcontractor O.H. & P	15%	LS	n/a	$21,169	
	Total HVAC Systems				**$162,294**	

Electrical

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
26 00 00	Ceiling-Mounted LED Fixtures w/Occupancy Sensors in All Rooms	12,375	SF	$10.00	$123,750	
26 00 00	Demo Existing Non-LED Light Fixtures; Keep Circuits & Wiring for Reuse	12,375	SF	$2.00	$24,750	
26 00 00	Lighting Controls System per Minnesota State Capitol Complex	12,375	SF	$0.50	$6,188	
26 00 00	Furniture Whips for Workstations; Potential Reuse - 1 per 4 Workstations	11	EA	$1,500.00	$16,500	
26 00 00	Controls, Switches, Power, Etc. for New Layout	12,375	SF	$3.00	$37,125	
26 00 00	Subcontractor O.H. & P	15%	LS	n/a	$31,247	
	Total Electrical Systems				**$239,559**	

Communications

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
27 00 00	A/V Connections at Large Collaboration Spaces	1	EA	$5,000.00	$5,000	
27 00 00	A/V Connections at Large Conference Rooms	3	EA	$5,000.00	$15,000	
27 00 00	A/V Connections at Medium Collaboration Spaces	2	EA	$3,500.00	$7,000	
27 00 00	A/V Connections at Medium Conference Rooms	3	EA	$3,500.00	$10,500	
27 00 00	Modify Existing Sound Masking Systems and Supplement Equipment as Needed	12,375	SF	$0.50	$6,188	
27 00 00	Subcontractor O.H. & P	15%	LS	n/a	$6,553	
	Total Communications Systems				**$50,241**	

Electronic Safety and Security

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
28 00 00	Card Access Allowance for New Locations	1	ALLOW	$10,000.00	$10,000	
28 00 00	Fire Alarm Life Safety System Modifications	12,375	SF	$1.75	$21,656	
28 00 00	Subcontractor O.H. & P	15%	LS	n/a	$4,748	
	Total Electronic Safety/Security Systems				**$36,405**	

LOEFFLER CONSULTING COMPANY

Project Name:	**RSB Redesign Space 1st & 4th Floor**
Project Location:	**Retirement Systems Building**
Description:	**Redesign Space 1st & 4th Floor - Option #2**
Owner:	**MN Dept. of Administration**
Architect:	**Collaborative Design Group, Inc.**
Date:	**Monday, May 16, 2022**
Project Lead:	**Talon DeWitz**
Project Team:	**Talon DeWitz**

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Escalation:	**10.00%**
Design Level:	**Pre-Design**
Print Date:	**5/11/2022**
Delivery Method:	**GC-Bid**
Reviewed By:	**JM**

Building Area / Total Cost per SF:			12,375	$224.03
SECTION	**DESCRIPTION**		**TOTAL**	**SQ. FT. COST**
01 00 00	General Conditions	6-Month Phased Construction	$196,232	$15.86
01 00 00	Building Permit, Plan Check Fee and State Surcharge	Estimated	$24,529	$1.98
01 00 00	SAC and WAC and Park Dedication Fees	By Owner	$0	$0.00
01 00 00	Special Inspections / Testing	By Owner	$0	$0.00
01 00 00	Temporary Facilities and Controls	Allowance	$81,763	$6.61
01 00 00	Final Cleaning	Allowance	$6,188	$0.50
02 00 00	Selective Demolition	DNI Abatement	$83,366	$6.74
03 00 00	Concrete		$13,520	$1.09
04 00 00	Masonry		$0	$0.00
05 00 00	Metals		$9,962	$0.81
06 00 00	Wood, Plastics & Composites		$111,828	$9.04
07 00 00	Thermal & Moisture Protection		$6,383	$0.52
08 00 00	Openings		$117,185	$9.47
09 00 00	Finishes		$595,293	$48.10
10 00 00	Specialties		$20,758	$1.68
12 00 00	Furnishings	DNI New Furniture	$21,347	$1.73
21 00 00	Fire Protection Systems		$28,463	$2.30
22 00 00	Plumbing		$32,775	$2.65
23 00 00	HVAC		$242,075	$19.56
26 00 00	Electrical		$275,439	$22.26
27 00 00	Communications (Cabling, Data and Voice)		$40,466	$3.27
28 00 00	Electronic Safety and Security Systems		$36,405	$2.94
	SUBTOTAL COST		**$1,943,974**	**$157.09**
	Subcontractor Bonds	1.00%	$19,440	$1.57
	Design Contingency	10.00%	$196,341	$15.87
	Construction Contingency	5.00%	$107,988	$8.73
	Market Volatility Contingency	5.00%	$113,387	$9.16
	Builders Risk Insurance	0.25%	$5,953	$0.48
	General Liability Insurance	1.00%	$23,871	$1.93
	Performance and Payment Bond	1.00%	$24,110	$1.95
	Contractor Fee	3.50%	$85,227	$6.89
	Escalation to Spring 2023	10.00%	$252,029	$20.37
	TOTAL AMOUNT		**$2,772,319**	**$224.03**

CONCEPTUAL PRICING DETAIL
Project: **RSB Redesign Space 1st & 4th Floor**
Scope: **Redesign Space 1st & 4th Floor - Option #2**
Date: **Monday, May 16, 2022**
Architect: **Collaborative Design Group, Inc.**

LOEFFLER CONSULTING COMPANY

	Selective Demolition					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
02 15 00	Demo Single Int. D/F/H	6	EA	$150.00	$900	
02 15 00	Demo Single Int. D/F/H/SL	14	EA	$200.00	$2,800	
02 15 00	Demo HM Framed Glass Wall w/Single Int. D/F/H	1	EA	$850.00	$850	
02 15 00	Remove ACT Ceiling Assemblies - Soffits at Casework to Remain	12,375	SF	$1.00	$12,375	
02 15 00	Remove Flooring Assembly	12,375	SF	$2.00	$24,750	
02 15 00	Remove Interior Partitions	745	LF	$35.00	$26,075	
02 15 00	Demolition Tools/Dumpsters/Equipment	1	LS	$4,742.50	$4,743	
02 15 00	Subcontractor O.H. & Profit	15%	LS	n/a	$10,874	
	Total Selective Demolition				**$83,366**	
	Self-Leveling Underlayment					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
03 54 00	Prep Floor Surface for New Finish	12,375	SF	$0.95	$11,756	
03 54 00	Subcontractor O.H. & Profit	15%	LS	n/a	$1,763	
	Total Self-Leveling Underlayment				**$13,520**	
	Miscellaneous Metals					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
05 50 00	Miscellaneous Metals Allowance	12,375	SF	$0.40	$4,950	Lintels/Counter Supports/Top of Wall Bracing/Mech. Equipment Supports
05 50 00	Subcontractor O.H. & P	15%	LS	n/a	$743	
	Total Miscellaneous Metals				**$5,693**	**Material Only**
	Misc. Metals Erection Subcontract	1	LS		**$4,269**	**Labor Only**
	Carpentry					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
06 10 00	Blocking at Shelving, Cabinets, and Accessories	1	LOT	$2,500.00	$2,500	
06 10 00	Elevator Floor/Wall Protection	1	LOT	$1,500.00	$1,500	
06 10 00	Protect Surface and Finishes in Areas Within Area	1,500	SF	$1.00	$1,500	
06 10 00	Remove, Protect, and Reinstall Window Covering	43	EA	$100.00	$4,300	
06 10 00	Stair Floor/Wall Protection	3	EA	$1,000.00	$3,000	
06 10 00	Install Fully-Welded HM Frame w/SL + Solid Core Wood Door	29	EA	$500.00	$14,500	
06 10 00	Install Fully-Welded HM Frame + Solid Core Wood Door	4	EA	$500.00	$2,000	
06 10 00	Install Fully-Welded HM Frame + Solid Core Wood Doors (Double)	1	EA	$750.00	$750	
06 10 00	Install Markerboard	19	EA	$120.00	$2,280	
06 10 00	Interior Commercial Bldg. Blocking, Temp. Partitions, Dust Control, Safety, Phasing	12,375	SF	$2.50	$30,938	
06 10 00	Subcontractor O.H. & P	15%	LS	n/a	$9,490	
	Total Rough Carpentry				**$72,758**	
	Finish Carpentry and Millwork					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
06 20 00	P.LAM Upper/Base Cabinetry Allowance at Breakroom	16	LF	$470.00	$7,520	Includes Quartz Countertop
06 20 00	P.LAM Upper/Base Cabinetry Allowance at Copy/Work Rooms	15	LF	$420.00	$6,300	Includes P.LAM Countertop
06 20 00	Quartz Countertops at Mothers Room	1	ALLOW	$1,500.00	$1,500	
06 20 00	Workstation at Corridor	4	LF	$250.00	$1,000	
06 20 00	Complete Interior Trim Carpentry Package	12,375	SF	$0.25	$3,094	Allowance
06 20 00	Subcontractor O.H. & P	15%	LS	n/a	$2,912	
	Total Finish Carpentry Material				**$22,326**	**Material Only**
	Finish Carpentry Labor	1	LS		**$16,744**	**Labor Only**
	Insulation					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
07 20 00	Batt Insulation & Perimeter Seal at Partitions	1	LS	$0.00	$0	Included in Assemblies in Div. 09
07 20 00	Subcontractor O.H. & P	15%	LS	n/a	$0	
	Total Insulation				**$0**	
	Caulking					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
07 90 00	Interior Hollow Metal Frames	34	EA	$75.00	$2,550	
07 90 00	Countertops	35	LF	$15.00	$525	
07 90 00	Misc. Project Caulking	12,375	SF	$0.20	$2,475	
07 90 00	Subcontractor O.H. & P	15%	LS	n/a	$833	
	Total Caulking				**$6,383**	
	Doors, Frames & Hardware					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
08 10 00	Fully-Welded HM Frame w/SL + Solid Core Wood Door	29	EA	$2,150.00	$62,350	
08 10 00	Fully-Welded HM Frame + Solid Core Wood Door	4	EA	$1,900.00	$7,600	
08 10 00	Fully-Welded HM Frame + Solid Core Wood Door (Double)	1	EA	$3,450.00	$3,450	
08 10 00	Subcontractor O.H. & P	15%	LS	n/a	$11,010	
	Total Doors, Frames & Hardware				**$84,410**	
	Windows & Skylights					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
08 51 00	Clerestory Window Allowance for Conference/Private Rooms	19	ROOM	$1,500.00	$28,500	
08 51 00	Subcontractor O.H. & P	15%	LS	n/a	$4,275	
	Total Windows & Skylights				**$32,775**	
	Drywall Assemblies					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
09 20 00	Contingency for Repair of Wall Surfaces w/Heavy Damage Due to Wall Covering/ and/or Gyp. Finish	12,375	SF	$1.00	$12,375	
09 20 00	Light-Gauge Metal Framing and 5/8" Gyp. Board on Each Side	13,675	SF	$16.00	$218,800	
09 20 00	Infill Break Room Wall	56	SF	$20.00	$1,120	
09 20 00	Infill Removed D/F/H	21	SF	$25.00	$525	
09 20 00	Gyp. Bulkhead at Openings	151	LF	$35.00	$5,300	
09 20 00	Patch Demo Scar for Uniform Surfaces	30	EA	$200.00	$6,000	
09 20 00	Gyp. Soffit Allowance	1	ALLOW	$15,000.00	$15,000	
09 20 00	Subcontractor O.H. & P	15%	LS	n/a	$38,868	
	Total Drywall Assemblies				**$297,988**	
	Tile					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
09 30 00	Tile Wall Finish Behind at Sink Walls	120	SF	$30.00	$3,600	
09 30 00	Subcontractor O.H. & Profit	15%	LS	n/a	$540	
	Total Tile				**$4,140**	
	Acoustical Ceilings					
	Description:	**Quantity:**	**Unit**	**Unit Price:**	**Amount:**	**Notes:**
09 50 00	2x2 ACT (ClimaPlus)	12,375	SF	$5.50	$68,063	
09 50 00	Subcontractor O.H. & P	15%	LS	n/a	$10,209	
	Total Acoustical Ceilings				**$78,272**	

CONCEPTUAL PRICING DETAIL
Project: **RSB Redesign Space 1st & 4th Floor**
Scope: **Redesign Space 1st & 4th Floor - Option #2**
Date: **Monday, May 16, 2022**
Architect: **Collaborative Design Group, Inc.**

LOEFFLER CONSULTING COMPANY

	Description:	Quantity:	Unit	Unit Price:	Amount:	Notes:
	Flooring					
09 65 00	LVT Flooring w/4" Rubber Base	395	SF	$12.00	$4,740	Includes 5% Waste Factor - Typ.
09 68 00	CPT Flooring w/4" Rubber Base	1,400	SY	$55.00	$77,000	
09 65 00	Subcontractor O.H. & P	15%	LS	n/a	$12,261	
	Total Flooring				**$94,001**	
	Painting					
09 90 00	Remove and Replace Wall Covering Finish	270	LY	$65.00	$17,550	
09 90 00	Wall Covering - Conference Rooms and Private Offices	1,070	LY	$58.00	$62,036	
09 90 00	Paint Interior Wall	6,150	SF	$2.00	$12,300	
09 90 00	Paint Drywall Soffits	1	ALLOW	$2,500.00	$2,500	
09 90 00	Seal Wood Doors	35	EA	$150.00	$5,250	Includes Barn Doors
09 90 00	Enamel Hollow Metal Frames	34	EA	$125.00	$4,250	
09 90 00	Misc. Painting Not Specified	12,375	SF	$0.10	$1,238	
09 90 00	Subcontractor O.H. & P	15%	LS	n/a	$15,769	
	Total Painting				**$120,892**	
	Specialties					
10 00 00	Ceramic-Enamel-Faced Markerboard w/Steel Backing Sheet	19	EA	$950.00	$18,050	
10 00 00	Subcontractor O.H. & P	15%	LS	n/a	$2,708	
	Total Specialties				**$20,758**	
	Furnishings					
12 00 00	Reuse and Reconfigure Furniture Systems	12,375	SF	$1.50	$18,563	Allowance
12 00 00	Subcontractor O.H. & P	15%	LS	n/a	$2,784	
	Total Furnishings				**$21,347**	
	Fire Protection Systems					
21 00 00	Modify Existing Fire Protection System as Required for New Layout	12,375	SF	$2.00	$24,750	
21 00 00	Subcontractor O.H. & P	15%	LS	n/a	$3,713	
	Total Fire Protection Systems				**$28,463**	
	Plumbing					
22 00 00	F&I New Sink Fixture at Mothers Room and Break Rooms	3	EA	$9,500.00	$28,500	
22 00 00	Subcontractor O.H. & P	15%	LS	n/a	$4,275	
	Total Plumbing Systems				**$32,775**	
	HVAC					
23 00 00	Allowance for Vibration Issues at Existing Server Room	1	ALLOW	$7,500.00	$7,500	
23 00 00	Connection to Existing Building Automation System	1	LOT	$5,000.00	$5,000	
23 00 00	Modify Layout of Existing System to Optimize Supply/Return and Balancing of the System	12,375	SF	$15.00	$185,625	
23 00 00	Reconfigure HVAC Systems to Provide Balanced Heating and Cooling	12,375	SF	$1.00	$12,375	
23 00 00	Subcontractor O.H. & P	15%	LS	n/a	$31,575	
	Total HVAC Systems				**$242,075**	
	Electrical					
26 00 00	Ceiling-Mounted LED Fixtures w/Occupancy Sensors in All Rooms	12,375	SF	$10.00	$123,750	
26 00 00	Demo Existing Non-LED Light Fixtures; Keep Circuits & Wiring for Reuse	12,375	SF	$2.00	$24,750	
26 00 00	Lighting Controls System per Minnesota State Capitol Complex	12,375	SF	$0.50	$6,188	
26 00 00	Furniture Whips for Workstations; Potential Reuse - 1 per 4 Workstations	31	EA	$1,500.00	$46,500	
26 00 00	Plug Mold at IT Workbench w/Added Power and Data Ports	1	EA	$1,200	$1,200	
26 00 00	Controls, Switches, Power, Etc. for New Layout	12,375	SF	$3.00	$37,125	
26 00 00	Subcontractor O.H. & P	15%	LS	n/a	$35,927	
	Total Electrical Systems				**$275,439**	
	Communications					
27 00 00	A/V Connections at Large Conference Rooms	2	EA	$5,000.00	$10,000	
27 00 00	A/V Connections at Medium Collaboration Spaces	2	EA	$3,500.00	$7,000	
27 00 00	A/V Connections at Medium Conference Rooms	2	EA	$3,500.00	$7,000	
27 00 00	A/V Connections at Small Conference Rooms	2	EA	$2,500.00	$5,000	
27 00 00	Modify Existing Sound Masking Systems and Supplement Equipment as Needed	12,375	SF	$0.50	$6,188	
27 00 00	Subcontractor O.H. & P	15%	LS	n/a	$5,278	
	Total Communications Systems				**$40,466**	
	Electronic Safety and Security					
28 00 00	Card Access Allowance for New Locations	1	ALLOW	$10,000.00	$10,000	
28 00 00	Fire Alarm Life Safety System Modifications	12,375	SF	$1.75	$21,656	
28 00 00	Subcontractor O.H. & P	15%	LS	n/a	$4,748	
	Total Electronic Safety/Security Systems				**$36,405**	

MN State Board of Investment
Retirement Systems Building
1st & 4th Floors
Existing/No Construction
Drawn by Admin/RECS 3/8/22

Space Type	Total Requested	Total Achieved	Notes
Total Employee Workspaces	66	72	
Private Office	31	12	6 assigned, 6 hoteling for use by any supervisor/manager, etc.
Workstation	35	60	
Large Conference Rm (Seats 10-12)	3	3	
Medium Conference Rm (Seats 4-6)	3	3	
Small Conference Rm (Seats 1-2)	4	0	Hoteling office could be used as small conference room as needed
Large Collaborative (Seats 10-12)	1	1	
Medium Collaborative (Seats 4-6)	2	2	
Kitchenette	2	2	
Print/Copy/Mail/Supplies	4	3	Can these rooms be consolidated?
Quiet/Mother's Room	2	1	Hoteling office could be used as a quiet/mother's room as needed

This area will need demo of existing millwork work stations and new workstations.

MN State Board of Investment
Retirement Systems Building
1st Floor - **Existing/No Construction**
Drawn by Admin/RECS 3/8/22

- 6 - Private Offices (approximately 10'x14')
- 60 - Workstations (6'x8')
- 1 - Large Conference Rooms (seats 10-12)
- 2 - Medium Conference Rooms (seats 4-6)
- 0 - Small Conference Rooms (Seats 1-2)
- 1 - Large Collaborative Area (seats 10-12)
- 2 - Medium Collaborative Area (Seats 4-6)
- 1 - Kitchenette
- 2 - Print/Copy/Mail/Supplies
- 0 - Quiet/Mother's Room

Existing storage equipment to be removed.

MN State Board of Investment
Retirement Systems Building
4th Floor - **Existing/No Construction**
Drawn by Admin/RECS 3/8/22

- 6 - Private Offices (approximately 10'x14')
- 0 - Workstations (6'x8')
- 2 - Large Conference Rooms (seats 10-12)
- 1 - Medium Conference Rooms (seats 4-6)
- 0 - Small Conference Rooms (Seats 1-2)
- 0 - Large Collaborative Area (seats 10-12)
- 0 - Medium Collaborative Area (Seats 4-6)
- 1 - Kitchenette
- 1 - Print/Copy/Mail/Supplies
- 1 - Quiet/Mother's Room

MN State Board of Investment
Retirement Systems Building
1st & 4th Floors
Significant Construction
Drawn by Admin/RECS 3/11/22

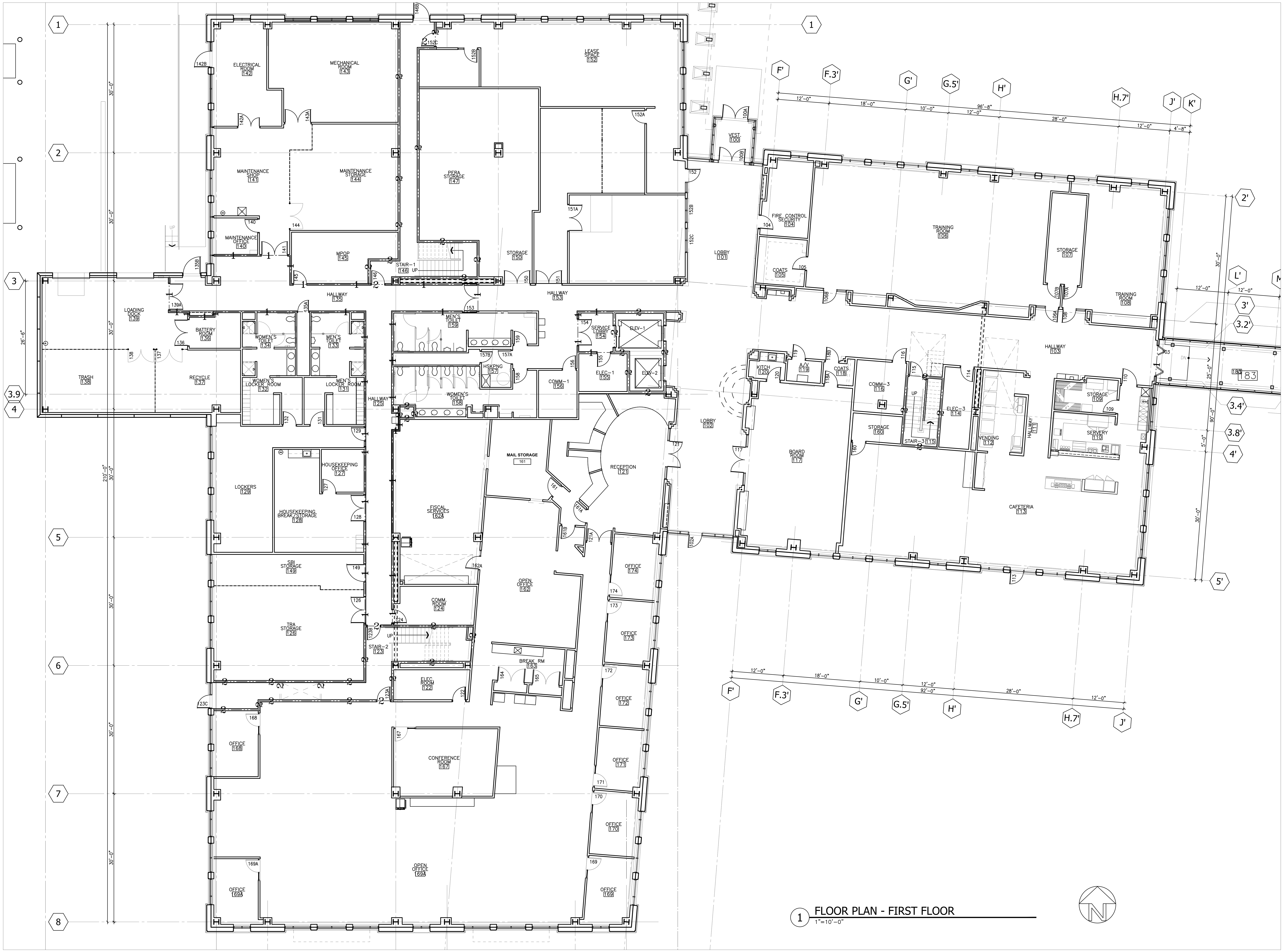
Space Type	Total Requested	Total Achieved	Notes
Total Employee Workspaces	66	66	
Private Office	31	24	
Workstation	35	42	
Large Conference Rm (Seats 10-12)	3	2	
Medium Conference Rm (Seats 4-6)	3	2	
Small Conference Rm (Seats 1-2)	4	2	
Large Collaborative (Seats 10-12)	1	0	
Medium Collaborative (Seats 4-6)	2	2	
Kitchenette	2	2	
Print/Copy/Mail/Supplies	4	4	
Quiet/Mother's Room	2	0	Small conf. room could be used as a quiet/mother's room as needed

MN State Board of Investment
Retirement Systems Building
1st Floor - **Significant Construction**
Drawn by Admin/RECS 3/11/22

- 20 - Private Offices
- 30 - Workstations (6'x8')
- 1 - Large Conference Rooms (seats 10-12)
- 1 - Medium Conference Rooms (seats 4-6)
- 2 - Small Conference Rooms (Seats 1-2)
- 0 - Large Collaborative Area (seats 10-12)
- 2 - Medium Collaborative Area (Seats 4-6)
- 1 - Kitchenette
- 3 - Print/Copy/Mail/Supplies
- 0 - Quiet/Mother's Room

MN State Board of Investment
Retirement Systems Building
4th Floor - **Significant Construction**
Drawn by Admin/RECS 3/11/22

- 4 - Private Offices
- 12 - Workstations (6'x8')
- 1 - Large Conference Rooms (seats 10-12)
- 1 - Medium Conference Rooms (seats 4-6)
- 0 - Small Conference Rooms (Seats 1-2)
- 0 - Large Collaborative Area (seats 10-12)
- 0 - Medium Collaborative Area (Seats 4-6)
- 1 - Kitchenette
- 1 - Print/Copy/Mail/Supplies
- 0 - Quiet/Mother's Room



1 FLOOR PLAN - FIRST FLOOR
1"=10'-0"

REPLACE LOCK KEY HARDWARE AT RETIREMENT SERVICE BUILDING

60 EMPIRE DRIVE
SAINT PAUL, MN 55103

REVISION HISTORY - THIS SHEET

DUAN

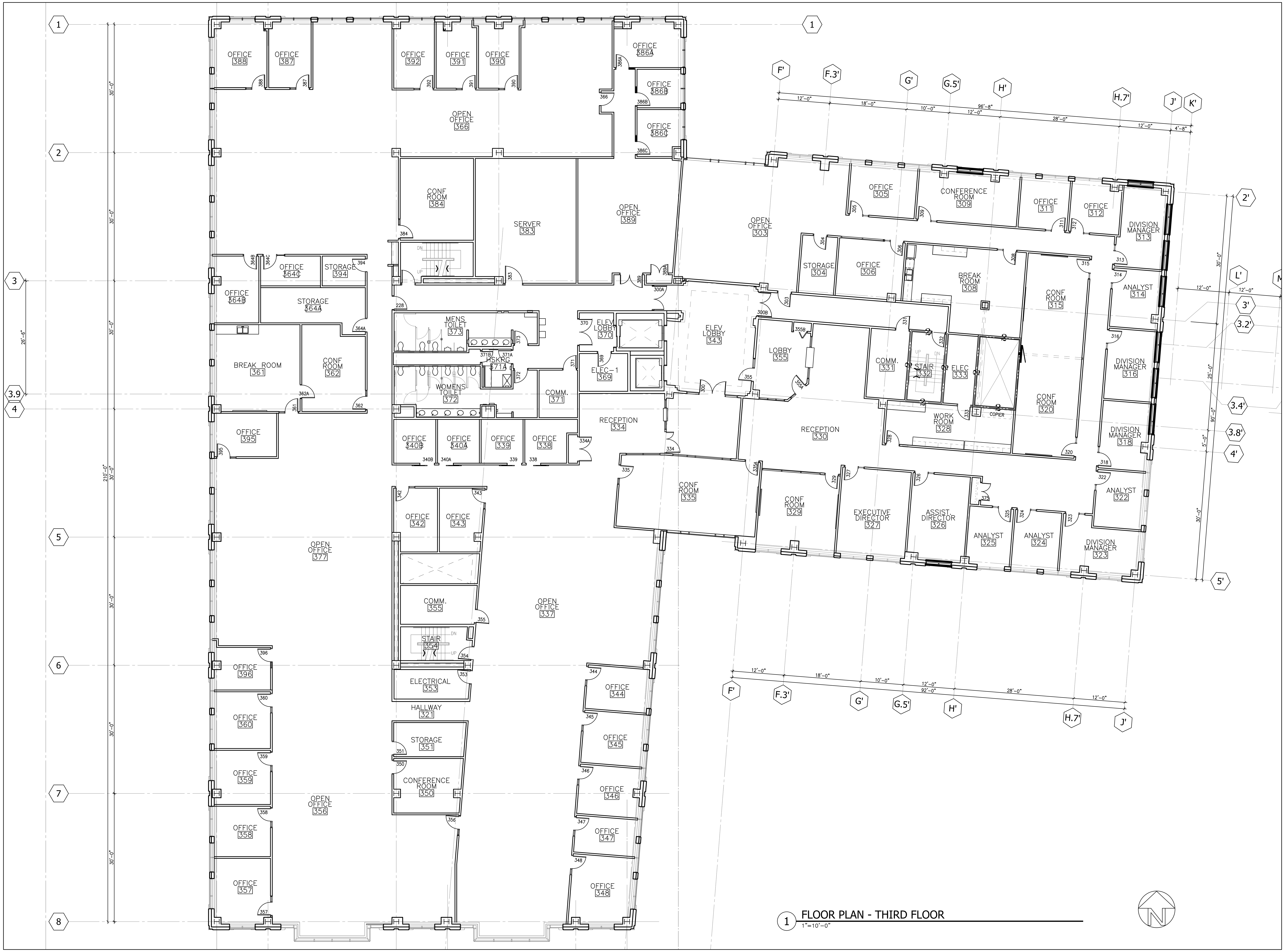
DUAN CORPORATION
7096 East Fish Lake Road, Maple Grove, MN 55311
Telephone 612. 326. 3000

FLOOR PLAN - FIRST FLOOR

COMM. NO.	19-31
SCALE	
DATE	12/2/2019
DRAWN	

CD

A111



1 FLOOR PLAN - THIRD FLOOR
1"=10'-0"

REPLACE LOCK KEY HARDWARE AT RETIREMENT SERVICE BUILDING

60 EMPIRE DRIVE
SAINT PAUL, MN 55103

REVISION HISTORY - THIS SHEET

DUAN

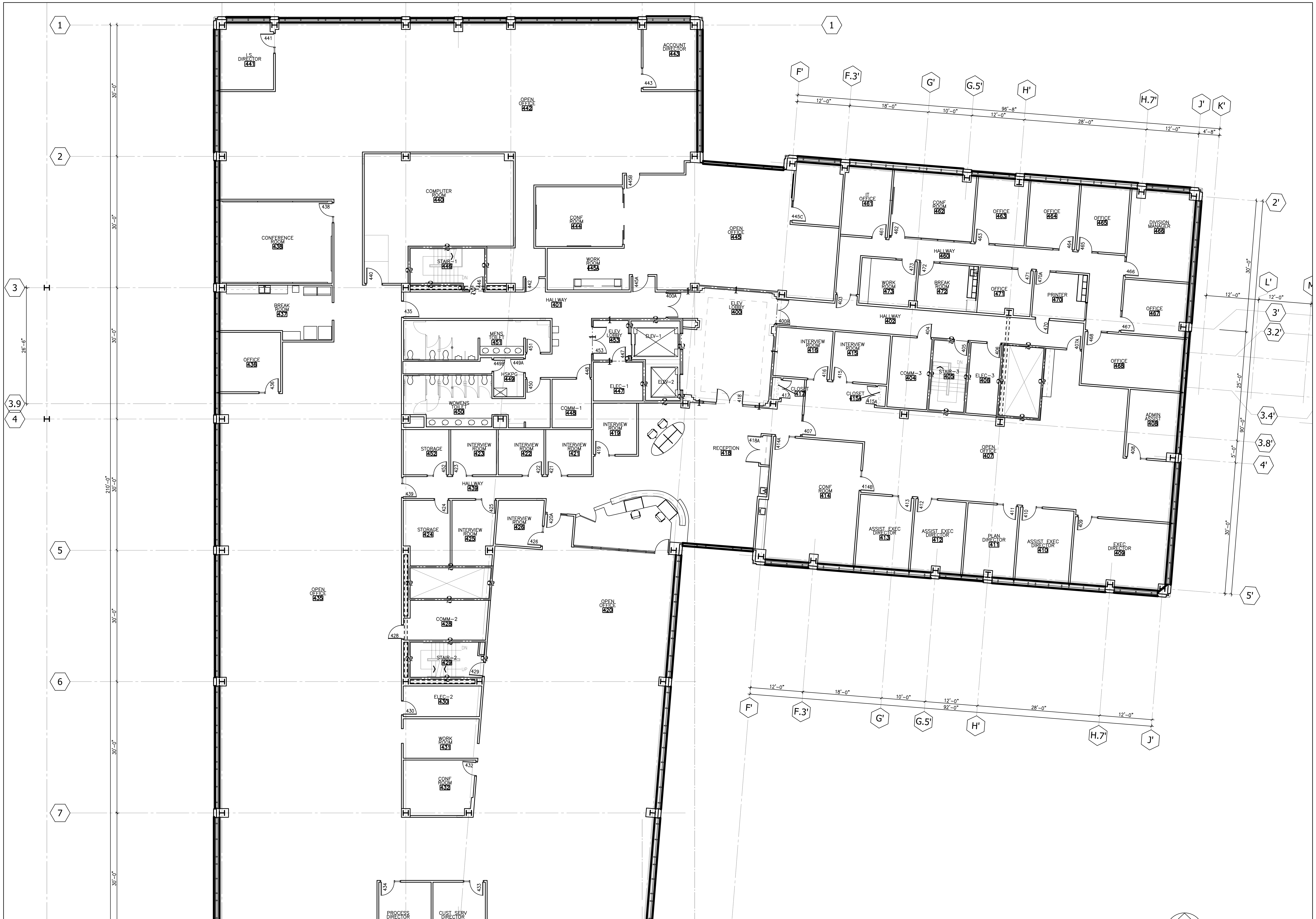
DUAN CORPORATION
7096 East Fish Lake Road, Maple Grove, MN 55311
Telephone 612. 326. 3000

FLOOR PLAN - THIRD FLOOR

COMM. NO.	19-31
SCALE	
DATE	12/2/2019
DRAWN	

CD

A131



1 FLOOR PLAN - FOURTH FLOOR
1"=10'-0"

REPLACE LOCK KEY HARDWARE AT RETIREMENT SERVICE BUILDING

60 EMPIRE DRIVE
SAINT PAUL, MN 55103

REVISION HISTORY - THIS SHEET

DUAN

DUAN CORPORATION
7096 East Fish Lake Road, Maple Grove, MN 55311
Telephone 612. 326. 3000

FLOOR PLAN - FOURTH FLOOR

COMM. NO.	19-31
SCALE	
DATE	12/2/2019
DRAWN	

CD

A141

Space Guidelines

Introduction

The State of Minnesota is responsible for a wide variety of functions and state business that is matched with an equally diverse set of workplace conditions. These workplaces can be a valuable asset for producing the state's business. These workplaces are also composed of a wide range of employees and work styles as well as a mixed set of technology applications. The purpose of these guidelines is to define workplace standards that help improve workplace productivity, address workplace safety issues, help leverage real estate assets, help reduce workplace expenses and help align workplace functions with space types, technology and workstations.

Today's workplaces are dynamic and faced with pressures for improved productivity and performance. The complexity of variables that can be adjusted to help improve workplace productivity is dependent on the resources and composition of each work group as well as the management practices and workplace standards that establish the right setting. Some of these variables include:

- Technology
- Workgroup culture
- Workgroup functions
- Workgroup demographics
- Workstation standards
- Churn rate
- Turnover and employee attrition
- Management practices
- Multipurpose spaces
- Ergonomics
- Collaborative work environments
- Thermal comfort
- Acoustic privacy
- Security
- Workplace protocols

Purpose

Space Guidelines and the design process for individual workspace and support space are intended to provide the employee and the entire agency adequate space to work efficiently and safely. Additionally, space guidelines can be utilized to create an environment supportive of Flexible Work Environments. Flexible Work Environments provide a workplace dedicated to improving productivity and well-being of the employee as well as a reduction in overall real estate costs.

Instead of designing a workspace based on job title, position description or specifically for one individual, Flexible Work Environments are designed to include a variety of workspaces to be used by any employee. The Flexible Workspace challenges the notion that one workstation equals one employee. Every workstation, conference room seat, and open collaborative space is counted as a workspace. Employees can choose a workspace that allows them to work most efficiently by taking into consideration individual work styles and job tasks. Flexible Work Environments plan for:

- Quiet work zones
- High energy environments
- Thermal comfort
- Adjustability
- Daylight views
- Storage requirements
- Meeting rooms
- Collaborative work areas
- Working from home
- Working outside the office (other office buildings, coffee shop, library, etc.

Footprint Guidelines for Individual Spaces

The typical workstation for a Resident Employee is based on a 6' x 8' workstation. The typical workstation for Mobile Employees (Free Address / Flexible Workspace) is based on a 6' x 6' workspace. Typical panel heights range from 39" to 53" to allow access to daylight views. The typical private office is based on a 10' x 12' space. Private offices should be located along interior walls.

The workstation and private office layout is subject to variation depending on the task and functions unique to the job, agency and the complete workspace. Features of the physical space (existing walls, column size and configuration, the spacing of windows, location of mechanical vents, office workflow requirements, etc.) are taken into account and may prevent exact adherence to the workstation and/or private office layout. Certain tasks and functions may also require alternative design solutions.

Support Space

Agencies may require additional spaces not considered individual work areas. These are often used for equipment and other functions. Conference rooms, collaborative areas, reception space, file areas, and shared work areas are examples.

Allowances for support space are calculated independently of individual work areas. There are no specific square footage guidelines for these areas as each can be unique in its own right dependent on the agency's needs and space availability. During the Space Programming phase of the project, support space and individual work areas are incorporated.

Reduction in the duplication of spaces that could be shared, either within the Agency or with others in the same building, is encouraged. Sharing conference rooms, lunch areas, and training rooms can effectively reduce costs and improve space use efficiencies.

Special Use Areas

Spaces for special use, such as laboratory space, library space, and concentrated filing systems are estimated by using specialized industry standards. Distributors, manufacturers and/or representatives of this equipment can provide information on space or any other requirements particular to the equipment.

Unfinished Storage

Separate storage rooms for the bulk storage of furniture, equipment, file retention and supplies, are considered after evaluating the agency's space needs and taking into consideration warehousing techniques and options.

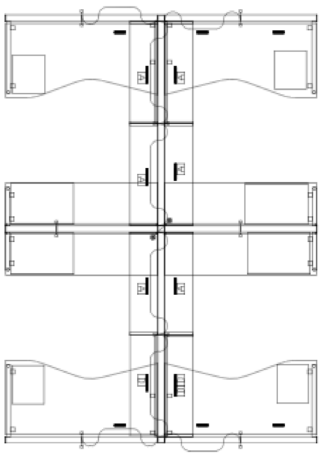
Circulation Space

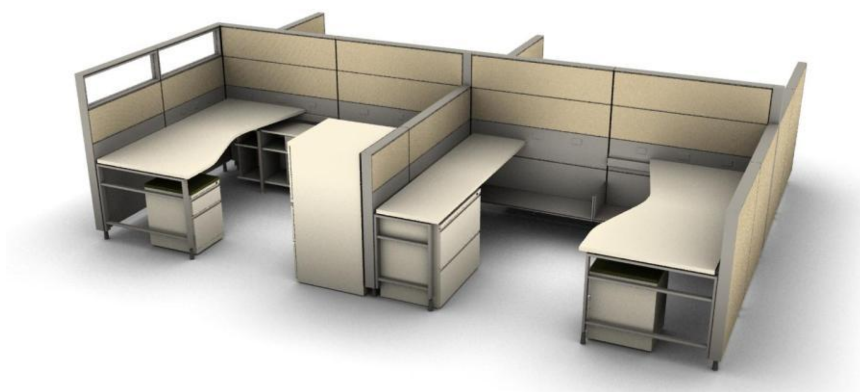
Circulation space (hallways and corridors) is required for the movement of people and equipment. There are no specific square footage guidelines for circulation. It is determined by the space available, features of the space (i.e. existing walls, columns, window and mechanical locations, etc.), workflow requirements, and furniture layouts. Circulation space must adhere to all state and local codes, such as exiting, and ADA accessibility requirements.

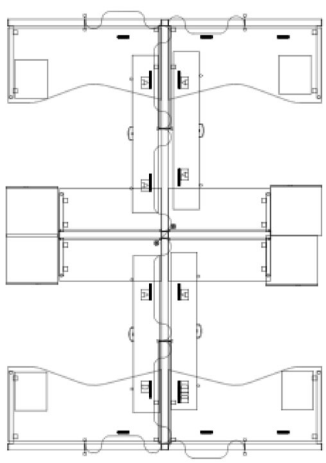
Workstation Typicals

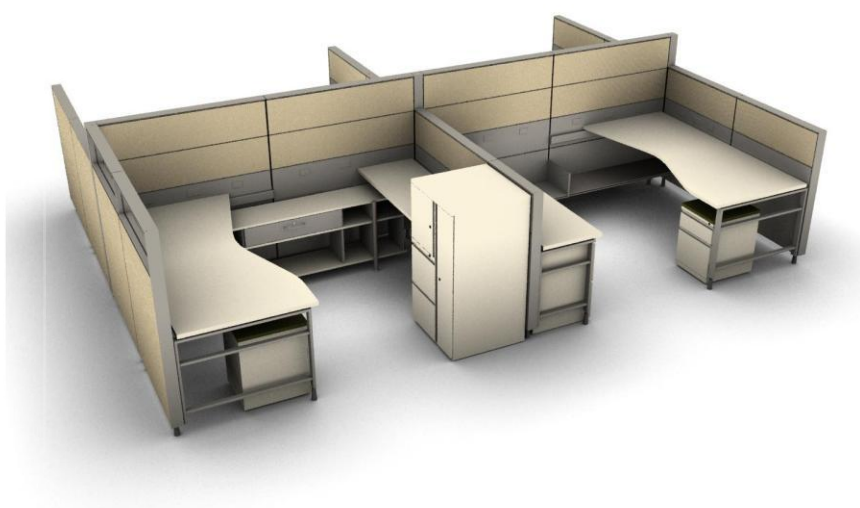
Resident Workstation 6’-0” x 8’-0”

Workstation is designed to provide individual workspace and storage comparable to the previous standard 8’ x 8’ workstation.





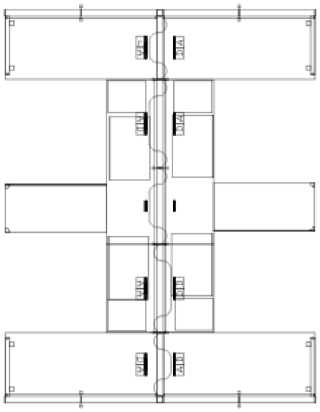


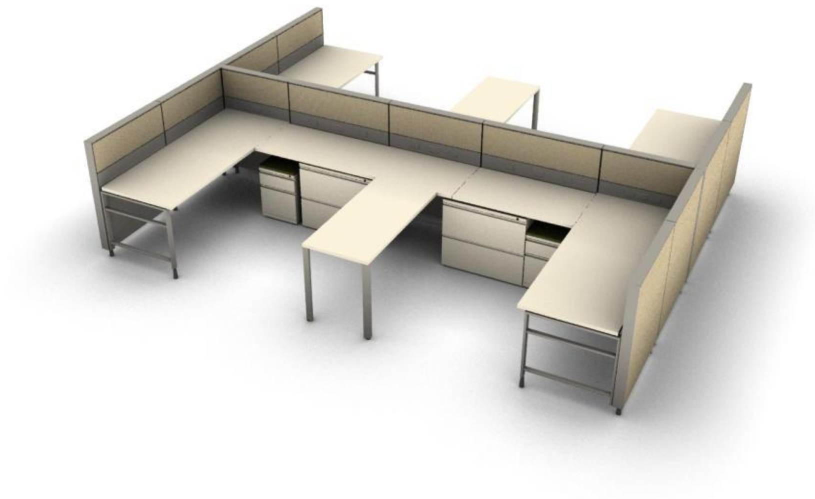


Herman Miller, Grand Rapids, MI and Intereum Partners, Plymouth, MN has provided images.

Free Address / Mobile Workstation 6’-0” x 6’-0”

Option A1 - A shared work surface provides a collaborative workspace.





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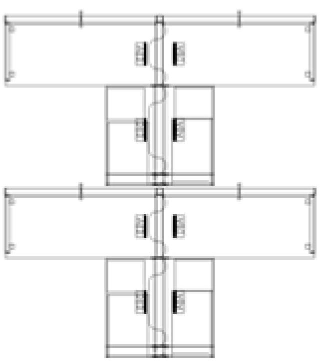
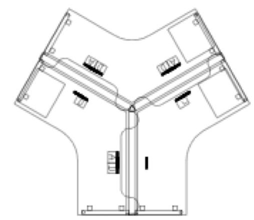
Option A2 – Workstations are designed to provide individual workspaces.



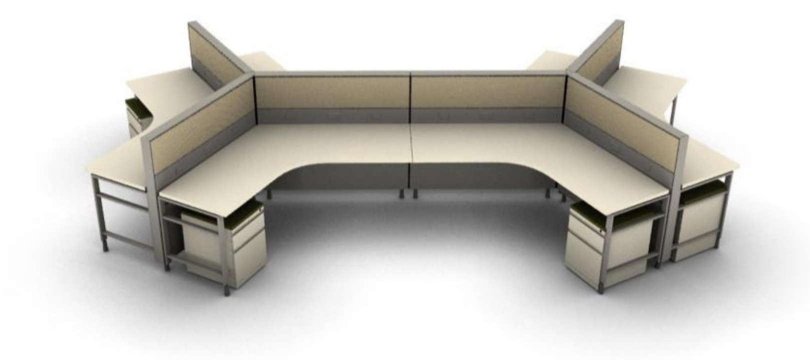
Herman Miller, Grand Rapids, MI and Intereum Partners, Plymouth, MN has provided images.

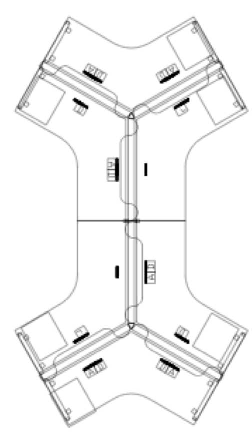
Free Address / Mobile Workstation 6’-0” x 6’-0”

Option B1 – Workstations are designed to provide an individual workspace. The 120º work surface accommodates the natural reach zones.



Option B2 – Workstations are designed to provide a collaborative workspace that can be modified to create a bullpen configuration. The 120º work surface accommodates the natural reach zones.

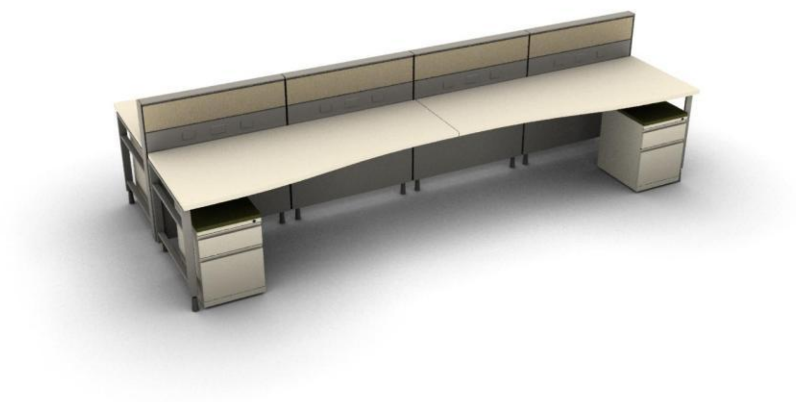


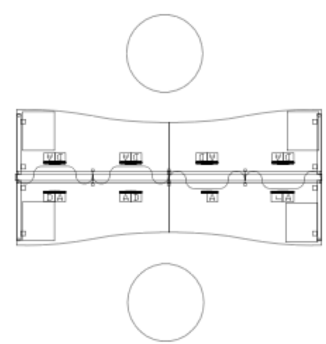


Herman Miller, Grand Rapids, MI and Intereum Partners, Plymouth, MN has provided images.

Free Address / Mobile Workstation 6’-0” x 6’-0”

Option C (with or without freestanding table) – Workstations are designed for either collaborative or individual work.

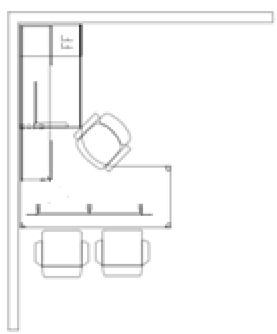


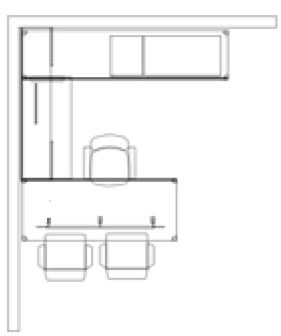


Herman Miller, Grand Rapids, MI and Intereum Partners, Plymouth, MN has provided images.

Private Office 10'-0" x 12'-0"

The private office is designed to provide individual or collaborative workspace for 2-3 people. Larger meetings can be accommodated in conference rooms or open meeting areas.





Herman Miller, Grand Rapids, MI and Intereum Partners, Plymouth, MN has provided images.

Space Requirements

State Board of Investment

1/18/2022

Recommendation per Space Guidelines & Space Needs Assessment

Agency Contact: Andy Christensen
Email/Phone Number: andy.christensen@state.mn.us 651-296-3312
RECS Space Planning Contact: Crystal Bergstrom
Email/Phone Number: crystal.bergstrom@state.mn.us 651-201-2546

Employee Count	Quantity					Parking Notes
State Board of Investment	66					Parking: 0 state vehicles, TBD employee vehicles, 0 guest parking
Total Employee Count	**66**					
Employee Space	**Quantity**	**Square Feet**	**Area**			**Employee Space Notes**
Executive Team 10x12 Office	4	120	480			ED/CIO, Deputy ED, Chief Admin. Officer, and Deputy CIO. Members of Executive team should be in close proximity to their corresponding teams
Internal Auditor/Compliance 6x8 Wks	1	48	48			
Internal Auditor/Compliance 10x12 Office	1	120	120			
Communications and Publications 6x8 Wks	1	48	48			
Communications and Publications 10x12 Office	1	120	120			
Legal and Legislative Services 6x8 Wks	1	48	48			Adjacent to Invenstment work groups
Legal and Legislative Services 10x12 Office	4	120	480			
ESG 6x8 Workstation	2	48	96			Adjacent to Investment work groups
ESG 10x12 Office	2	120	240			
IT Services 6x8 Wks	2	48	96			
IT Services 10x12 Office	1	120	120			
Financial Services 6x8 Wks	5	48	240			Adjacent to Investment Ops
Financial Services 10x12 Office	2	120	240			
Admin.Support & Front Office 6x8 Wks	4	48	192			Team space located in front lobby
Investment Operations 6x8 Wks	4	48	192			It is critical that the Investment staff all be located in the same proximity. This includes all work groups highlighted in yellow. Adjacent to ESG, Legal, and Financial Services
Investment Operations 10x12 Office	2	120	240			
Asset Allocation & Risk Mgmt 6x8 Wks	2	48	96			
Asset Allocation & Risk Mgmt 10x12 Office	3	120	360			
Public Equity 6x8 Wks	3	48	144			
Public Equity 10x12 Office	3	120	360			
Credit 6x8 Wks	2	48	96			Includes Short-Term and Liquid
Credit 6x8 Team Wks	1	48	48			Includes Short-Term and Liquid, possibility of one space shared by two people)
Credit 10x12 Office	2	120	240			Includes Short-Term and Liquid
Private Markets 6x8 Wks	5	48	240			
Private Markets 10x12 Office	5	120	600			
Non-Pension Assets & Investment Services 6x8	1	48	48			
Non-Pension Assets & Investment Services 10x12	1	120	120			
Total Employee Space			**5,352**	**Shared with other Building Tenants**		**Additional Adjacency Notes: team members should be adjacent to one another (e.g. the 4 Legal staff in offices should be near the 1 Legal staff in workstation)**
Support Space	**Quantity**	**Square Feet**	**Area**	**Square Feet**	**Area**	**Support Space Notes**
Lobby Seating	1	400	400		0	Admin Support & Front Office staff workstations will need to be located adjacent to the lobby seating area. 400 sqft is a placeholder estimate, how many seats are required for this lobby space?
Board Room	1		0	1,750	1,750	Currently has access to room 106, if in a new building, would need access to similar room
Conference Room (Seats 10-12)	3	300	900		0	One room will require teleconferencing abilities
Conference Room (Seats 4-6)	3	180	540		0	One room will require teleconferencing abilities
Conference Room (Seats 1-2)	4	64	256		0	
Collaborative Area (Seats 4-6)	2	180	360		0	
Collaborative Area (Seats 10-12)	1	360	360		0	
Print/Copy Room	1	600	600		0	Shredder, recycling, multiple sotrage options, countertops and workspace
Mail Area	1	40	40		0	
Supply Rooms	2	120	240		0	10'x12' is a placeholder estimate, is this space too large or too small for these storage needs?
File Cabinets	55	10	550		0	40 vertical file cabinets and 15 lateral file cabinets.
Kitchen (Large)	1	250	250		0	
Kitchen (Small)	1	120	120		0	
Mother's Room/Wellness Room	2	80	160		0	
Server Room	1	120	120		0	
Total Support Space			**4,896**		**1,750**	**General Notes**
Agency Subtotal			10,248		11,998	Security Requirements:
Additional Space for Panel Creep, etc.			990		990	Acoustical Requirements:
Circulation (40%)			4,495		5,195	Other Requirements:
Total Space Required			**15,733**		**18,183**	
Square Foot Per Person			**238**		**276**	

Space Requirements

State Board of Investment

1/18/2022

Recommendation per Space Guidelines & Space Needs Assessment

Employee Count	Quantity				
State Board of Investment	66				
Total Employee Count	**66**				
Employee Space	**Quantity**	**Square Feet**	**Area**		
10x12 Office	31	120	3,720		
6x8 Wks	35	48	1,680		
Total Employee Space			**5,400**	**Shared with other Building Tenants**	
Support Space	**Quantity**	**Square Feet**	**Area**	**Square Feet**	**Area**
Lobby Seating	1	400	400		0
Board Room	1		0	1,750	1,750
Conference Room (Seats 10-12)	3	300	900		0
Conference Room (Seats 4-6)	3	180	540		0
Conference Room (Seats 1-2)	4	64	256		0
Collaborative Area (Seats 4-6)	2	180	360		0
Collaborative Area (Seats 10-12)	1	360	360		0
Print/Copy Room	1	600	600		0
Mail Area	1	40	40		0
Supply Rooms	2	120	240		0
File Cabinets	55	10	550		0
Kitchen (Large)	1	250	250		0
Kitchen (Small)	1	120	120		0
Mother's Room/Wellness Room	2	80	160		0
Server Room	1	120	120		0
Total Support Space			**4,896**		**1,750**
Agency Subtotal			10,296		12,046
Additional Space for Panel Creep, etc.			990		990
Circulation (40%)			4,514		5,214
Total Space Required			**15,800**		**18,250**
Square Foot Per Person			**239**		**277**

DEPARTMENT OF ADMINISTRATION
REAL ESTATE & CONSTRUCTION

SPACE NEEDS ASSESSMENT FORM

Agency:	State Board of Investment
Division/Work Unit:	
Current Address:	60 Empire Drive, Ste. 355; St. Paul MN 55103

Agency Contact:	Andy Christensen
Telephone:	651-296-3312
E-mail:	andy.christensen@state.mn.us

Date Completed:	01/14/22
Preferred Move/Reconfiguration Date:	TBD

Purpose

This form is used to capture, analyze and understand your agency's space needs in order to develop an appropriate Space Program and square footage estimate for your new space.

Please list your Agency's space requirements. These may be different than what you currently have. Use a separate form for each division/work group if desired.

If you have questions or would like assistance filling out your form, please contact:

- Crystal Bergstrom: Crystal.Bergstrom@state.mn.us, 651-201-2546

1. Employee Workspaces

Please list all divisions or work units that are included in this space needs assessment, including vacancies and future employees/programs.

Division or Work Unit	Quantity Required						Comments
	6x6 Workstation	6x8 Workstation	Team Workstation (space for 2 or more)	10x12 Private Office	Teleworkers	Total Number of Employees	
Executive Team				4		4	ED/CIO, Deputy ED, Chief Admin. Officer, and Deputy CIO
Internal Auditor/Compliance		1		1		2	
Communications and Publications		1		1		2	
Legal and Legislative Services		1		4		5	
ESG		2		2		4	
IT Services		2		1		3	
Financial Services		5		2		7	
Investment Operations		4		2		6	
Admin. Support and Front Office		4	4			4	Front Lobby
Asset Allocation and Risk Management		2		3		5	
Public Equity		3		3		6	
Credit (includes Short-term and Illiquid)		2	2	2		6	Possibility of a space to be shared by two people (traders)?
Private Markets		5		5		10	
Non-Pension Assets & Investment Services		1		1		2	

2. Adjacency Requirements

If an individual or work group should be located adjacent to one another or in a specific area within the space, please list below:

Division/Work Group/ Individual	Adjacent to/Location	Comments
Investment Staff	Investment Staff	It is critical that the Investment staff all be located in the same proximity. This includes the following groups above: Asset Allocation & Risk Management, Public Equity, Credit,

		Private Markets and Non-Pension Assets & Investment Services. Legal/ESG should also be near by.
Financial Services	Investment Operations	Fin. Services and Investment Ops. will need to work closely together.
		Members of the Executive Team should be expected to be in close proximity to their corresponding teams.
		Beyond, that, the division listed in Section 1 should maintain proximity among themselves. E.g., the 4 Legal staff in offices should be near the 1 Legal staff in a workstation.

3. Support Space

Support spaces are shared areas typically accessed by more than one employee.

A. Reception/Lobby - Please include reception staff workstation requirements in Section 1

Type of Space	**Specific Requirements** (lobby, visitor seating (# to seat), security, client-dedicated restrooms, conference or intake room, etc.)
Lobby	We will need to have a lobby/front office presence. It is anticipated that the Front Office staff will occupy this space, even though the front office staff may also have closer ties to designated groups. E.g., one of the front office staff may work regularly with the Private Markets group; another may work regularly with the Equity and Credit groups, etc.

B. Meeting Space

Type of Space (conference room, intake room, collaborative area, board room, etc.)	**# to Seat**	**Requirements** (video/projector, cabinets, storage, location/adjacency, etc.)
Assuming we remain in the Ret. Systems Bldg., we would expect access (when scheduling permits) to the Board Room and the Training Room (106) on the first floor. In addition to that access, we would anticipate the following needs for meeting spaces		
Medium Conference Rooms (3)	10-12	Teleconference capabilities in one.

Small/Medium Conference Rooms (3)	4-6	Teleconference capabilities in one.
Small Conf. Focus Room/Zoom Rooms (4)	1-2	
Collaborative Area	4-6	
Collaborative Area	4-6	
Collaborative Area	10-12	

C. Work Areas

Type of Space (print/copy room, mail area, recycling, shredding, etc.)	**Quantity**	**Estimated Size** (length x width)	**Notes** (equipment, electrical requirements, room contents, location/adjacency, etc.)
Print/copy Room, with shredder	1	40' x 15'?	Include multiple storage options and countertops/workspace
Mail Area	1	4' x 8'?	
Recycling (can be incorporated w/ Kitchen, Break Room and Print/Copy Room)	Various		

D. Filing/Storage - Does not include individual workstation/private office storage.

Type of Storage (vertical or lateral file, storage cabinet, bookcase, supply room, unfinished storage, garage, etc.)	**Existing Quantity**	**Additional Quantity**	**Notes** (length and depth of files/cabinets, size of storage rooms, location/adjacency, etc.)
Supply Rooms	2 (office		

	supplies & I.T.)		
Several vertical and lateral files	40 vertical and 15 horizontal		These represent our current storage cabinets – some are fire proof, some are in individual offices, some are in public spaces, and some are in storage on the 1st floor. Future storage needs are difficult to predict, but it's possible we may not need to order additional storage if we are re-using the existing cabinets.

E. Special Use Areas

Type of Space (kitchenette, break area, mother's room, fitness/wellness room, agency dedicated restrooms, etc.)	**Quantity**	**Specific Requirements** (appliances, location/adjacency, etc.)
Kitchen Area	2	One Large, one small
Mother's room/Wellness room	2	

F. Computer/Server

Type of Space (server room, computer assembly, IT work area, etc.)	**Quantity**	**Estimated Size** (length x width)	**Notes** (equipment, electrical requirements, room contents, location/adjacency, etc.)
Follow MSRS' lead			

4. Security & Privacy

Security Requirements (key card access, solid core doors, glass transaction window, security guard, sidelites, etc.)	**Location**
Follow MSRS' lead	

Is acoustical and/or visual privacy required for your division/work unit?

Acoustical and/or Visual Privacy Requirements (hard walls, white noise, acoustic tile, frosted glass, etc.)	**Location**
Follow MSRS' lead	

5. Colocation

Would your agency be interested in sharing building space with another state agency?

Assumption is that we will remain in the Retirement Systems Building.

6. Parking Requirements

Parking	**Quantity**	**Specific Requirements** (electric charging station, security, overnight parking, lighting, location, etc)
Stalls for State-owned vehicles	0	
Stalls for employee vehicles	TBD	
Stalls for visitor vehicles	0	
Other (trailer, ATV, etc.)	0	

7. Additional Comments

The SBI is undergoing a transition to an incoming new Executive Director/CIO (expected to occur in 2022). While there are many unknowns in terms of exact staffing and structure, we do anticipate that the incoming new leadership will want to continue the growth as planned and reflected in the above information.

Please reach out to andy.christensen@state.mn.us or 651-296-3312 with any questions. Thank you.

Thank you for your cooperation and letting us get to know you!

- ***Your Space Management Team and Real Estate & Construction Services***

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REPORTS

- Public Markets Investment Program Report
- Participant Directed Investment Program and Non-Retirement Investment Program Report
- SBI Environmental, Social, and Governance (ESG) Report
- Aon Market Environment Report
- Meketa Capital Markets Outlook & Risk Metrics Report
- SBI Comprehensive Performance Report

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REPORT

Public Markets Investment Program

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DATE: November 23, 2022

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: SBI Public Markets Program Report

This report provides a brief performance review of the SBI Public Markets portfolio through the third quarter of 2022. Included in this section are a short market commentary, manager performance summaries, and a report of any organizational updates for the public equity and fixed income managers in the SBI portfolio.

The report includes the following sections:

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Review of SBI Public Markets Program
Third Quarter 2022

Market Summary

Global equity markets continued their slide during the third quarter, marking three consecutive quarterly declines, a record not met since the 2007-08 Great Financial Crisis. The MSCI All Country World (ACWI) Index (net) lost -6.8% in U.S. dollar terms. Global bond markets also fell, with the Bloomberg Global Aggregate Bond Index dropping -6.9% over the quarter.

Financial markets were spooked by the potential economic fallout from an increasingly hawkish Fed as it struggled to contain inflation in the U.S. A political crisis in the United Kingdom, which devolved into a full-blown financial crisis for the country's currency and bond markets requiring intervention by the Bank of England, further weighed on investor sentiment during the quarter. Despite investor hopes for a Fed 'pivot' to a slower pace of rate hikes, stubbornly high inflation readings and a resilient job market forced the Fed to maintain its hawkish stance. The Fed raised rates by 150bps over two meetings during the quarter and signaled that it had no intention of stopping until it saw significant progress on inflation, leaving investors to fear that the Fed would ultimately drive the U.S. and global economy into recession. Against this backdrop, the U.S. dollar rallied strongly against most currencies, rising over 7% on a trade-weighted basis. Global commodities fell on expectations for softer industrial demand as well as knock-on effects from the strong dollar.

Overall Combined Funds Portfolio - Quarter and One-Year Performance

The overall Combined Funds portfolio returned -4.3% during the third quarter, outperforming the composite benchmark's return of -4.8%. Positive relative return for the quarter was driven by gains within the portfolio's currency hedging program, an underweight to international equities within the public equity program, and relative outperformance of the portfolio's return-seeking bond managers versus the fixed income policy benchmark. On the negative side, an overweight to public equities overall was a drag, and underperformance of the program's global equity and core plus fixed income managers also detracted from relative performance. The private markets invested portfolio returned -2.5% during the quarter, while the private markets uninvested portfolio, which is invested in S&P 500 Index strategies, declined -4.5%.

For the one-year period ended September 30, 2022, the Combined Funds portfolio posted a return of -11.6%, outperforming the composite benchmark return of -11.9%. While an overweight to equities overall was a drag, this effect was offset by an underweight to international equities maintained during the year as well as strong gains from portfolio's currency hedging program, which offset currency losses in the portfolio's developed international equity portfolio. Active management within the equity portfolio was also a negative contributor as many of the portfolio's growth-oriented managers struggled. The total fixed income portfolio underperformed its policy benchmark for the trailing one-year period (-14.4% Portfolio vs. -13.8% Benchmark) as underperformance from the portfolio's core plus and select return-seeking strategies weighed on returns. The invested private markets portfolio returned +11.3% over the trailing one-year period, while the private markets uninvested portfolio, which is invested in S&P 500 Index strategies, declined -14.8% over the same period.

Domestic Equity
Domestic equity markets began the quarter strong despite little positive fundamental news. As the bear market rally pushed higher, investors started to believe that the worst of this year's selloff was in the rear-view mirror. The rally continued through mid-August, with previously hard-hit cyclical sectors and growth-oriented stocks benefitting most. But the euphoria reversed in late August and into September as the Fed made it clear there would be no "pivot" to a slower pace of rate hikes until it saw clear indications of falling inflation. With little evidence of slowing inflation at hand and continued strong job market gains, investors were forced to confront the impact of higher-for-longer interest rates on company profitability and valuations, as well as the growing prospect of a Fed-engineered recession. Further global impacts, including continued European supply chain shocks from the Ukraine war and fears of a worsening slowdown in China, weighed on domestic equity valuations. The Russell 3000 finished the third quarter down -4.5%.

In a reversal of the recent trend, small cap stocks outperformed large cap stocks (R2000 -2.2% vs R1000 -4.6%) over the quarter. This was in part due to a sell-off in large technology names in the large cap index (Microsoft -9.1%, Alphabet -12.2%, Meta -15.8%, NVIDIA -19.9%). Within both large cap and small cap, growth stocks outperformed value stocks (R1000G -3.6% vs. R1000 Value -5.6%, R2000G +0.2% vs. R2000 Value -4.6%) following a dismal first half of the calendar year for growth. Mega-cap growth names had very strong performance in the quarter (Apple +1.2%, Tesla +18.2%). Within small cap, growth-oriented healthcare names performed particularly well, especially in pharmaceuticals and biotech. Sector dispersion was pronounced during the quarter. The top-performing sectors, energy (+4.6%) and consumer discretionary (+3.0%), eked out single-digit gains, while the poorest performing sectors, telecommunications (-16.7%) and real estate (-10.6%), posted double-digit losses.

The Combined Funds' domestic equity portfolio fell -4.4% during the quarter, outperforming the Russell 3000 Index, which returned -4.5%. An overweight to small cap stocks in the portfolio modestly aided in relative performance. Active management within domestic equities was a positive contributor during the quarter. Active domestic equity managers fell -3.0%, while the aggregate active domestic equity benchmark returned -3.4%.

Active large cap and all cap growth managers had mixed performance versus their benchmarks during the quarter given the strong dispersion of single-stock performance in the space. The relative outperformance of higher-growth, higher-multiple stocks was generally a boon to large and all-cap growth managers during the quarter. Concentrated all cap growth manager Zevenbergen had the strongest performance (+8.1% Portfolio vs. -3.4% Benchmark) given its concentrated approach and exposures to previously underperforming high growth names with competitive market positioning, such as Trade Desk (+42.6%), MercadoLibre (+30.0%), and Tesla (+18.2%). Concentrated large cap growth manager Sands was in-line with its benchmark during the quarter, while more diversified and conservatively positioned Winslow underperformed given its higher allocation to defensive, higher-cap positions (Sands -3.5% and Winslow -5.6% vs. -3.6% Benchmark).

Active large cap value managers were mixed during the quarter (Barrow Hanley -4.7% and LSV -6.7% vs. Benchmark -5.6%). Barrow Hanley's fundamental bottom-up stock selection was the key driver of its relative outperformance this quarter, while an overweight to high quality energy names was an additional key driver of performance. LSV's quantitative, deep-value approach was out of favor, and its selection of lower-priced stocks detracted from stock selection results.

Semi-passive large cap managers were in line with their benchmark in aggregate (BlackRock -5.0% and J.P. Morgan -4.2% vs. Benchmark -4.6%). Quantitative manager BlackRock had negative performance in part due to fundamental signals underperforming in an environment in which sentiment was a primary driver of stock returns. Sentiment signals did offset negative performance, somewhat, particularly analyst-related equity measures. J.P. Morgan's outperformance was attributed entirely to good stock selection during the quarter given that the strategy doesn't take sector bets. Stock selection was the strongest in the healthcare and consumer cyclicals sectors.

Small cap managers in aggregate underperformed slightly, driven by underperformance of small cap growth managers (-0.9% vs +0.2% Benchmark) and outperformance of small cap value managers (-4.1% vs -4.6% Benchmark). Small cap growth managers trailed their benchmark in part due to their quality growth and large cap tilts, both of which hurt in an environment that favored small cap and growth companies. Hood River was the only outperformer in the cohort (+4.2% vs +0.2% Benchmark) due to strong selection within the technology, healthcare, and consumer non-cyclicals sectors. Small cap value managers outperformed in aggregate despite their deep value bias being out of favor. Hotchkis & Wiley was the largest driver of this outperformance (-0.7% vs -4.1% Benchmark) due to its tilt towards the energy sector and into companies with higher longer-term economic sensitivity. Quantitative manager Martingale outperformed in part due to strong performance from its momentum signals, while fundamental managers Goldman Sachs and Peregrine underperformed modestly.

Passive managers largely tracked their benchmarks during the quarter, with the Passive Domestic Equity aggregate falling -4.6% versus the Passive Domestic Equity Benchmark return of -4.6%.

Global Equity and ACWI ex USA Equity

The early-quarter rally and late-quarter retreat evidenced in U.S. equities was mirrored across global equity markets in the third quarter as the MSCI All-Country World Index (ACWI) (net) returned -6.8%. Although the U.S. outperformed the broad index (-4.8%), it was still the largest negative contributor because it now accounts for 62.1% of index weight. Meanwhile, China, the sole survivor of the second quarter collapse, caught up with the rest of the world, falling -22.5% in the third quarter. Other major economies including Japan (-7.7%), the U.K. (-10.6%), and Canada (-7.5%) also pulled the index down. Only India (+6.5%) and Brazil (+8.5%) escaped the negative swirl. On a sector basis, all sectors in the ACWI Index ended down for the quarter, led once again by technology names, especially within semiconductors and software.

The Combined Funds' global equity portfolio trailed the benchmark for the third quarter (-9.5% Portfolio vs. -6.8% Benchmark). Active managers were hurt by a significant overweight to China (9.3% Portfolio weight vs. 3.5% Benchmark weight). Quality growth manager Martin Currie ended the quarter down -10.6%. Underperformance came from significant losses in a half-dozen highly diversified names, many of whom issued profit warnings, struggled with too much inventory, or experienced other idiosyncratic difficulties: Chinese outsourced pharmacy researcher Wuxi Biologics (-34.0%), Irish green insulation manufacturer Kingspan (-24.0%), Chinese insurance provider AIA (-22.7%), American software company Adobe (-24.8%), German athletic manufacturer Adidas (-34.0%), and American semiconductor specialist NVIDIA (-19.9%). Meanwhile value manager Ariel (-9.2%) gave up some of its relative gains from the first half. Ariel was hurt by positions in U.K. pharmaceutical giant GSK (-32.8%) and Chinese internet company Baidu (-21.0%); a big tilt away from the U.S. didn't help. On the other hand, long-term growth manager Baillie Gifford scored its first outperforming quarter of calendar year 2022 (-5.0%), as beaten-down U.S. technology holdings recouped some of their losses: Tesla (+18.2%), Trade Desk (+42.6%), Netflix (+34.6%), Atlassian (+12.4%), and Cloudflare (+26.4%).

The portfolio's ACWI ex USA manager, Earnest Partners, modestly outperformed the benchmark during the quarter (-9.3% Portfolio vs. -9.9% Benchmark). An allocation to Indian banks was the biggest relative contributor to outperformance.

Developed International Equity and Currency Overlay

International developed markets equities, as measured by the MSCI World ex USA Index (net), fell -9.2% during the third quarter in U.S. dollar terms, underperforming the broad U.S. markets. However, in local currency terms, which excludes the impact of the strengthening dollar over the period, the index fell just -3.4%, slightly outperforming broad U.S. equities.

The portfolio's active developed markets managers modestly beat the MSCI World ex USA Index (net), returning -9.0% versus the benchmark's -9.2% return. Quantitative manager Acadian (-7.9%) and quality growth manager Columbia Threadneedle (-7.9%) both outperformed on strong stock selection, and in Columbia's case, a defensive allocation to cash. Quantitative value manager AQR underperformed (-10.4%) as its value factor struggled, especially among industrials, and its currency strategy lost on an outsized bet on Norwegian krone. Fidelity (-10.6%) had the most difficulties in stock selection within its Asian portfolio, particularly in the consumer discretionary and financial sectors. Fidelity's high-beta Japan portfolio is also more sensitive to weakness in Japanese yen.

The passive developed markets portfolio tracked the MSCI World ex USA Index (net) return for the quarter (-9.2% Portfolio vs. -9.2% Benchmark).

The portfolio's currency hedging program provided strong gains during the quarter as the dollar rallied against all hedged currencies. For the quarter, the impact of hedging on the developed international portfolio resulted in a +3.5% boost to performance versus a fully unhedged portfolio. During the third quarter, the program's hedge against the euro currency contributed most to performance as the likelihood of gas shortages cast a pall over the continent's economy and drove the euro lower. The British pound also lost significant ground as the U.K. was hobbled by a cost-of-living crisis and fiscal policy missteps, and the Japanese yen continued its decline as the BoJ maintained its commitment to yield curve control despite dramatically rising rates elsewhere across the globe. The program's overall hedge ratio moved between 27.6% and 86.5%, partially due to tactical interventions initiated by the manager to secure gains and reduce value at risk.

Emerging Markets Equity

Emerging markets equities, as measured by MSCI Emerging Markets Index (net), posted a loss of -11.6% in U.S. dollar terms during the third quarter. While declining currency values worsened performance across for emerging markets when measured in U.S. dollars, the index still lost -8.2% in local currency terms. Most of the equity drag came from greater China (H-shares -22.5%, Taiwan -14.5%) and Korea (-16.4%). Technology names lost considerable ground, especially semiconductors (TSMC -16.6%) and Chinese internet giants (Alibaba -30.4%, Tencent -24.9%). Chinese financials also tumbled (China Construction Bank -13.9%) as uncertainty continued to roil the real estate market.

The portfolio's active emerging markets managers outperformed the MSCI Emerging Markets Index (net) (-9.3% Portfolio vs. -11.6% Benchmark). In a reversal from last quarter, the portfolio's significant underweight to China (19.6% Portfolio weight vs. 31.1% Benchmark weight) aided relative performance. Strong selection in the technology, consumer discretionary, and financials sectors also generated alpha. Morgan Stanley (-6.9%) led the outperformance, helped most by a large tilt away from China and toward India. Value manager Pzena (-7.6%) extended its streak of positive relative performance to a third quarter. Most of Pzena's outperformance was generated by positive issue selection in greater China where the strategy outpaced the index by +8.8%. Growth fund-of-funds manager Rock Creek (-9.7%) also outperformed the benchmark, benefitting from a tilt away from China in favor of India, Indonesia, and Vietnam. However, fundamental core manager Macquarie (-12.9%) underperformed. Macquarie's was hurt by an overweight to semiconductor names as well as a position in Indian energy and telecommunications conglomerate Reliance Industries, which was hit by the Indian government's announcement of new windfall taxes on oil.

Earnest Partners' dedicated China A-share strategy underperformed the MSCI China A Index during the quarter (-19.3% Portfolio vs. -18.3% Benchmark). Once again, sector allocation was the major driver of performance. Energy, real estate, and utility names led the index for the quarter, and Earnest has no holdings in those industries.

The passive emerging markets portfolio tracked the MSCI Emerging Markets Index (net) for the quarter (-11.7% Portfolio vs. -11.6% Benchmark).

Core/Core Plus and Return Seeking Bonds
Bond investors faced continued headwinds during the third quarter as interest rates rose and credit spreads for most non-Treasury sectors widened. The Bloomberg Aggregate Bond Index fell -4.8% during the quarter, bringing its 2022 calendar year-to-date performance to -14.6%. In response to faster-than-expected Fed policy rate hikes and tough talk on inflation from Fed officials, interest rates rose to cycle highs across the yield curve during the quarter. Intermediate Treasuries returned -3.1% over the quarter while the long end of the Treasury market (10+ year maturities) fell -9.7%.

Within the spread sectors of the bond market, Agency mortgage-backed securities (MBS) lagged the most, underperforming duration-matched Treasuries by nearly -1.7% during the quarter. Interest rate volatility and dramatically higher interest rates soured investor demand for the sector. Investment grade credit also underperformed Treasuries for the quarter, driven by underperformance of long credit. On the positive side, high yield credit (bonds and loans) strongly outperformed as the sector's carry advantage proved sufficient to offset any spread widening. Emerging markets debt total return performance was hurt by its longer duration profile, but spread widening was modest and generally offset by the sector's spread advantage vs. Treasuries.

The portfolio's core/core plus bond managers slightly outperformed the Bloomberg Aggregate Index during the quarter (-4.7% Portfolio vs. -4.8% Benchmark). Overall, managers benefitted from a yield advantage relative to the benchmark, as well as positive security selection within investment grade credit and exposure to out-of-benchmark high yield credit and securitized credit. These positives were partially offset by negative effects of duration and curve positioning, as well as an overweight to the underperforming Agency mortgage-backed sector.

The portfolio's return-seeking bond managers returned -2.6% during the third quarter, outperforming the policy benchmark (Bloomberg U.S. Aggregate Bond Index) return of -4.8%, though modestly underperforming the weighted composite of the managers' individual benchmarks, which returned -2.3%. A lower overall duration helped the portfolio's return relative to the policy benchmark as interest rates rose sharply during the quarter, as did allocations to high yield bonds and bank loans, which outperformed. Manager performance relative to underlying benchmarks was mixed. Higher beta emerging markets debt manager Ashmore underperformed its benchmark. The portfolio's opportunistic managers (Blackrock multi-sector and TCW securitized credit) both experienced modest underperformance relative to their "T-Bill plus spread" benchmarks as credit spreads widened and interest rates rose sharply.

Treasury Protection Portfolio

The Treasury Protection portfolio matched the performance of the Bloomberg Treasury 5+ Year Index for the third quarter (-6.9% Portfolio vs. -6.9% Benchmark). Managers' active yield curve positioning and yield advantage from an emphasis on the 20-year portion of the yield curve both generated positive relative performance over the quarter. However, this impact was offset by negative effects from a slight overweight to duration as well as weak performance from out-of-benchmark allocations to Treasury Inflation Protected Securities and U.S. Agencies.

Laddered Bonds + Cash Portfolio

The combined Laddered Bonds + Cash portfolio returned +0.40% for the third quarter, slightly underperforming the portfolio's benchmark (ICE BofA US 3-Month Treasury Bill) which returned +0.46% over the same period. The underperformance was concentrated in the Laddered Bonds portfolio, which, on a stand-alone basis, posted a return of +0.30%. The Laddered Bond portfolio's slightly longer duration versus its benchmark (0.36 years vs 0.24 years) was a drag as the Fed raised its policy rate more than expected during the quarter, sending yields on short-term securities higher (and prices lower). The Cash portfolio returned +0.56%, exceeding the benchmark. The Cash portfolio also benefitted from wider credit spreads during the quarter, which boosted reinvestment rates. On a yield basis, the Laddered portfolio continues to provide a solid yield advantage over cash (Ladder portfolio yielded 3.75% at quarter-end versus Cash portfolio yield of 3.06%). Over time, this persistent yield advantage is expected to drive relative outperformance vs. cash.

Public Markets Managers' Organizational Update
Third Quarter 2022

Columbia Threadneedle (Developed Markets Equity)
Richard Colwell, Head of UK Equities at Columbia Threadneedle will retire in November 2022. Jeremy Smith and Catherine Stanley will become Co-Heads of UK Equities. Though not a direct contributor to SBI's Developed Markets mandate, Mr. Colwell was a colleague and resource for the EAFE team.

Goldman Sachs Asset Management (Fixed Income, Domestic Markets Equity)
Kathryn (Katie) Koch, Partner and Chief Investment Officer of Goldman's public equity business, left the firm to join TCW as its President and CEO (See further information below under TCW). Partly to address Ms. Koch's departure, Goldman announced a series of promotions as part of a re-organization of its Asset Management business, including the promotion of Ashish Shah to Chief Investment Officer for all public markets investing.

Sector portfolio manager for the Small Cap Value strategy Sean Butkus departed the firm during the quarter. Co-Lead Portfolio Manager Rob Crystal will assume Mr. Butkus' industrials coverage, and Mr. Crystal will work with existing research analysts on the team to cover the consumer and communications services sectors. Yogendar Bisht will assume Mr. Butkus' materials sector coverage.

Marathon (Developed Markets Equity)
Toma Kobayashi has been promoted to Portfolio Manager, managing a sleeve of Japanese stocks. Mr. Kobayashi has also become a member of Marathon's Partners Group.

Martin Currie (Global Equity)
Zoe Hutchinson, Investment Analyst for the industrials sector, left the Global team for a new position with the firm during the quarter. Portfolio Manager Ken Hughes will cover the sector until a new analyst is hired.

Martingale (Domestic Equity)
Martingale added a Quantitative Developer, Jimei Shen, to the Investment Team in September. She will be responsible for developing analytical tools to enhance research and portfolio management processes and will collaborate on research.

McKinley (Developed Markets Equity)
Elias (Eli) Krauklis joined McKinley in August 2022 as Director of Quantitative Research, Portfolio Manager. Most recently, Mr. Krauklis was a Senior Analyst and Director of U.S. Equity Strategy at Barclays Capital. Joe Dobryzynski, Director of Trading and Trade Operations left McKinley during the quarter, as the firm moved to partner with an external trading partner. Claudia Jackson was promoted to Head Trader.

Morgan Stanley (Emerging Markets Equity)
Morgan Stanley added Aaron Zhao to the team as a China analyst. Mr. Zhao will cover consumer staples, consumer discretionary, and health care.

Neuberger Berman (Emerging Markets Equity)
Eileen Furukawa joined the Emerging Markets Equity team as an Associate Portfolio Manager. Ms. Furukawa will focus on North Asian large cap information technology and internet stocks.

PGIM (Fixed Income)
PGIM hired Diane L. Parker as Head of Diversity, Equity & Inclusion (DEI). Ms. Parker reports to John Vibert, Managing Director and President of PGIM Fixed Income.

TCW (Fixed Income)
As planned, CEO David Lippman will depart the firm at year-end. Mr. Lippman will exit following nine years as the CEO of TCW and more than 20 years as part of MetWest and TCW investment and executive leadership. To succeed Mr. Lippman, TCW announced the appointment of Kathryn (Katie) Koch as TCW's new President and CEO. Ms. Koch joins TCW from Goldman Sachs, where she was a Partner and most recently served as Chief Investment Officer of Goldman's Public Equity business and was a member of the Asset Management Division's executive committee.

Pzena (Emerging Markets Equity)
During the quarter, Pzena Investment Management, LLC ("PIM") announced its intention to become a privately held company through the acquisition of its publicly traded holding company, Pzena Investment Management, Inc. (NYSE:PZN) ("PIM Inc."). The transaction is targeted to close in the fourth quarter of 2022, subject to shareholder approval.

Sands (Domestic Equity)
One of the four Co-Portfolio Managers for the MSBI's Select Growth Strategy, Mike Sramek, began a medical leave of absence during the quarter. The strategy continues to be managed by co-managers Wes Johnson, Tom Trentman, and Frank Sands.

State Street Global Advisors (Developed and Emerging Markets Equity)
In September 2022, Yie-Hsin Hung was named President and Chief Executive Officer of State Street Global Advisors.

Zevenbergen (Domestic Equity)
Effective July 25, 2022, Zevenbergen Capital Investments LLC took over management of the Virtus Technology Fund as subadviser; Virtus Investment Advisers, Inc. continues to serve as investment adviser. The Fund was renamed the Virtus Zevenbergen Technology Fund at that time. As of 09/30/22, the Fund had $1,165.7 million in assets under management.

Third Quarter 2022 Manager Meetings

After two years in which travel was restricted due to the COVID-19 pandemic, MSBI staff began traveling to and accepting visits from managers in April 2022. Staff will also continue to utilize teleconference and videoconference technologies to remain in communication with managers between in-person visits.

During the quarter, Staff traveled to Seattle, Chicago, Boston, and New York for 8 manager meetings. Staff received 6 visits from managers at our office in St. Paul. A further 42 manager strategy review calls were held via teleconference or videoconference. Note that while staff met with some managers multiple times during the quarter, each manager/strategy is listed only once below.

Investment Manager	**Asset Class**
Acadian Asset Management LLC	Developed Markets Equity
AQR Capital Management, LLC	Developed Markets Equity
Ariel Investments, LLC	Global Equity
Ashmore Investment Management Limited	Fixed Income
Baillie Gifford Overseas Limited	Global Equity
Barrow, Hanley, Mewhinney & Strauss, LLC	Domestic Equity
BlackRock Financial Management, Inc.	Fixed Income
Columbia Threadneedle Investments	Developed Markets Equity
Columbia Threadneedle Investments	Fixed Income
Fidelity Institutional Asset Management LLC	Developed Markets Equity
Goldman Sachs Asset Management, L.P.	Domestic Equity
Goldman Sachs Asset Management, L.P.	Fixed Income
Hood River Capital Management, LLC	Domestic Equity
J.P. Morgan Investment Management Inc.	Domestic Equity
J.P. Morgan Investment Management Inc.	Developed Markets Equity
Macquarie Investment Management Advisers	Emerging Markets Equity
Marathon Asset Management LLP	Developed Markets Equity
Martin Currie Inc.	Emerging Markets Equity
Martin Currie Inc.	Global Equity
Martingale Asset Management, L.P.	Domestic Equity
McKinley Capital Management, LLC	Developed Markets Equity

Third Quarter 2022 Manager Meetings (cont.)

Investment Manager	Asset Class
Morgan Stanley Investment Management Inc.	Emerging Markets Equity
Neuberger Berman Investment Advisers LLC	Fixed Income
Neuberger Berman Investment Advisers LLC	Emerging Markets Equity
NISA Investment Advisors, LLC	Cash Overlay
Oaktree Asset Management	Fixed Income
Payden & Rygel	Fixed Income
Prudential Global Investment Management (PGIM)	Fixed Income
Pacific Investment Management Company LLC (PIMCO)	Fixed Income
Peregrine Capital Management	Domestic Equity
Pzena Investment Management, LLC	Emerging Markets Equity
Record Currency Management LLC	Currency Overlay
Rice Hall James & Associates, LLC	Domestic Equity
The Rock Creek Group, LLC	Emerging Markets Equity
Sands Capital Management, LLC	Domestic Equity
State Street Global Advisors	Developed Markets Equity Emerging Markets Equity
Wellington Management Company, LLP	Domestic Equity
Western Asset Management Company, LLC	Fixed Income
Winslow Capital Management, LLC	Domestic Equity
Zevenbergen Capital Investments LLC	Domestic Equity

REPORT

Participant Directed Investment Program and Non-Retirement Investment Program

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DATE: November 23, 2022

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: Participant Directed Investment Program and Non-Retirement Program

This section of the report provides commentary on the Participant Directed Investment Program (PDIP) investment options and Non-Retirement Program managers along with the list of due diligence meetings staff conducted during the third quarter.

The report includes the following sections:

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Participant Directed Investment Program Fund Commentaries
Third Quarter 2022

Domestic Equities

Vanguard Total Stock Market Index Institutional Plus
The Fund employs an indexing approach designed to track the performance of the CRSP U.S. Total Market Index, which represents approximately 100% of the investable U.S. stock market and includes large-, mid-, small-, and micro-cap stocks. The Fund slightly underperformed its benchmark return for the quarter with a return of -4.5% compared to the benchmark return of -4.4% and matched the benchmark performance for the year with a return of -18.0%.

Vanguard Institutional Index Plus
The Fund attempts to employ a full replication indexing approach designed to track the S&P 500 Index. Performance for the Fund matched the S&P 500 Index return for the quarter with a –4.9% return and for the year with a -15.5% return. *This option is only available to the Minnesota Deferred Compensation Plan (MNDCP).*

Vanguard Dividend Growth Fund
The Fund is actively managed by Wellington Management and invests in large- and mid- cap equity holdings with an emphasis on high-quality companies with a history of paying stable or increasing dividends. The Fund underperformed the S&P U.S. Dividend Growers Index for the quarter with a -5.5% return compared to a -5.3% return for the benchmark. For the year, the Fund outperformed with a -6.2% return compared to a -10.3% for the benchmark. The Fund does not consider its benchmark sector positioning when constructing the portfolio; weightings result from stock selection.

Vanguard Mid-Cap Index
The Fund attempts to employ a full replication indexing approach designed to track the performance of a broadly diversified pool of medium-size U.S. stocks. The Fund matched the CRSP US Mid Cap Index return for the quarter and for the year with a -4.1% return and a -19.5% return, respectively.

T. Rowe Price Institutional Small-Cap Stock Fund
The Fund’s investment process emphasizes fundamental research and active, bottom-up stock selection. The Fund seeks to provide long-term capital growth by investing primarily in stocks of small companies in both growth and value-oriented securities. The Fund matched the Russell 2000 for the quarter with a -2.2% and underperformed for the year with a –23.9% return compared to the benchmark return of -23.5%.

International Equities

Fidelity Diversified International Equity Fund
The Fund’s approach actively selects international companies primarily in foreign developed markets based on fundamental analysis, management quality, and attractive valuations over a long-time horizon. The Fund returned -8.7% for the quarter, outperforming the MSCI EAFE benchmark

return of -9.4%. For the year, the Fund returned –30.6%, underperforming the benchmark return of -25.1%.

Vanguard Total International Stock Index
The Fund attempts to employ an indexing approach designed to track the FTSE Global All Cap ex US Index, a market-cap weighted pool designed to measure performance of developed and emerging market companies. The Fund underperformed the benchmark for the quarter with a –10.5% return versus the benchmark return of –9.7% and outperformed for the year with a -25.2% return compared to -25.3% for the benchmark, respectively.

Fixed Income and Capital Preservation Options

Dodge & Cox Income Fund
The Fund invests in a diversified portfolio that consists primarily of investment-grade debt securities with a larger allocation to corporate and securitized debt relative to the benchmark. The fixed income fund outperformed the Bloomberg U.S. Aggregate Index for the quarter with a -4.0% return, compared to the benchmark of -4.8% For the year, the Fund outperformed with a -13.6% return compared to the benchmark return of -14.6%.

Vanguard Total Bond Market Index
The Fund employs a sampling process to its index investment approach to track the performance of the Bloomberg U.S. Aggregate Index. The Fund returned -4.6% for the quarter, outperforming the benchmark return of -4.8% and matched the benchmark for the year with -14.6% return.

Stable Value Fund
Galliard Asset Management manages the stable value portfolio in a separate account and invests in investment contracts issued by high quality financial institutions and in a diversified, high quality fixed income portfolio. The portfolio returned +0.5% for the quarter compared to a +0.9% return for its benchmark, the 3-Year Constant Maturity Treasury +45 basis points. For the year, the portfolio returned +1.9% compared to the benchmark return of +2.6%.

Money Market Fund
State Street Global Advisors manages the cash option in a commingled pool called the short-term investment strategy. The Fund outperformed the ICE BofA 3 Month U.S. T-Bill Index for the quarter and for the year with a +0.6% and a +0.9% return, respectively. The benchmark returned +0.5% and +0.6% over the respective time-periods.

Model Portfolio Option

Vanguard Balanced
The Balanced Fund seeks capital appreciation, current income, and long-term growth of income. The Fund allocation tracks the investment performance of an index with 60% CRSP US Total Stock Market Index and 40% Bloomberg Barclays U.S. Aggregate Float Adjusted Index. The Balanced Fund matched the composite benchmark for the quarter and for the year with a -4.5% return and a -16.4% return, respectively.

Non-Retirement Fund Commentaries

Third Quarter 2022

Assigned Risk Plan Fixed Income Manager
RBC Global Asset Management actively manages the fixed income portfolio for the Assigned Risk Plan to the Bloomberg U.S. Governmental Intermediate benchmark with a focus on security selection and secondarily on sector allocation. The portfolio returned -3.0% for the quarter, slightly outperforming the benchmark return of -3.1%. For the year, the portfolio returned –9.1%, outperforming the benchmark return of -9.2%.

Non-Retirement Program Fixed Income Manager
Prudential Global Investment Management (PGIM) actively manages the Non-Retirement Fixed Income portfolio to the Bloomberg U.S. Aggregate in a separately managed portfolio. The fixed income portfolio outperformed for the quarter with a -4.7% return compared to the benchmark return of -4.8%. For the year, the portfolio underperformed the benchmark with a -15.4% return, compared to -14.6% for the benchmark.

Non-Retirement Program Domestic Equity Manager
Mellon Investments Corporation passively manages the Non-Retirement Domestic Equity portfolio to the S&P 500 Index in a separately managed portfolio. The portfolio matched the benchmark return for the quarter and the year returning -4.9% and -15.5% respectively.

Non-Retirement Program Money Market Manager
State Street Global Advisors manages the Non-Retirement Money Market Fund against the iMoneyNet All Taxable Money Fund Average. The fund slightly outperformed the benchmark for the quarter with a +0.6% return, and for the year with a +0.8% return. The benchmark returned 0.5% and 0.6% over the respective time-periods.

2022 Manager Meetings

MSBI Staff has incorporated a hybrid process to its manager due diligence process. As of April of 2022 Staff begun to travel to and accept visits from managers after a two-year pause in travel due to the pandemic. MSBI Staff will continue to use teleconference and videoconference technology to remain in communication with managers between visits.

During the quarter, Staff visited with one manager at the St. Paul office and the remaining strategy review calls where held via videoconference.

Investment Manager	Management Style/Asset Class	Investment Program
• Ascensus	Multi-Asset Class Platform	PDIP (MN ABLE Plan)
• Dodge & Cox	Active, Fixed Income Option	PDIP
• Fidelity	Active, International Equity Option	PDIP
• Galliard	Stable Value Fund	PDIP
• Mellon Capital	Passive, S&P 500 Index Fund	Non-Retirement Program
• PGIM	Active, Fixed Income	Non-Retirement Program
• RBC	Active, Intermediate Fixed Income	Non-Retirement Program
• State Street Global Advisors	Target Date Fund	PDIP
	Money Market Fund	PDIP
• TIAA-CREF	Multi-Asset Class Platform	PDIP (MN 529 Plan)
• T. Rowe Price	Active, Small Cap Equities	PDIP
• Vanguard	Passive, Total Stock Market Fund	PDIP
	Passive, Institutional S&P 500 Index	PDIP
	Passive, Mid Cap Index Fund	PDIP
	Passive, Total International Equity	PDIP
	Passive, Bond Fund	PDIP
	Passive, Balanced Fund	PDIP
	Active, Dividend Growth Fund	PDIP

REPORT

SBI Environmental, Social, and Governance (ESG) Report

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MINNESOTA STATE BOARD OF INVESTMENT

ENVIRONMENTAL, SOCIAL, GOVERNANCE REPORT

Coalition Highlights

Fair Proxy Voting Rights

As mentioned in last quarter's report, the SBI recently participated in the launch of the Investor Coalition for Equal Votes (ICEV).

In July 2022, the SBI supported ICEV's letter in response to the Financial Conduct Authority's Primary Markets Effectiveness Review (published in May 2022). The goal of the letter was to encourage the adoption of "one share, one vote" structures or reasonable sunset periods as a requirement under the United Kingdom's listing regime.

In October 2022, ICEV sent out letters to companies and their advisors in the United States, sharing the concern that dual-class share structures dampen the ability of investors to act as effective stewards and encouraging companies to adopt single-class share structures or reasonable sunset periods when going public.

Diversity

Through its involvement in the Midwest Investors Diversity Initiative (MIDI), the SBI is planning to lead several diversity related engagements in the fall of 2022 with target companies in the Midwest region.

The SBI will ask companies to voluntarily report board diversity, EEO-1 data and adopt board candidate recruitment best practices. If a company is unresponsive, the SBI will sponsor or co-sponsor a shareholder proposal at the company's next annual meeting related to improving diversity disclosure to investors.

Update on ESG Integration at the SBI

The SBI continues to improve how it integrates ESG information into its investment process. ESG integration as defined by the CFA Institute is *"the explicit and systematic inclusion of Environmental, Social and Governance factors in investment analysis and investment decisions."* While the materiality of a specific ESG factor depends on entity, asset class, geography and strategy, in general, organizations that do not take ESG factors into consideration, may jeopardize their financial viability and fail to maximize their potential.

As a primarily externally managed plan, the SBI relies heavily on its managers to implement investment best practices, including ESG integration. For both public and private investments, SBI staff reviews ESG information as part of its due diligence and monitoring practices for its external investment managers. There are several reasons why the SBI pays attention to ESG information:

1. **Enterprise Level Materiality** – ESG information can influence company level financials or valuations and the SBI's returns depend on the value of the individual assets it owns.
2. **Systemic Risk** – ESG information can indicate changes in global systems. As a large, long-term and diversified investor, the SBI effectively owns a slice of the overall market and the SBI's investment returns depend on the continuing good health of the overall economy.

At both the enterprise level and at the systemic level, the SBI has focused on information gathering. In doing so, the SBI has requested ESG information from all of its managers through RFIs, DDQs, and during meetings. In fiscal year 2022, the SBI's consultants and data providers conducted several portfolio wide surveys to gather ESG information from managers with a particular focus on climate change risk management and diversity. The intention of these data gathering efforts is to establish a baseline so that the SBI can better monitor changes to its long-term risk exposures.

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REPORT

AON Market Environment Report

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Market Environment

Third Quarter 2022

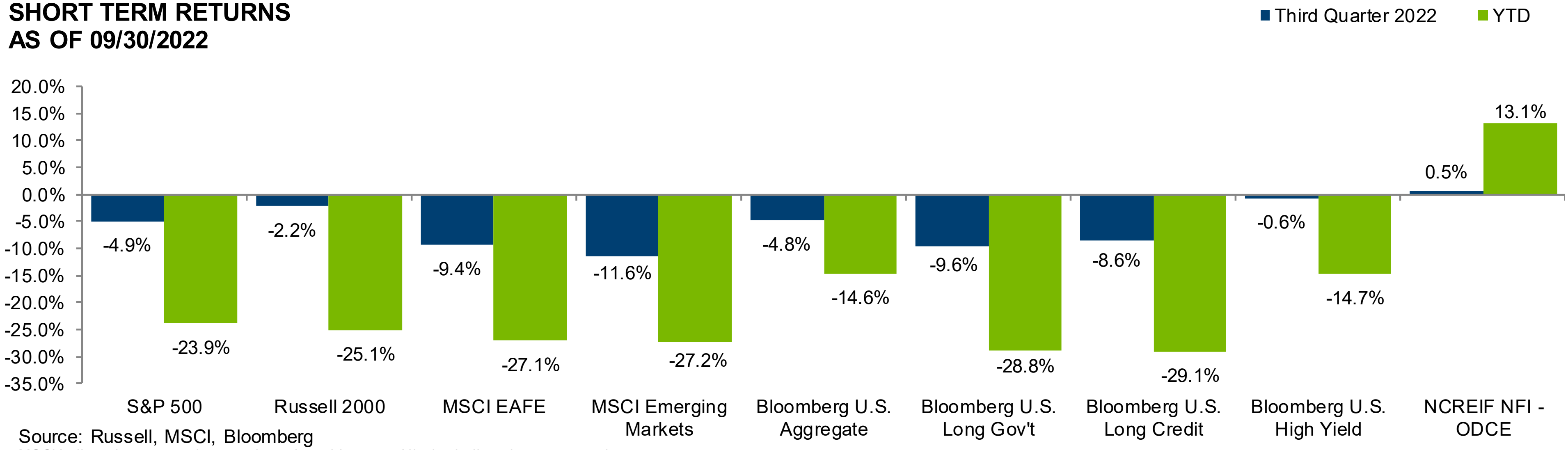
Aon

Investment advice and consulting services provided by Aon Investments USA Inc., an Aon Company.

Empower Results®

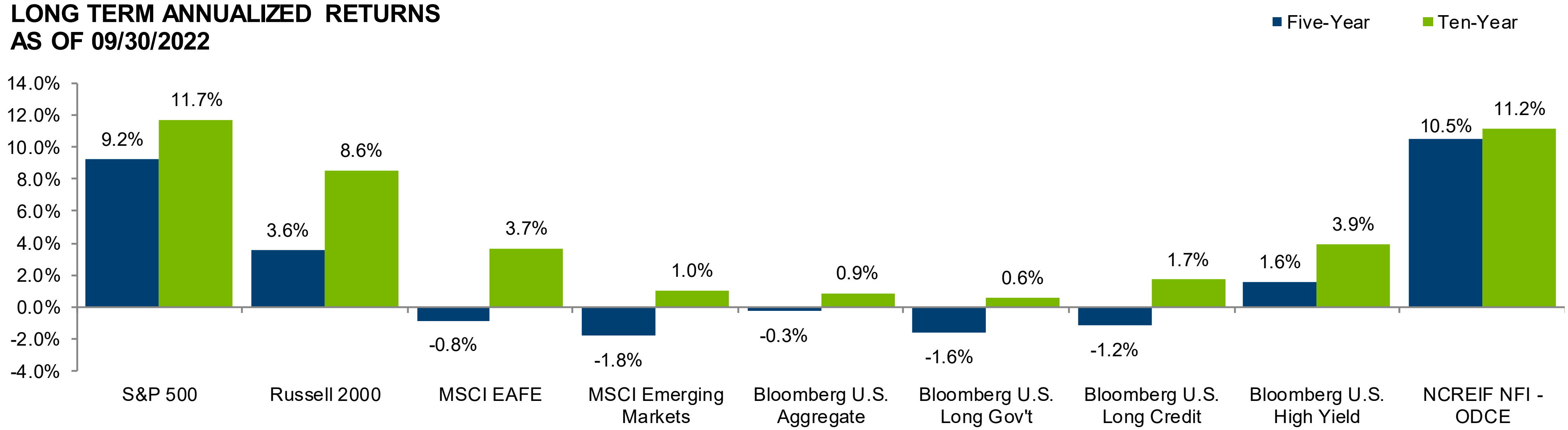
Market Highlights

**SHORT TERM RETURNS
AS OF 09/30/2022**



Source: Russell, MSCI, Bloomberg
MSCI Indices show net total returns throughout this report. All other indices show gross total returns.

**LONG TERM ANNUALIZED RETURNS
AS OF 09/30/2022**



Source: Russell, MSCI, Bloomberg

Note: MSCI Indices show net total returns throughout this report. All other indices show gross total returns.

Market Highlights

Returns of the Major Capital Markets

Period Ending 09/30/2022

	Third Quarter	YTD	1-Year	3-Year[1]	5-Year[1]	10-Year[1]
Equity						
MSCI All Country World IMI	-6.64%	-25.72%	-21.18%	3.64%	4.16%	7.25%
MSCI All Country World	-6.82%	-25.63%	-20.66%	3.75%	4.44%	7.28%
Dow Jones U.S. Total Stock Market	-4.56%	-24.92%	-18.05%	7.51%	8.48%	11.28%
Russell 3000	-4.46%	-24.62%	-17.63%	7.70%	8.62%	11.39%
S&P 500	-4.88%	-23.87%	-15.47%	8.16%	9.24%	11.70%
Russell 2000	-2.19%	-25.10%	-23.50%	4.29%	3.55%	8.55%
MSCI All Country World ex-U.S. IMI	-9.69%	-26.92%	-25.72%	-1.27%	-0.78%	3.19%
MSCI All Country World ex-U.S.	-9.91%	-26.50%	-25.17%	-1.52%	-0.81%	3.01%
MSCI EAFE	-9.36%	-27.09%	-25.13%	-1.83%	-0.84%	3.67%
MSCI EAFE (Local Currency)	-3.59%	-14.46%	-11.11%	2.51%	2.83%	7.44%
MSCI Emerging Markets	-11.57%	-27.16%	-28.11%	-2.07%	-1.81%	1.05%
Equity Factors						
MSCI World Minimum Volatility (USD)	-6.28%	-11.83%	17.60%	0.26%	4.54%	7.83%
MSCI World High Dividend Yield	-8.82%	-16.17%	-10.16%	1.98%	3.52%	6.67%
MSCI World Quality	-7.06%	-29.17%	-21.86%	6.92%	8.81%	10.45%
MSCI World Momentum	-5.60%	-26.94%	-22.67%	4.82%	7.67%	10.46%
MSCI World Enhanced Value	-10.39%	-21.97%	-18.70%	-0.11%	0.25%	6.19%
MSCI World Equal Weighted	-7.55%	-25.97%	-23.68%	0.61%	1.77%	6.64%
MSCI World Index Growth	-5.01%	-32.28%	-26.74%	6.60%	8.08%	10.10%
MSCI USA Minimum Volatility (USD)	-5.41%	-17.29%	-8.68%	2.94%	7.70%	10.66%
MSCI USA High Dividend Yield	-7.54%	-15.71%	-7.28%	3.23%	5.89%	9.80%
MSCI USA Quality	-7.38%	-29.23%	-21.40%	7.36%	10.36%	12.34%
MSCI USA Momentum	-3.03%	-26.34%	-23.57%	4.50%	7.97%	12.58%
MSCI USA Enhanced Value	-8.77%	-23.48%	-16.17%	2.82%	4.01%	10.01%
MSCI USA Equal Weighted	-4.74%	-24.34%	-18.75%	5.71%	6.84%	10.70%
MSCI USA Growth	-3.55%	-32.37%	-25.59%	10.62%	12.10%	13.50%
Fixed Income						
Bloomberg Global Aggregate	-6.94%	-19.89%	-20.43%	-5.74%	-2.32%	-0.93%
Bloomberg U.S. Aggregate	-4.75%	-14.61%	-14.60%	-3.26%	-0.27%	0.89%
Bloomberg U.S. Long Gov't	-9.60%	-28.77%	-26.60%	-8.48%	-1.62%	0.60%
Bloomberg U.S. Long Credit	-8.57%	-29.05%	-27.98%	-7.02%	-1.17%	1.73%
Bloomberg U.S. Long Gov't/Credit	-9.03%	-28.94%	-27.41%	-7.35%	-1.17%	1.35%
Bloomberg U.S. TIPS	-5.14%	-13.61%	-11.57%	0.79%	1.95%	0.98%
Bloomberg U.S. High Yield	-0.65%	-14.74%	-14.14%	-0.45%	1.57%	3.94%
Bloomberg Global Treasury ex U.S.	-9.08%	-24.71%	-25.80%	-8.85%	-4.36%	-2.78%
JP Morgan EMBI Global (Emerging Markets)	-4.20%	-22.24%	-22.23%	-6.10%	-2.31%	0.95%
Commodities						
Bloomberg Commodity Index	-4.11%	13.57%	11.80%	13.45%	6.96%	-2.14%
Goldman Sachs Commodity Index	-10.31%	21.80%	23.64%	12.19%	7.75%	-3.95%
Hedge Funds						
HFRI Fund-Weighted Composite[2]	-0.57%	-6.18%	-5.77%	6.18%	4.52%	4.61%
HFRI Fund of Funds[2]	0.72%	-5.92%	-5.51%	4.52%	3.30%	3.57%
Real Estate						
NAREIT U.S. Equity REITS	-9.94%	-28.13%	-16.41%	-2.05%	2.93%	6.26%
NCREIF NFI - ODCE	0.52%	13.08%	22.10%	12.37%	10.24%	10.92%
FTSE Global Core Infrastructure Index	-8.37%	-13.29%	-4.60%	1.74%	5.30%	7.86%
Private Equity						
Burgiss Private iQ Global Private Equity[3]			22.21%	23.77%	20.18%	16.03%

MSCI Indices show net total returns throughout this report. All other indices show gross total returns.

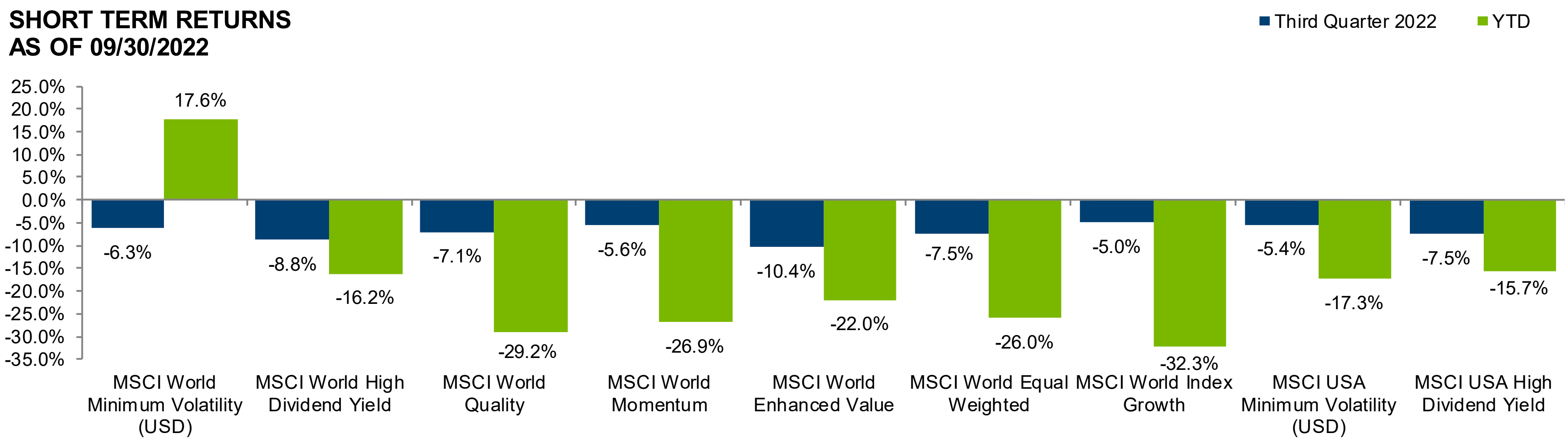
[1] Periods are annualized.

[2] Latest 5 months of HFR data are estimated by HFR and may change in the future.

[3] Burgiss Private iQ Global Private Equity data is as at March 31, 2022

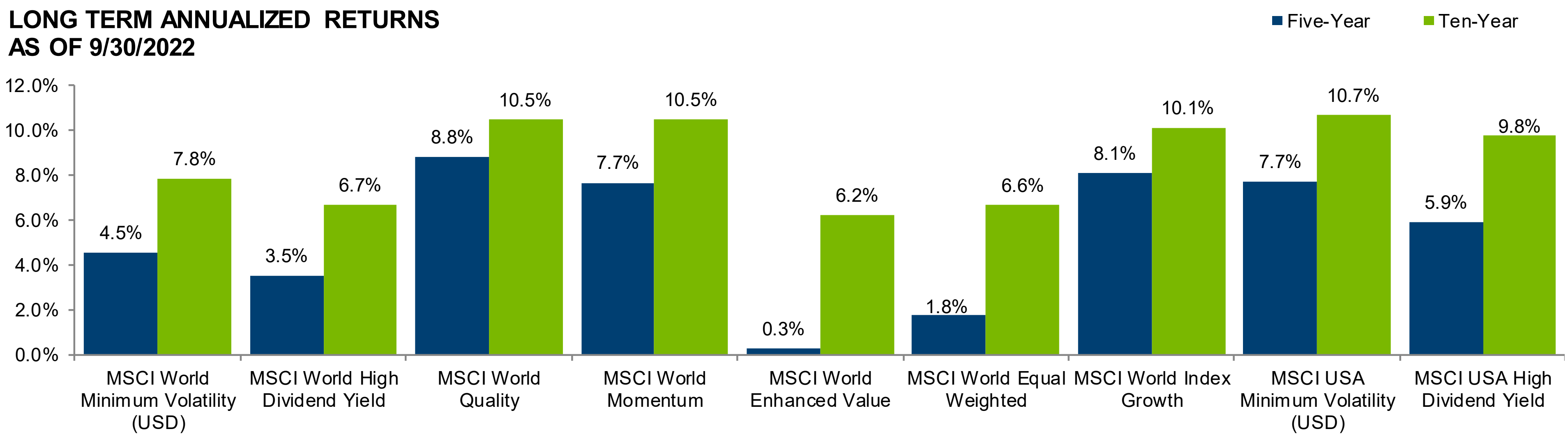
Factor Indices

SHORT TERM RETURNS
AS OF 09/30/2022



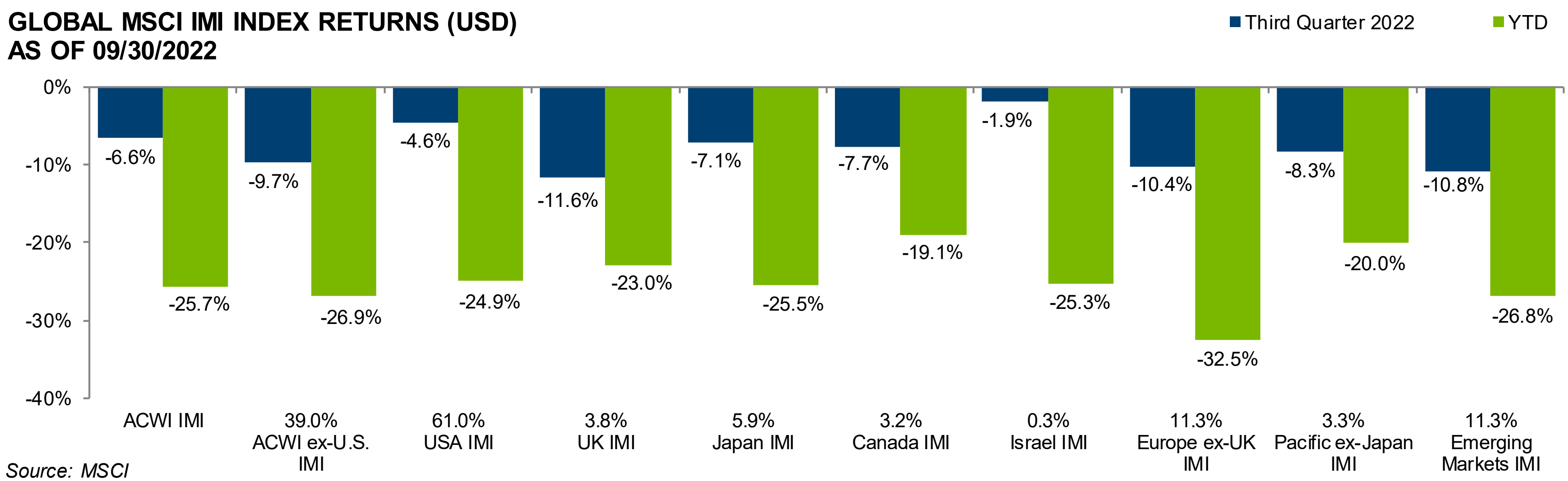
Source: MSCI

LONG TERM ANNUALIZED RETURNS
AS OF 9/30/2022



Source: MSCI

Global Equity Markets



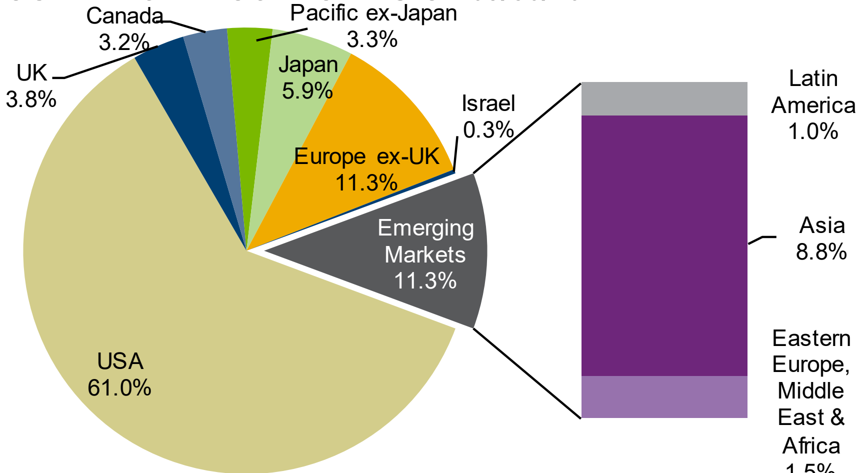
Source: MSCI

- In Q3 2022 capital markets were dominated by geopolitical uncertainty and higher interest rates amidst soaring inflation. Volatility remained elevated throughout the quarter. Yields trended higher with major central banks indicating an aggressive monetary policy stance to control rising inflation. The MSCI All Country World Investable Market Index (ACWI IMI) returned -6.6% for the quarter and was down 25.7% on a year-to-date basis.
- Across international markets, all the regions were weak over the quarter.
- UK equities were the worst regional performer with a return of -11.6% in US dollar terms due to sharp sterling depreciation against the dollar. Index heavyweights like Financials and Consumer Staples underperformed. Former UK foreign secretary, Liz Truss, became the new UK prime minister as she beat former chancellor Rishi Sunak by a 57-43 margin in a ballot of Conservative party members.
- Emerging Markets was the second worst performer at -10.8% with Chinese and Korean equities weighing on the region. U.S.-China tensions escalated after the U.S. House of Representatives Speaker, Nancy Pelosi, visited Taiwan and pledged U.S. commitment to the country. The U.S. Senate committee passed the Taiwan Policy Act (TPA) to provide a $6.5bn fund that would enhance U.S. military support for Taiwan to counter increasing Chinese military activity around the country.

Global Equity Markets

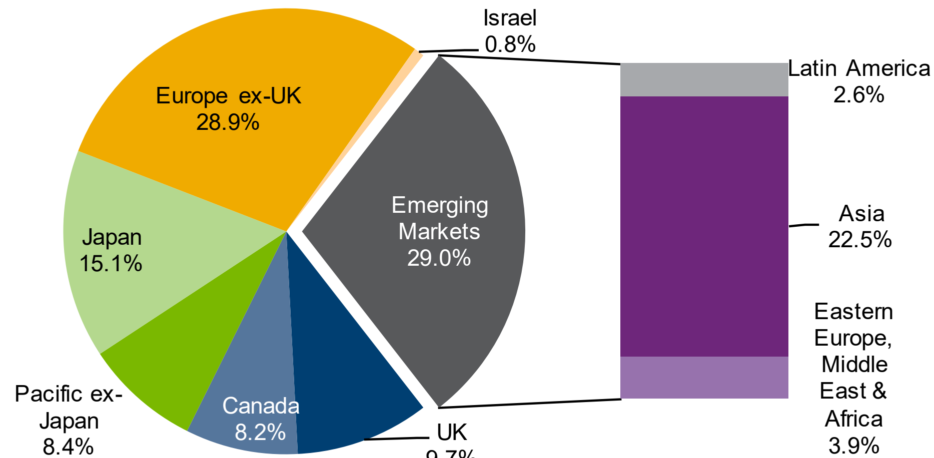
Below is the country/region breakdown of the global and international equity markets as measured by the MSCI All Country World IMI Index and the MSCI All Country World ex-U.S. IMI Index, respectively.

MSCI ALL COUNTRY WORLD IMI INDEX GEOGRAPHIC ALLOCATION AS OF 09/30/2022



Source: MSCI

MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX GEOGRAPHIC ALLOCATION AS OF 09/30/2022

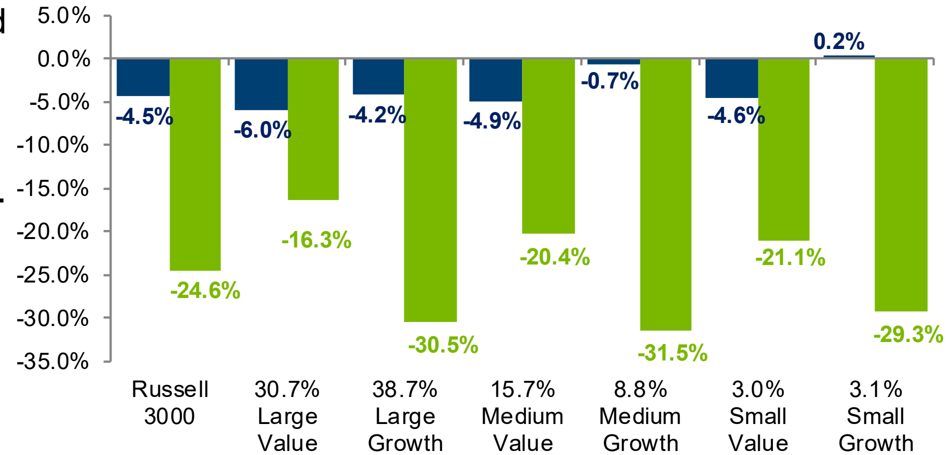


Source: MSCI

U.S. Equity Markets

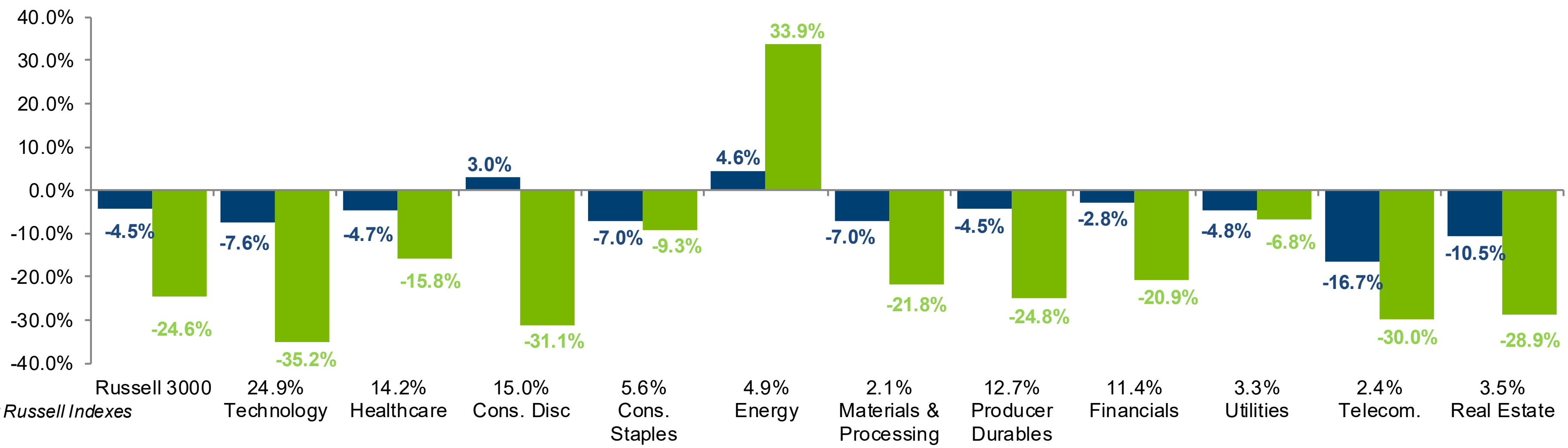
- U.S. equities had a weak quarter with the S&P 500 index falling by 4.9%.
- The Russell 3000 Index fell 4.5% during the third quarter and was down 24.6% on a year-to-date basis. Performance among sectors was generally negative. Energy and Consumer Discretionary were the best performers while the Telecom and Real Estate sectors were the worst performers.
- Small cap stocks have outperformed large and medium cap stocks over the quarter. On a style basis, growth outperformed value across market capitalizations over the quarter, however, value outperformed growth on a year-to-date basis.

RUSSELL STYLE RETURNS AS OF 09/30/2022



Source: Russell Indexes

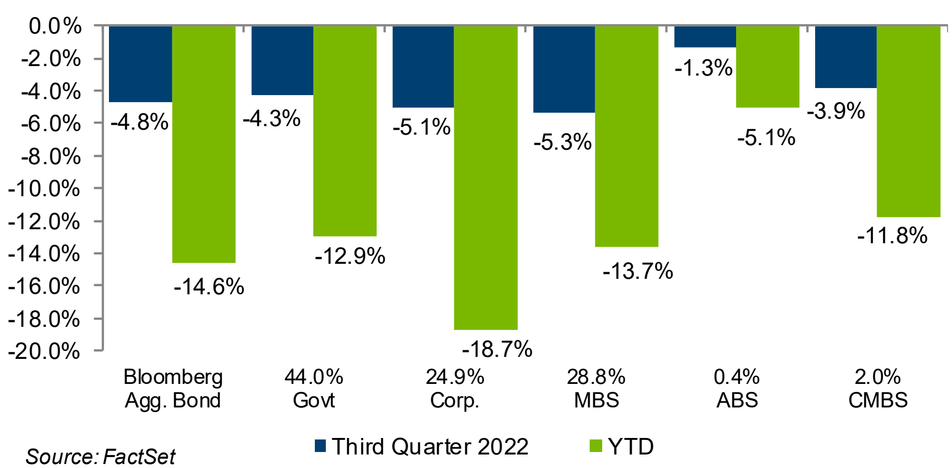
RUSSELL SECTOR RETURNS AS OF 09/30/2022



Source: Russell Indexes

U.S. Fixed Income Markets

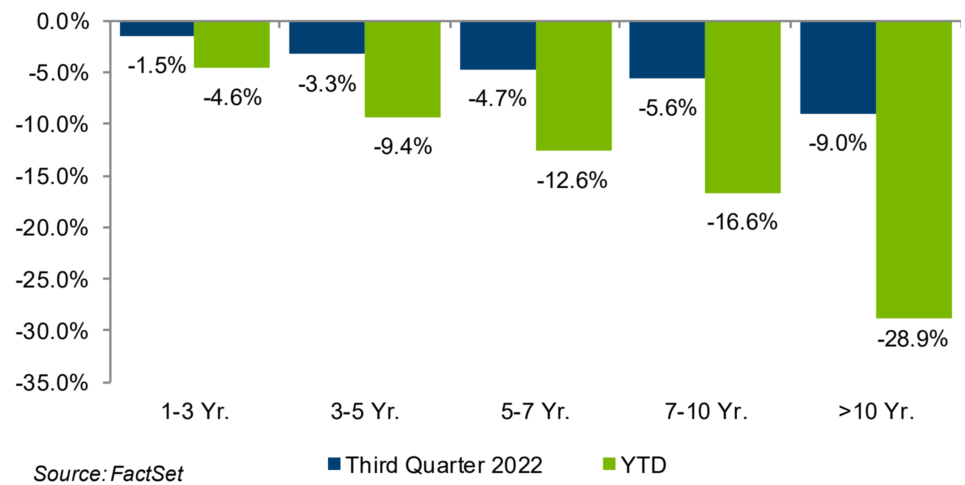
BLOOMBERG AGGREGATE RETURNS BY SECTOR AS OF 09/30/2022



Source: FactSet

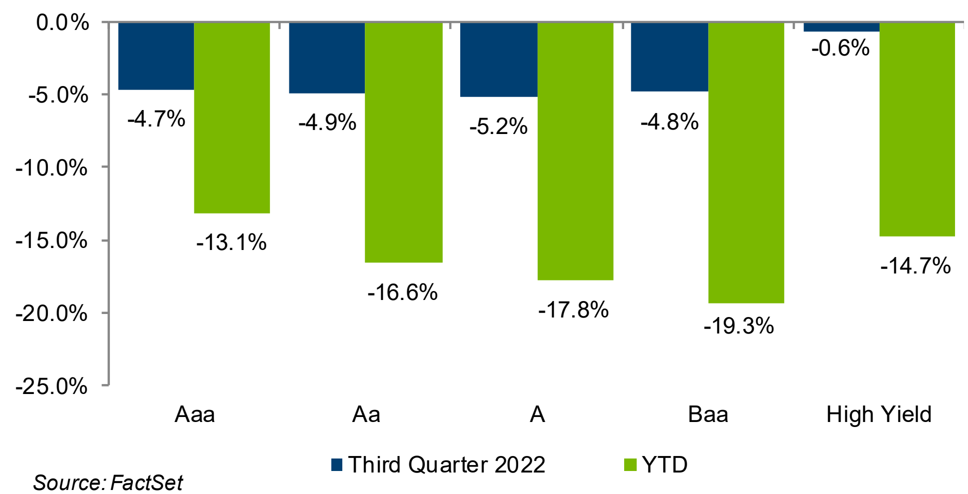
- The Bloomberg U.S. Aggregate Bond Index was down 4.8% over the quarter and 14.6% on a year-to-date basis.
- Across durations, all maturities finished the quarter in negative territory.
- Within investment-grade bonds, lower-credit quality generally outperformed higher-quality issues, with Baa bonds falling by 4.8%. High-yield bonds fell by 0.6%.

BLOOMBERG AGGREGATE RETURNS BY MATURITY AS OF 09/30/2022



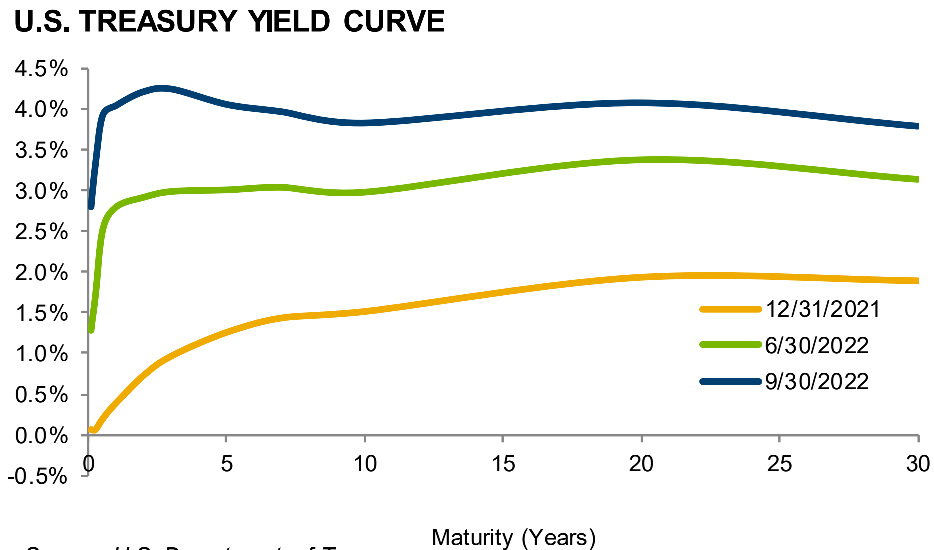
Source: FactSet

BLOOMBERG AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 09/30/2022

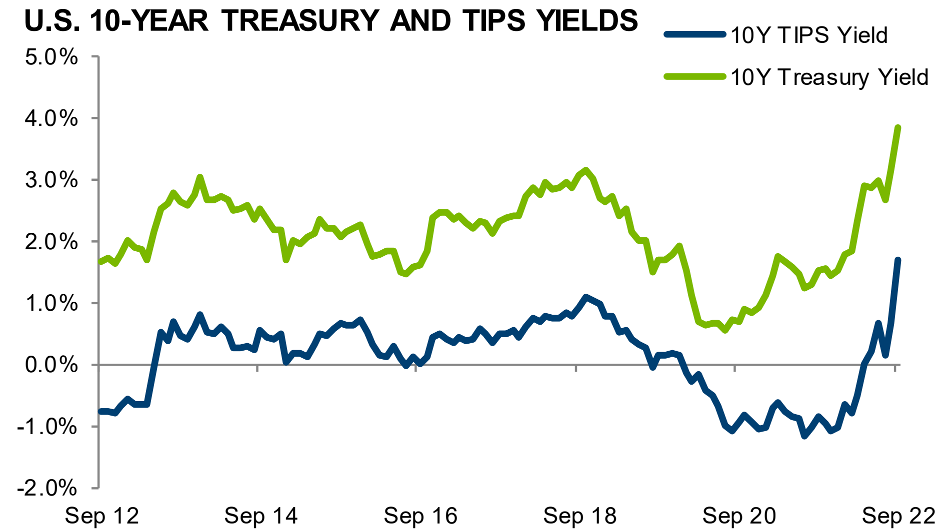


Source: FactSet

U.S. Fixed Income Markets



Source: U.S. Department of Treasury

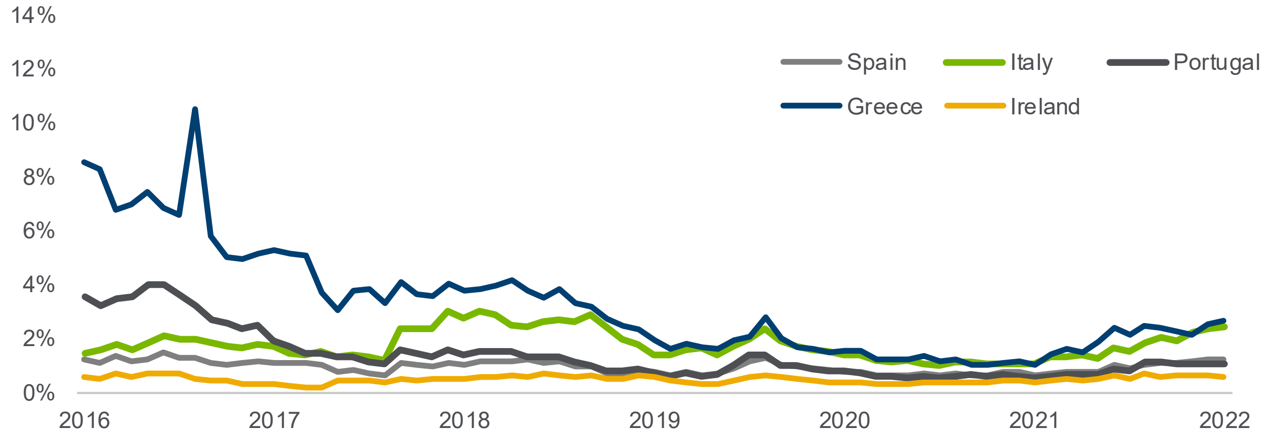


Source: U.S. Department of Treasury

- U.S. Treasury yields saw notable increases across the maturities which moved the yield curve upwards over the quarter. The 10-year Treasury yield was up 85bps to 3.83%, and the 30-year Treasury yield was up 65bps to 3.79% over the quarter.
- The U.S. Federal Reserve (Fed) increased its benchmark interest rate by 150bps to a range of 3-3.25% over the quarter. Fed chair Jerome Powell indicated that monetary policy needs to be “more restrictive or restrictive for longer” to contain soaring inflation and also refused to rule out a recession. According to the median estimate on the Fed dot plot, officials expect the interest rate to reach 4.4% by the end of the year, before peaking at 4.6% next year. The central bank downgraded its U.S. annual GDP growth forecast to 0.2% for 2022 and expects core inflation to fall to 3.1% from 4.5% by the end of next year.
- Inflation slowed down but still remained high historically as food prices continued to accelerate. The U.S. annual consumer price index (CPI) rose 8.3% year on year in August, down from 8.5% recorded in the previous month.
- The 10-year TIPS yield rose by 103bps over the quarter to 1.68%.

European Fixed Income Markets

EUROZONE PERIPHERAL BOND SPREADS (10-YEAR SPREADS OVER GERMAN BUNDS)



Source: FactSet

- European government bond spreads over 10-year German bunds were mixed across the Euro Area. The European Central Bank (ECB) raised its benchmark interest rates by 125bps to 0.75% over the quarter, the highest level since 2011, to tackle surging inflation. The ECB president, Christine Lagarde, signaled several interest rate increases in the coming months to bring inflation down to the bank's target of 2%.
- German government bund yields rose sharply, up 75bps to 2.13% over the quarter.
- Eurozone inflation hit an all-time high of 9.1% over the year to August.

Credit Spreads

Spread (bps)	09/30/2022	06/30/2022	03/31/2022	Quarterly Change (bps)	YTD Change (bps)
U.S. Aggregate	62	55	36	7	26
Long Gov't	1	-1	0	2	1
Long Credit	196	184	130	12	66
Long Gov't/Credit	107	101	74	6	33
MBS	69	46	31	23	38
CMBS	105	101	68	4	37
ABS	53	75	38	-22	15
Corporate	159	155	92	4	67
High Yield	552	569	283	-17	269
Global Emerging Markets	403	404	285	-1	118

Source: FactSet, Bloomberg

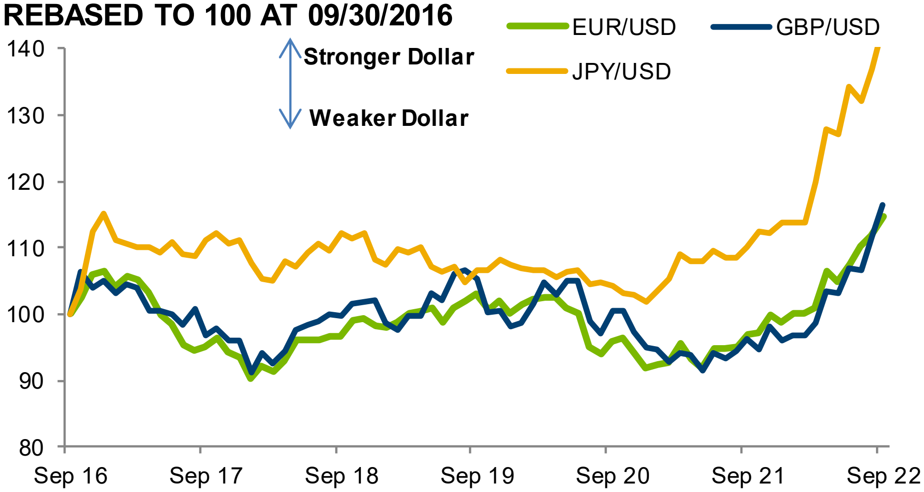
- Credit markets declined from risk-averse sentiment during the quarter, with spreads generally widening.
- MBS and Long Credit spreads widened by 23bps and 12bps respectively while ABS and High Yield spreads narrowed by 22bps and 17bps, respectively.

Currency

TRADE WEIGHTED U.S. DOLLAR INDEX (2006 = 100)

Source: Federal Reserve

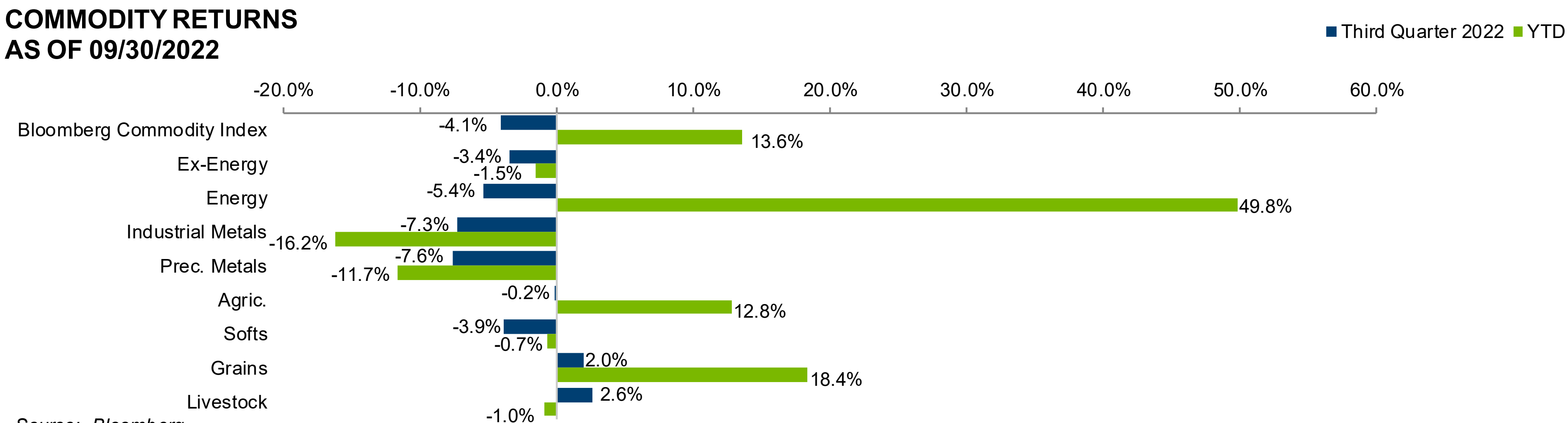
U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY REBASED TO 100 AT 09/30/2016



Source: FactSet

- The U.S. Dollar strengthened against all major currencies over the quarter. On a trade-weighted basis, the U.S. dollar appreciated by 5.4%.
- Sterling depreciated by 8.8% against the U.S. dollar. The Bank of England (BoE) raised its benchmark interest rate by 100bps to 2.25% over the quarter, its highest level since 2008. The BoE now expects the UK economy to contract by 0.1% in Q3 2022 and inflation to fall back in the short term due to the government's energy price guarantee.
- The U.S. dollar appreciated by 6.7% against the Euro.
- The U.S. dollar appreciated by 6.5% against the yen as the Bank of Japan continued to maintain its ultra-loose monetary policy stance as compared to the current monetary tightening stance of other major central banks. The BoJ sold U.S. dollars for the first time since 1998 after the yen hit a low of ¥145.89 against the dollar.

Commodities

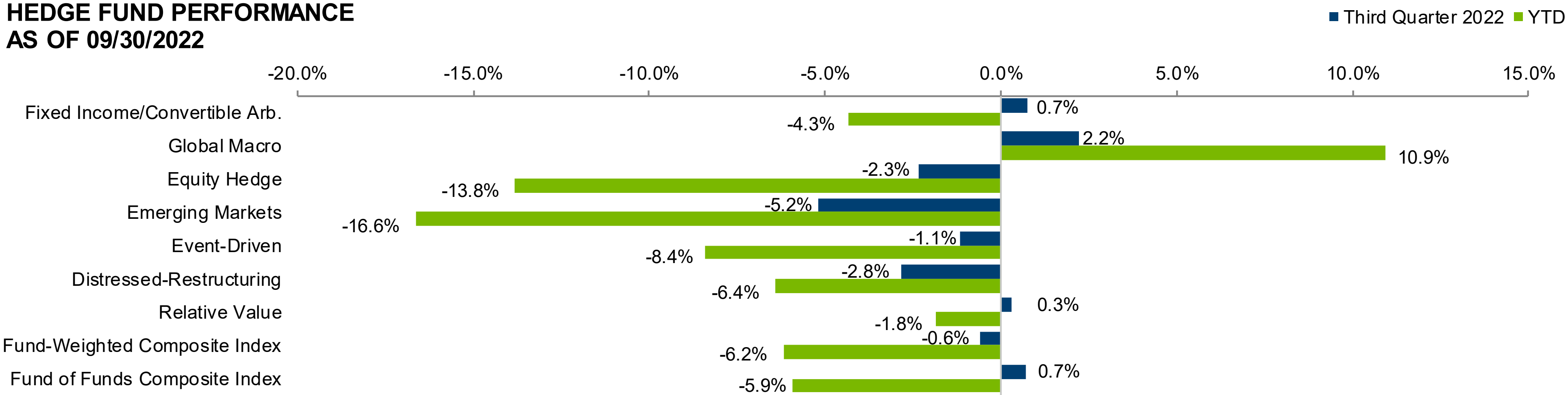


Source: Bloomberg
Note: Softs and Grains are part of the wider Agriculture sector

- Commodity prices fell sharply over the quarter amid growing fears of recession and weak oil demand from China due to Covid-19 lockdowns, with the Bloomberg Commodity Index falling by 4.1% for the quarter.
- The energy sector fell 5.4% over the quarter but has risen by 49.8% on a year-to-date basis. The price of WTI crude oil was down by 24.8% to U.S.$79/BBL.
- Precious Metals fell the most over the quarter at -7.6%.
- Meanwhile, OPEC+ agreed to a 100,000 barrels a day oil production cut from October to lift oil prices.

Hedge Fund Markets Overview

HEDGE FUND PERFORMANCE
AS OF 09/30/2022

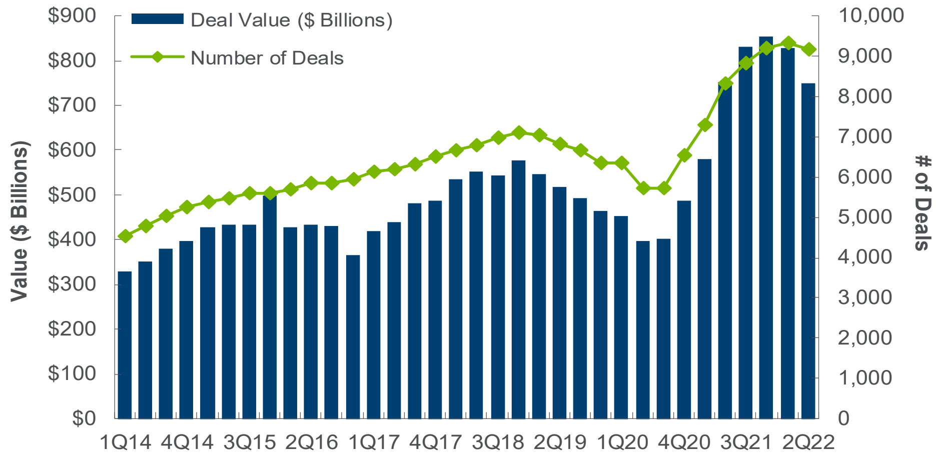


Note: Latest 5 months of HFR data are estimated by HFR and may change in the future.
Source: HFR

- Hedge fund performance was mixed over the quarter.
- The HFRI Fund-Weighted Composite and HFRI Fund of Funds Composite Index produced returns of -0.6% and 0.7% over the quarter, respectively.
- Over the quarter, Global Macro was the best performer with a return of 2.2%.
- Emerging Markets and Distressed-Restructuring strategies were the worst performers with returns of -5.2% and -2.8% respectively.
- On a year-to-date basis, Global Macro has outperformed all other strategies.

Private Equity Market Overview – 2Q 2022

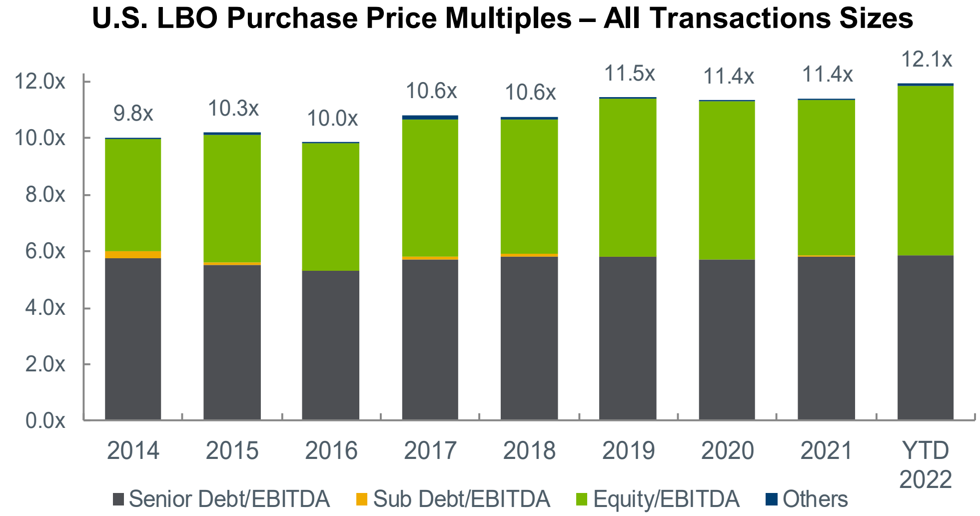
LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

- **Fundraising:** During Q2 2022**,** $278.1 billion was raised by 553 funds, which was down 6.7% by number of funds raised but up 1.5% by capital raised compared to Q1 2022. This represented a decrease of 23.3% on a capital basis compared to Q2 2021. Dry powder stood at $3.0 trillion at the end of the quarter, an increase of 5.5% and 35.2% compared to Q1 2022 and the five-year average, respectively.[1]
- **Buyout:** Global private equity-backed buyout deals totaled $159.2 billion in Q2 2022, which was a decrease on a capital basis of 9.5% compared to Q1 2022, but an increase of 8.2% compared to the five-year quarterly average.[1] During the quarter, the average purchase price multiple for all U.S. LBOs was 11.5x EBITDA, down from Q1 2022's average of 12.2x but up from the five-year average (11.1x). Large cap purchase price multiples stood at 11.5x during the quarter, up compared to full-year 2021's level of 11.2x. The LTM average purchase price multiple across European transactions greater than €1B averaged 11.3x EBITDA at the end of Q2 2022, down from 11.6x at year-end 2021. Purchase prices for transactions of €500M million or more averaged 11.2x EBITDA on an LTM basis, lower than the 11.5x seen at the end of 2021.[2] Globally, exit value totaled $153.1 billion on 503 deals during the quarter, higher than the $118.5 billion across 586 deals during Q1 2022.[1]
- **Venture:** During the quarter, an estimated 3,374 venture-backed transactions totaling $62.3 billion were completed, which was a decrease on a capital and deal count basis over the prior quarter's total of $81.9 billion across 4,467 deals. This was an increase of 30.9% compared to the five-year quarterly average of $47.6 billion. Total U.S. venture-backed exit value totaled approximately $13.1 billion across an estimated 379 completed transactions in Q2 2022, down substantially from $267.6 billion across 447 exits in Q2 2021.[3]
- **Mezzanine:** 7 funds closed on $3.8 billion during the quarter. This was a significant decrease from the prior quarter's total of $11.7 billion raised by 10 funds and a decrease from $7.0 billion raised by 11 funds in Q2 2021. Estimated dry powder was $50.6 billion at the end of Q2 2022, up from $50.0 billion at the end of Q1 2022.[1]

Private Equity Market Overview – 2Q 2022



Source: S&P

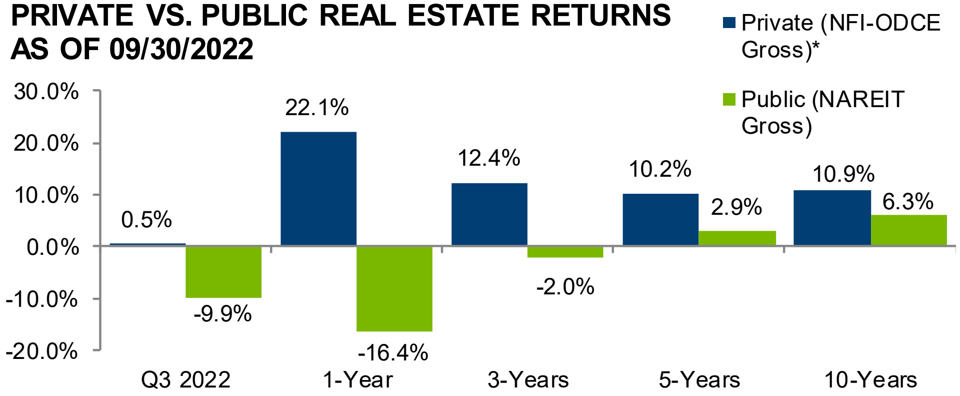
- **Distressed Debt:** The TTM U.S. high-yield default rate was 0.8% as of May 2022, which was up from 0.5% as of March 2022. Fitch predicted the default rate may rise to 1.0% by August. The high-yield default rate is projected to trend higher through 2022 and into 2023.[4] During the quarter, $27.4 billion was raised by 15 funds, up significantly from the $4.4 billion raised by 9 funds during Q1 2022. Dry powder was estimated at $160.3 billion at the end of Q2 2022, which was up 10.3% from Q1 2022. This remained above the five-year annual average level of $130.6 billion.[1]
- **Secondaries:** 18 funds raised $13.8 billion during the quarter, up from the $8.3 billion raised by 14 funds in Q1 2022. This was 26.7% higher than the five-year quarterly average of $10.9 billion. Secondary dry powder was estimated at $131.6 billion at the end of the quarter.[1]
- **Infrastructure:** $50.2 billion of capital was raised by 15 funds in Q2 2022 compared to $72.4 billion of capital raised by 24 partnerships in Q1 2022. At the end of the quarter, dry powder stood at $319.5 billion, up from year-end 2021's total of $282.3 billion. Infrastructure managers completed 544 deals for an aggregate deal value of $104.8 billion in Q2 2022 compared to 634 deals totaling $88.4 billion in Q1 2022.[1]
- **Natural Resources:** Through Q2 2022, an estimated 19 funds closed on $3.4 billion compared to 29 funds totaling $13.0 billion in 2021. Energy and utilities industry managers completed 53 deals totaling $11.6 billion in Q2 2022, compared to $33.0 billion across 55 deals in Q1 2022.[1]

Sources: [1] Preqin [2] Standard & Poor's [3] PwC/CB Insights MoneyTree Report [4] PitchBook/NVCA Venture Monitor [5] Fitch Ratings [6] Thomson Reuters [7] UBS

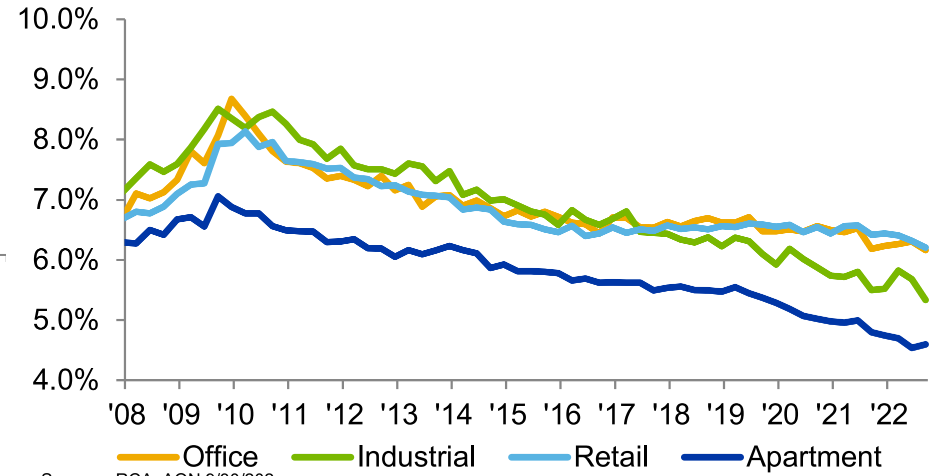
Notes: FY=Fiscal year ended 12/31; YTD=Year to date; LTM=Last 12 months (aka trailing 12 months); PPM=Purchase Price Multiples: Total Purchase Price ÷ EBITDA.

U.S. Commercial Real Estate Markets

PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 09/30/2022



**Third quarter returns are preliminary*
Sources: NCREIF, FactSet



Sources: RCA, AON 9/30/202

- U.S. Core Real Estate returned 0.5%* in third quarter 2022, equating to a 22.1% total gross return year-over-year. The US real estate markets experienced a robust recovery in 2021, although momentum has begun to moderate through the first half of 2022. During the third quarter 2022, REITs continued to decline driven by increasing volatility in the public market and rising interest rates.
- Global property markets, as measured by the FTSE EPRA/NAREIT Developed Real Estate Index, returned -11.4% (USD) in aggregate during the third quarter and experienced a cumulative decline of 22.1% over the trailing 1-year period. REIT market underperformance was driven by North America (-10.2% USD), Asia Pacific (-11.5% USD), and Europe (-21.6% USD). The U.S. REIT markets (FTSE NAREIT Equity REITs Index) returned -9.9% in the third quarter.
- In the third quarter of 2022, U.S. private real estate transaction volumes declined 21% year-over-year to $172 billion. The office sector transaction volumes in the U.S. have notably not recovered to pre pandemic levels. While office sector fundamentals signaled mild improvement, the sector faces significant headwinds in the capital markets, driven by a dramatic increase in the cost of debt.
- Recent action from the Federal Reserve to tighten monetary policy has led to deterioration in the capital markets. Recent bank stress tests have increased capital requirements for borrowers and caused banks to tighten borrowing terms or pause lending. This has led to reduced liquidity levels and increased financing costs across every property type, though there still remains significantly better demand and liquidity for multifamily and industrial compared to office and retail assets.
- In the US, rising mortgage rates coupled with elevated costs for labor and materials have resulted in decreased affordability of new homes and a slowdown in new construction. Most would-be buyers continue to be priced out of the housing market which has caused many to remain renters. Durable rent collections and record low vacancy across the US have prompted continued institutional investment in the multifamily sector.

*Indicates preliminary NFI-ODCE data gross of fees

Notes

1. Preqin
2. Standard & Poors
3. PitchBook/National Venture Capital Association Venture Monitor
4. Fitch Ratings

Notes:

FY: Fiscal year ended 12/31

YTD: Year to date

YE: Year end

LTM: Last twelve months (aka trailing twelve months or TTM)

PPM: Purchase Price Multiples: Total Purchase Price / EBITDA

/bbl: Price per barrel

MMBtu: Price per million British thermal units

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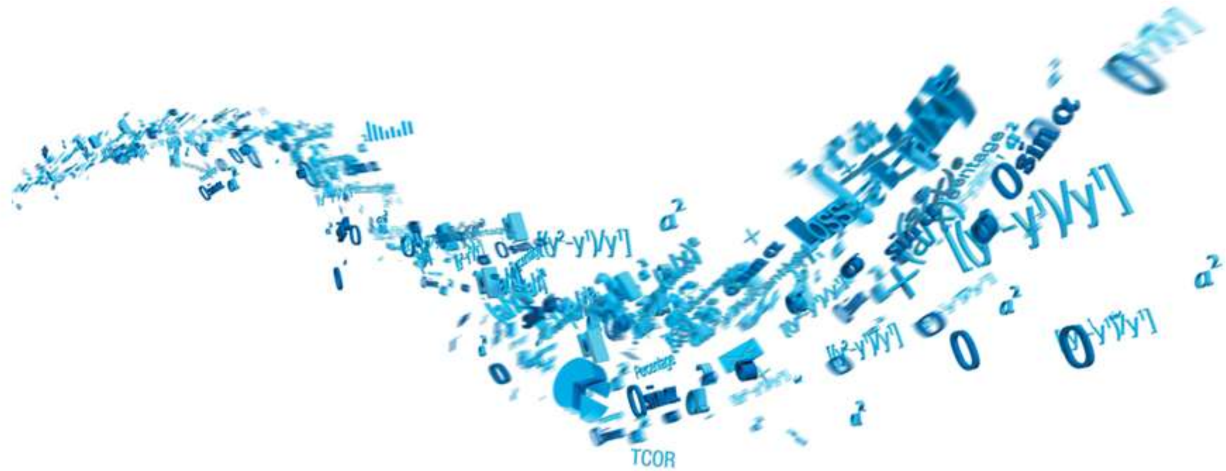


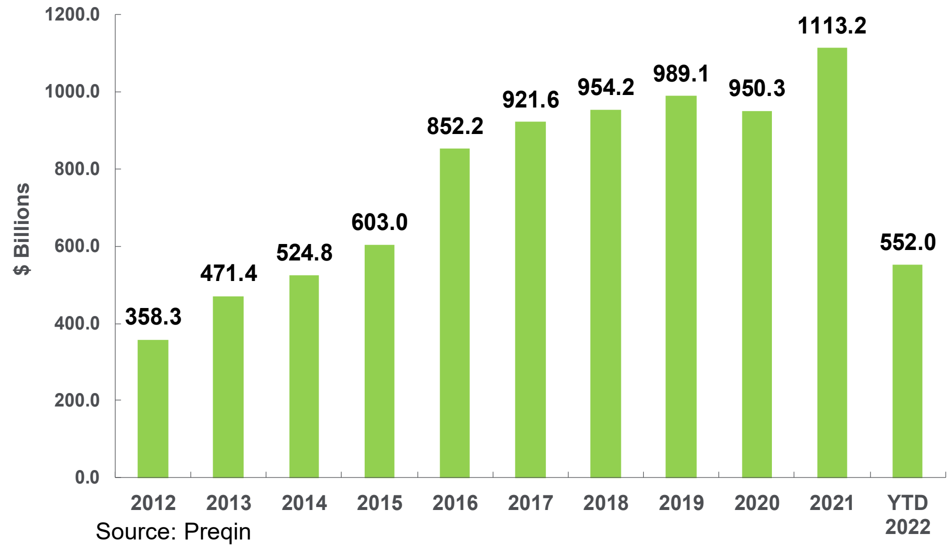
Appendix A:

Global Private Equity Market Overview

2Q 2022

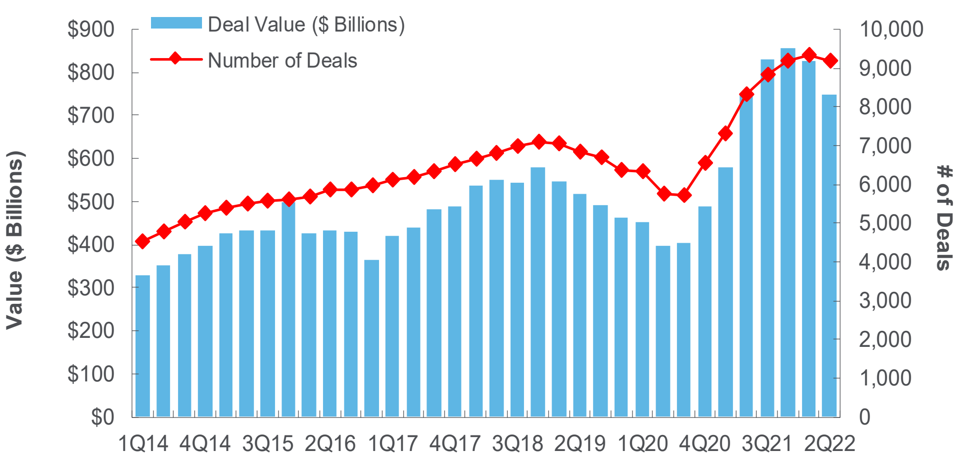
Private Equity Overview

Total Funds Raised



Source: Preqin

LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

Fundraising

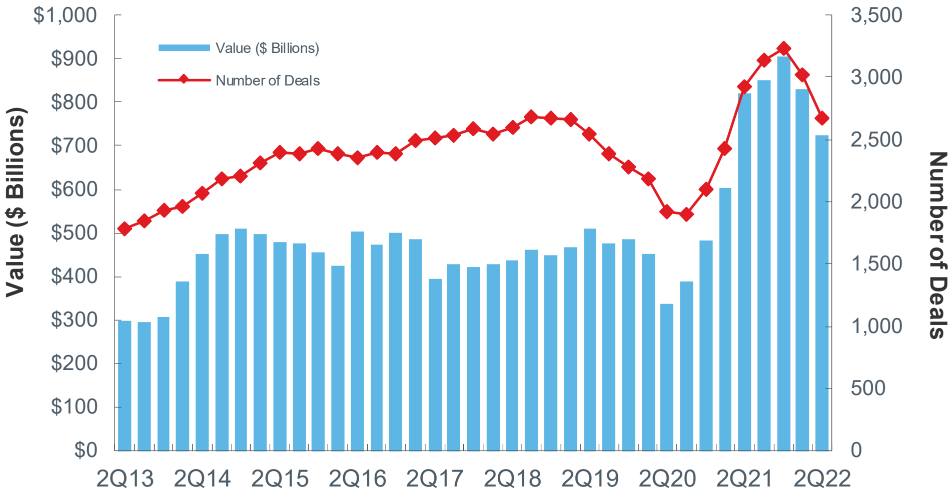
- During Q2 2022, $278.1 billion was raised by 553 funds, which was down 6.7% by number of funds raised but up 1.5% by capital raised compared to Q1 2022. Capital raised through Q2 2022 represented 49.6% of capital raised during calendar year 2021.[1]
  - Q2 2022 fundraising was 23.3% lower, on a capital basis, than capital raised in Q2 2021 and 43.5% lower by number of funds raised.
  - The majority of capital was raised by funds with target geographies in North America, comprising 78.7% of the quarter's total. This was up from 72.7% in Q1 2022. Capital targeted for Europe made up 11.7% of the total funds raised during the quarter, a decrease from 22.4% in Q1 2022. The remainder was attributable to managers targeting Asia and other parts of the world.
- Dry powder stood at $3.0 trillion at the end of the quarter, an increase of 5.5% and 35.2% compared to Q1 2022 and the five-year average, respectively.[1]

Activity

- Global private equity-backed buyout deals totaled $159.2 billion in Q2 2022, which was a decrease on a capital basis of 9.5% compared to Q1 2022.[1]
  - This was 8.2% higher than the five-year quarterly average deal value of $147.1 billion.
  - Average deal size was $509.0 million in Q2 2022. This was up 12.8% compared to Q1 2022 and up 11.4% relative to the five-year quarterly average.
- European sponsored loan issuance decreased to €6.4 during Q2 2022 compared to €15.1 during Q2 2022. This was 64.2% lower than the five-year quarterly average level of €17.8 billion.[3]
- During the quarter, the average purchase price multiple for all U.S. LBOs was 11.5x EBITDA, down from Q1 2022's average of 12.2x but up from the five-year average (11.1x). Large cap purchase price multiples stood at 11.5x during the quarter, up compared to full-year 2021's level of 11.2x.[2]
  - Average purchase price multiples for all U.S. LBOs were 0.4x and 1.2x turns (multiple of EBITDA) above the five- and ten-year average levels, respectively.
- In Europe, the average purchase price multiple across transactions of greater than €500M averaged 11.2x EBITDA on an LTM basis, down from 11.6x at the end of Q4 2021.[3]
- Debt remained broadly available in the U.S.
  - The average leverage for U.S. deals through Q2 2022 was 5.9x compared to the five and ten-year averages of 5.8x and 5.6x, respectively.[3]
  - The amount of debt issued supporting new transactions increased compared to the prior quarter, moving from 78.2% to 80.4%, and was higher than the five-year average of 65.0%.[3]
- In Europe, the average senior debt/EBITDA on an LTM basis ended Q2 2022 at 5.9x, equal to that observed at Q1 2022.

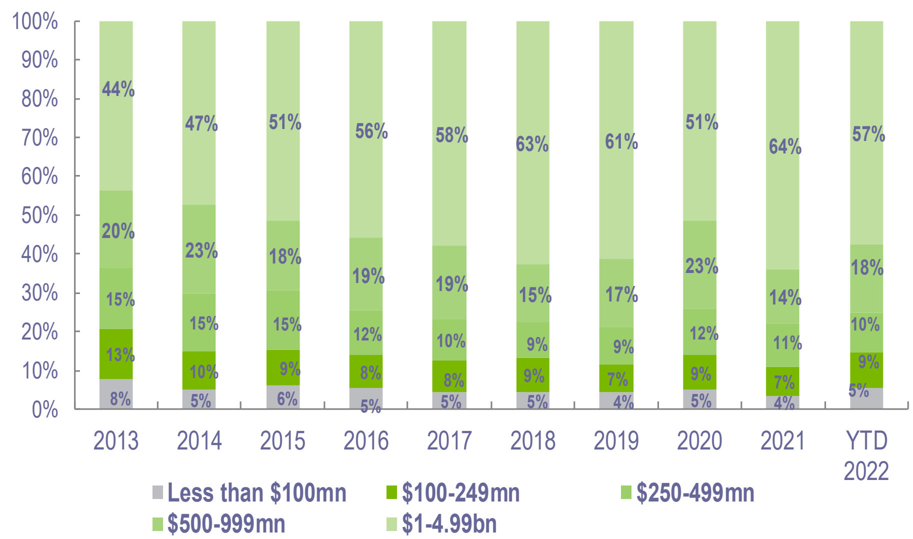
Buyouts / Corporate Finance

LTM PE Exit Volume and Value



Source: Preqin

M&A Deal Value by Deal Size



Source: Preqin

Fundraising

- $114.3 billion was closed on by 135 buyout and growth funds in Q2 2022, compared to $112.3 billion raised by 150 funds in Q1 2022. This was lower than the $173.0 billion raised by 244 funds in Q2 2021.[1]
  - This was slightly higher, on a capital basis, than the five-year quarterly average of $113.8 billon and lower by number of funds (191 funds).
  - Advent International GPE X was the largest fund raised during the quarter, closing on $26.0 billion of commitments.[1]
- Buyout and growth equity dry powder was estimated at $1.3 trillion, up from Q4 2021.[1]
  - An estimated 56.5% of buyout dry powder was targeted for North America, while European dry powder comprised 21.9% and Asia/Rest of World accounted for the remainder.[1]

Activity

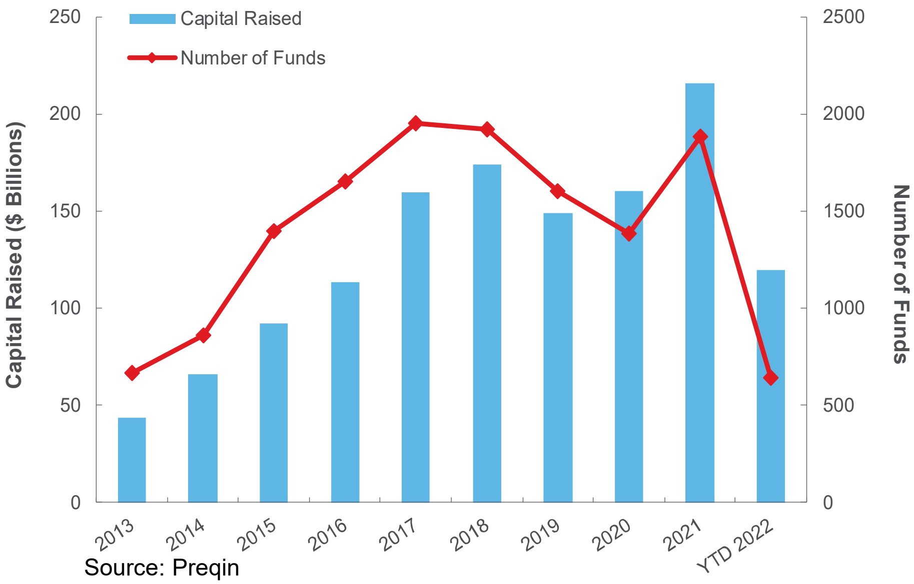
- Global private equity-backed buyout deals totaled $159.2 billion in Q2 2022, which was a decrease on a capital basis of 9.5% compared to Q1 2022 and a decrease of 33.0% compared to Q2 2021.[1]
- Through Q2 2022, deal value accounted for 39.2% of 2021's total and represented 76.1% of deal value during the same period in 2021.[1]
  - In Q2 2022, deals valued at $5.0 billion or greater accounted for an estimated 35.0% of total deal value compared to 43.7% in Q1 2022 and 29.6% in 2021.[1] Deals valued between $1.0 billion to $4.99 billion represented 35.6% of total deal value during the second quarter.[1]
  - By geography, North American deals accounted for the largest percentage of total deal value at an estimated 55.2% in Q2 2022, while Information Technology deals accounted for the largest percentage by industry at 37.8% of total deal value. [1]
- Through Q2 2022, the average purchase price multiple for all U.S. LBOs was 12.1x EBITDA, up from year-end 2021's average of 11.4x and up from the five-year average (11.1x). [3]
  - Large cap purchase price multiples stood at 12.1x, up compared to the full-year 2021 level of 11.2x.[3]
  - In Europe, the average purchase price multiple across transactions of greater than €500M averaged 11.2x EBITDA on an LTM basis, down from 11.6x at the end of Q4 2021 and down from the multiple seen at the end of Q4 2021 (11.6x).
  - The portion of average purchase prices financed by equity for all deals was 49.2% through Q2 2022, down slightly from 50.0% through Q1 2022. This remained above the five- and ten-year average levels of 47.4% and 44.8%, respectively.[3]
- Globally, exit value totaled $153.1 billion on 503 deals during the quarter, higher than the $118.5 billion across 586 deals during Q1 2022. Q2 2022's totals were significantly lower than Q2 2021's totals of $257.5 billion in value across 853 deals.[1]

Opportunity [4]

- Managers targeting the middle and large markets with expertise across business cycles.

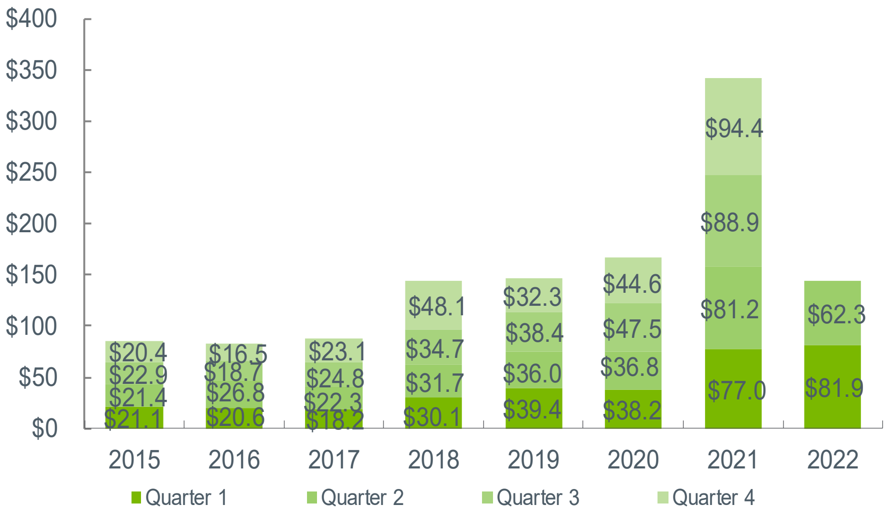
Venture Capital

Venture Capital Fundraising



Source: Preqin

U.S. Venture Capital Investments by Quarter ($B)



Source: Pitchbook / NVCA Venture Monitor

Fundraising

- $57.7 billion of capital was raised by 305 funds in Q2 2022, down from the prior quarter's total of $61.8 billion raised by 335 managers. This was down from Q1 2021's amount of $59.6 billion raised by 514 funds. Through Q2 2022, capital raised represented 55.3% of 2021's total.[1]
  - Q2 2022 fundraising was 29.4% higher, on a capital basis, compared to the five-year quarterly average of $44.5 billion.
  - A16z Crypto IV was the largest fund raised during the quarter, closing on $4.5 billion.
- At the end of Q2 2022, there were an estimated 4,459 funds in market targeting $335.1 billion.[1]
  - Alpha Wave Ventures II was the largest venture fund in market, targeting an estimated $10.0 billion.
  - The majority of funds in market are seeking commitments of $200.0 million or less.
- Dry powder was estimated at $523.0 billion at the end of Q2 2022, up from Q4 2021's total of $438.4 billion.[1]

Activity

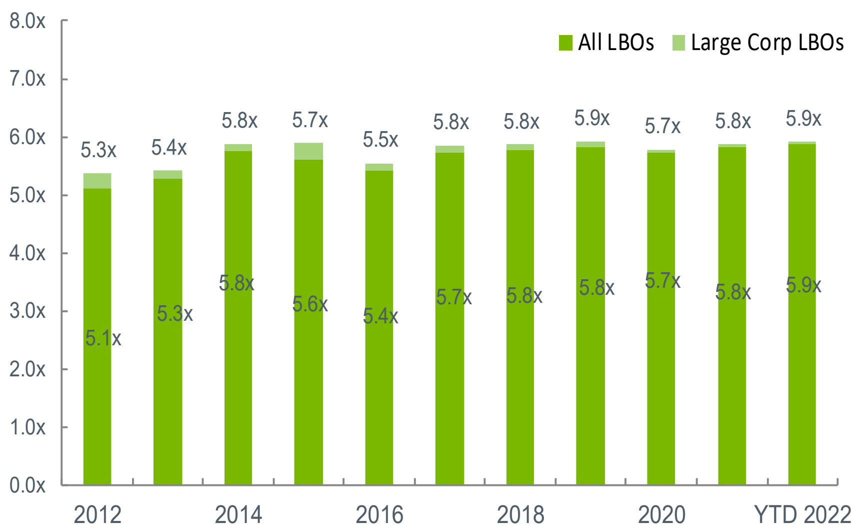
- During the quarter, an estimated 3,374 venture-backed transactions totaling $62.3 billion were completed, which was a decrease on a capital and deal count basis over the prior quarter's total of $81.9 billion across 4,467 deals. This was an increase of 30.9% compared to the five-year quarterly average of $47.6 billion.[7]
  - In Q2 2022, there were 107 U.S.-based deals involving unicorn companies, representing roughly $22.3 billion in deal value. This was down by value and by number compared to Q1 2022, which saw 149 unicorn-related deals close at a deal value of $31.1 billion. Q1 2022 represented the lowest quarter by value and number since Q4 2020.[7]
- At the end of Q2 2022, median pre-money valuations decreased across Seed, Series A, Series B, and Series C. Compared to Q2 2022, Seed transactions decreased to a median pre-money valuation of $17.1 million from $20.0 million, Series A decreased from $79.0 million to $60.0 million, Series B decreased from $285.2 million to $164.4 million, and Series C decreased from $600.0 million to $502.1 million. Series D+ median pre-money valuations increased substantially during the quarter, moving from $1.3 billion to $4.3 billion.[8]
- Total U.S. venture-backed exit value totaled approximately $13.1 billion across an estimated 379 completed transactions in Q2 2022, down substantially from $267.6 billion across 447 exits in Q2 2021. Through Q2 2022, U.S. exit activity represented only 6.3% of 2021's total.[7]
  - The number of U.S. venture-backed initial public offerings decreased over Q1 2022, with only 11 IPOs completed in Q2 2022 at a value of $5.0 billion. 202 exits occurred by acquisition, marking a decrease over the prior quarter's 259, and accounted for only $7.8 billion in exit value.[7]

Opportunity[4]

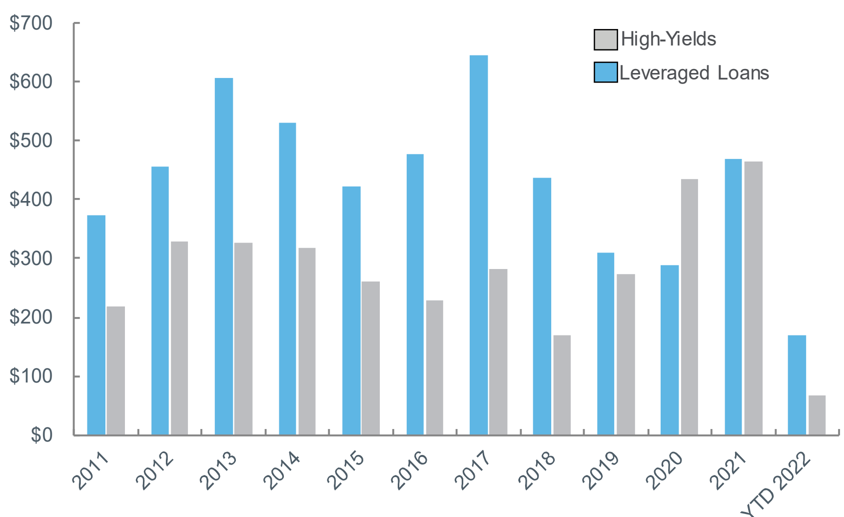
- Early stage continues to be attractive, although we continue to monitor valuations
- Smaller end of growth equity
- Technology sector

Leveraged Loans & Mezzanine

Average Leverage by Deal Size



Debt Issuance ($ Billions)



Sources from top to bottom: S&P, UBS

Leveraged Loans

Fundraising

- New CLO issuance totaled $70.0 billion through Q2 2022, an increase from the $63.1 billion seen through Q2 2021.[2]
- High-yield debt issuance totaled $67.9 billion through Q2 2022. 2022's YTD total is 77.2% less than the same period's total of $298.3 billion in 2021.[2]
- Through Q2 2022, leveraged loan mutual fund net flows ended at a net inflow of $12.9 billion.[2]

Activity

- Leverage for all U.S. LBO transactions through Q2 was 5.9x, equal to 2021's leverage level. Leverage continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was 5.9x through the quarter, also equal to year-end 2021.[3]
- Through Q2 2022, institutional leveraged loan issuances totaled $168.3 billion, 49.1% less than the $330.3 billion issued in the same period during 2021.[2]
- 80.4% of new leveraged loans were used to support M&A and growth activity through Q2 2022, up from 61.9% in Q4 2021. This was above the five-year average of 65.0%.[3]
- European sponsored loan issuance decreased to €6.4 during Q2 2022 compared to €15.1 during Q2 2022. This was 64.2% lower than the five-year quarterly average level of €17.8 billion.[3]

Opportunity [4]

- Funds with the ability to source deals directly and the capacity to scale for large transactions (both sponsored and non-sponsored)
- Funds with an extensive track record, experience through prior credit cycles, and staff with workout experience

Mezzanine

Fundraising

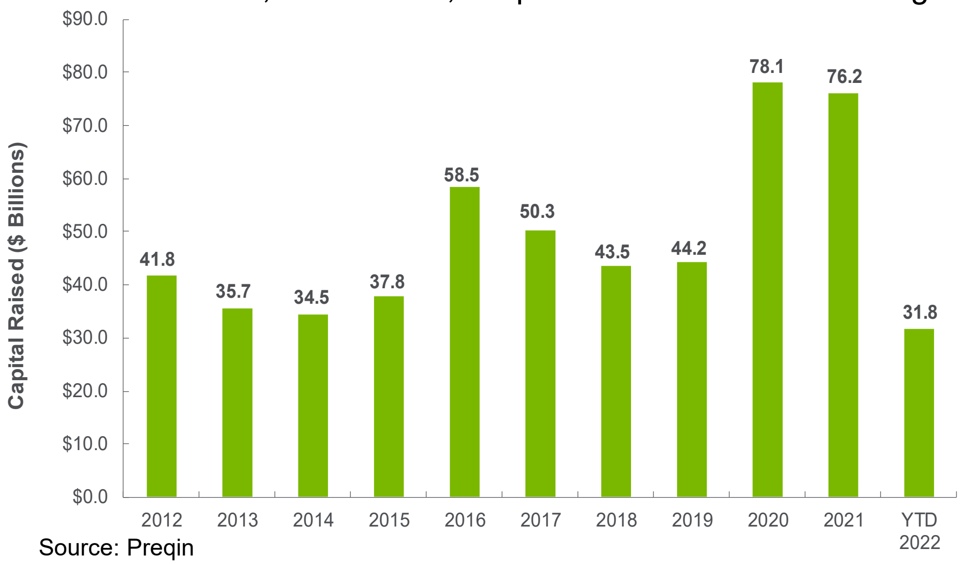
- 7 funds closed on $3.8 billion during the quarter. This was a significant decrease from the prior quarter's total of $11.7 billion raised by 10 funds and a decrease from $7.0 billion raised by 11 funds in Q2 2021.[1]
- Estimated dry powder was $50.6 billion at the end of Q2 2022, up from $50.0 billion at the end of Q1 2022. [1]
- An estimated 101 funds were in market targeting $56.8 billion of commitments. GS Mezzanine Partners VIII is the largest fund in market targeting commitments of $12.0 billion.[1]

Opportunity [4]

- Funds with the capacity to scale for large sponsored deals

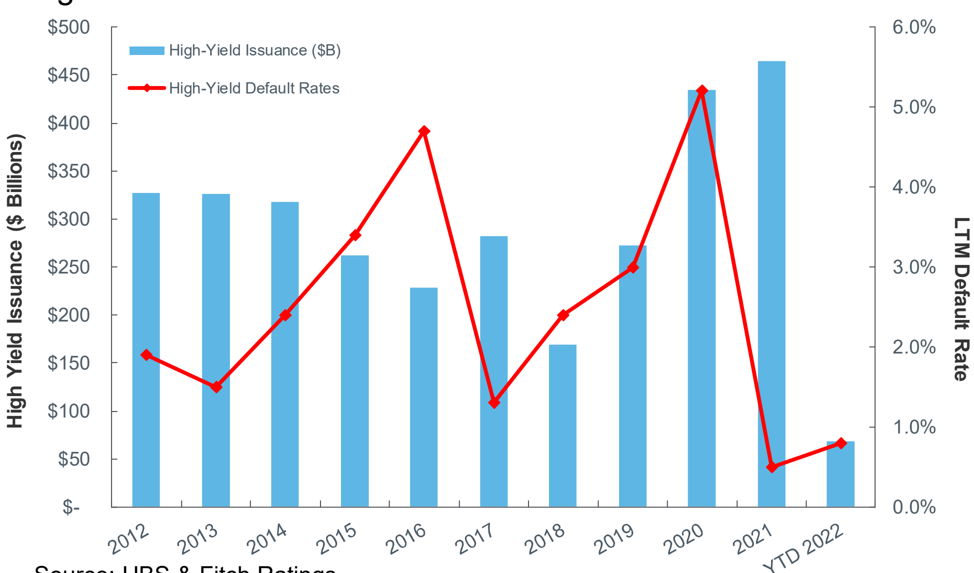
Distressed Private Markets

Distressed Debt, Turnaround, & Special Situations Fundraising



Source: Preqin

High-Yield Bond Volume vs Default Rates



Source: UBS & Fitch Ratings

Fundraising

- During the quarter, $24.7 billion was raised by 15 funds, up significantly from the $4.4 billion raised by 9 funds during Q1 2022. Distressed funds have raised 41.7% of 2021's total through Q2 2022.[1]
  - Q2 2022's fundraising was 91.6% higher than the five-year quarterly average.
  - Capital raised in Q2 2022 represented an increase compared to the $16.1 billion raised in Q2 2021.
  - Clearlake Capital Partners VII was the largest fund closed during the quarter, closing on $14.1 billion.
- Dry powder was estimated at $160.3 billion at the end of Q2 2022, which was up 10.3% from Q1 2022. This remained above the five-year annual average level of $130.6 billion.[1]
- Roughly 191 funds were in the market at the end of Q2 2022 seeking $80.5 billion in capital commitments.[1]
  - Special situations managers were targeting the most capital, seeking an aggregate $49.6 billion, followed by distressed debt managers at $28.4 billion.
  - KKR Opportunities Fund II was the largest fund in market with a target fund size of $5.0 billion.

Activity

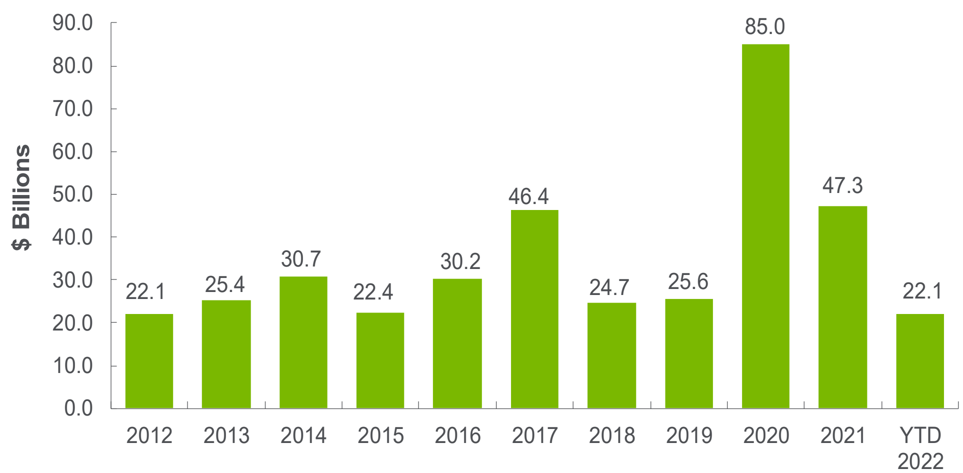
- The TTM U.S. high-yield default rate was 0.8% as of May 2022, which was up from 0.5% as of March 2022. Fitch predicted the default rate may rise to 1.0% by August. The high-yield default rate is projected to trend higher through 2022 and into 2023.[6]
- The market dislocation caused by current macroeconomic factors is expected to supply additional distressed opportunities in the next several months.

Opportunity[4]

- Funds capable of performing operational turnarounds
- Funds with the flexibility to invest globally

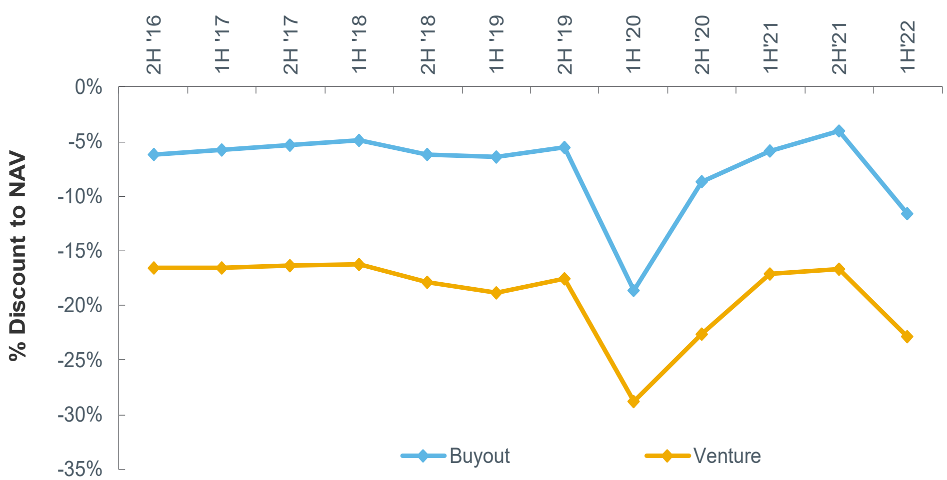
Secondaries

Secondary Fundraising



Source: Preqin

Secondary Pricing



Source: UBS

Fundraising

- 18 funds raised $13.8 billion during the quarter, up from the $8.3 billion raised by 14 funds in Q1 2022. This was 26.7% higher than the five-year quarterly average of $10.9 billion.[1]
  - ICG Strategic Equity Fund IV was the largest fund raised during the quarter, closing on $5.3 billion.
- At the end of Q2 2022, there were an estimated 125 secondary and direct secondary funds in market targeting roughly $86.5 billion. The majority of secondary funds are targeting North American investments.[1]
  - Lexington Capital Partners X and ASF IX are the largest funds being raised, each seeking $15.0 billion in commitments.[1]

Activity

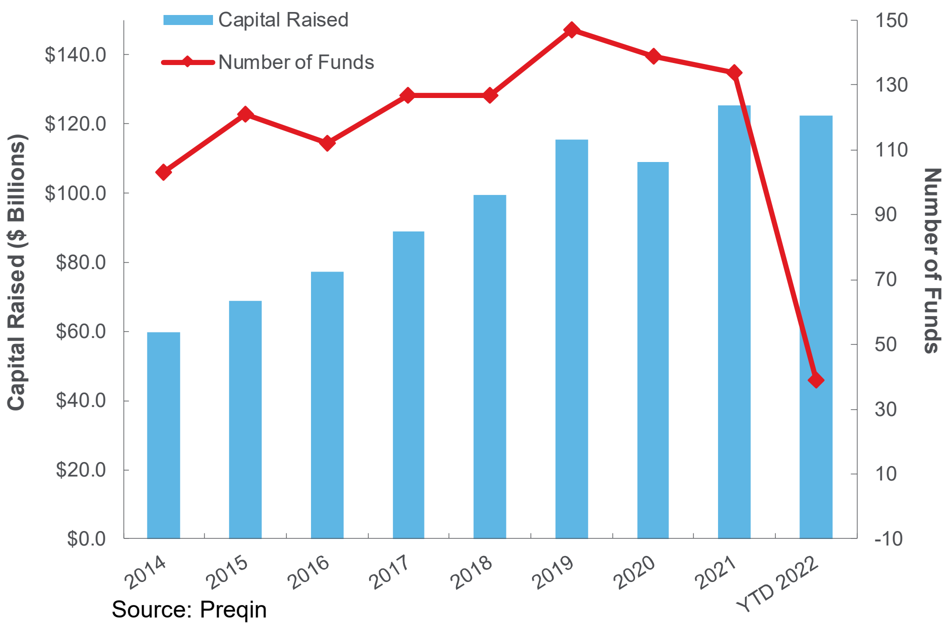
- The market continues to have participation from a broad base of buyers and sellers with opportunistic selling activity being seen from public and private pensions, financial institutions and insurance companies. [2]
- Transaction fund leverage and deferred payment structures continue to be prevalent and are used as a means to improve pricing and deal returns in an increasingly competitive environment.[2]
- According to UBS, the number of GP-led situations brought to market continued to increase with varying quality and strategies, along with more household GP names utilizing the secondary market. This is expected to continue throughout 2022.[2]
- Campbell Lutyens expects LP-led secondary sales to grow even stronger as more investors use these transactions to crystalize gains, trim their GP rosters, and manage balance sheet risk.[15] According to Evercore, secondary deals involving LP positions increased to 51% of total deal volume as GP-related deals saw a meaningful contraction.[14]
- Recent market volatility may create a widening gap over the course of the year between bid and ask prices for secondary transactions.[15]
- Given the current public market conditions, buyers are wanting to purchase assets based off NAVs that reflect the volatility.[2]
- The average discount rate for all private equity sectors finished the quarter at 13.6%, a larger discount compared to the 11.4% discount seen at the end of Q1 2022. The average buyout pricing discount ended the quarter at 11.6%, while the average venture discount increased to 22.9%.[2]

Opportunity [4]

- Funds that are able to execute complex and structured transactions
- Niche strategies

Infrastructure

Global Infrastructure Fundraising



Source: Preqin

Number of Deals Completed

Source: Preqin

Fundraising

- $50.2 billion of capital was raised by 15 funds in Q2 2022 compared to $72.4 billion of capital raised by 24 partnerships in Q1 2022. Through Q2 2022, infrastructure funds have raised 97.9% of 2021's total.[1]
  - ISQ Global Infrastructure Fund III was the largest fund raised during the quarter, closing on $15.3 billion.[1]
- As of the end of Q2 2022, there were an estimated 382 funds in the market seeking roughly $220.0 billion.[1]
  - Brookfield Infrastructure Fund V was the largest fund in market and was seeking commitments of $25.0 billion.
- At the end of the quarter, dry powder stood at $319.5 billion, up from year-end 2021's total of $282.3 billion.[1]
- Concerns surrounding the relative availability and pricing of assets remain. Fundraising continues to be very competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class persists despite the record levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

Activity

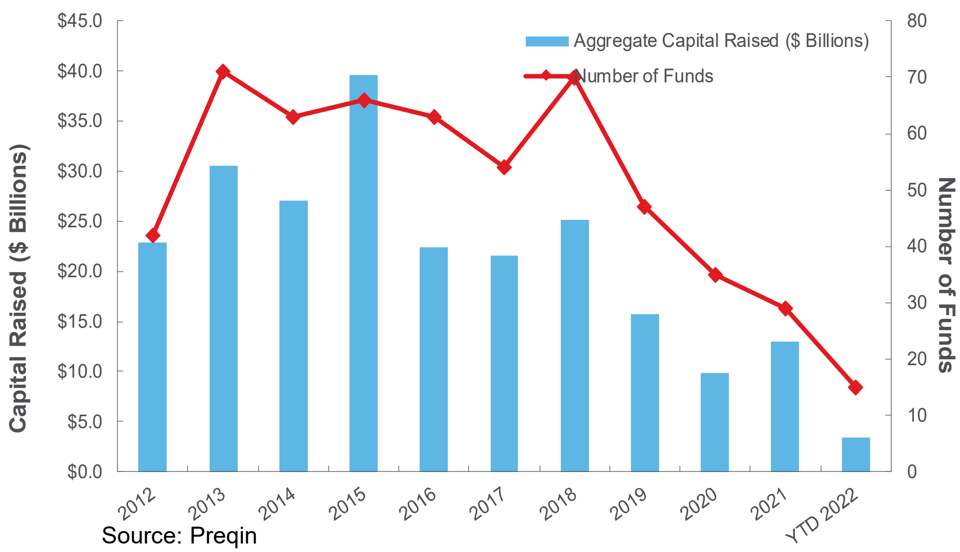
- Infrastructure managers completed 544 deals for an aggregate deal value of $104.8 billion in Q2 2022 compared to 634 deals totaling $88.4 billion in Q1 2022.[1]
  - By region, Europe saw the largest number of deals, with 39.9% of deals being completed in the region, followed by North America at 29.8%. Asia amassed 13.0% of activity during the quarter.
  - Renewable energy was the dominant industry during the quarter making up 51.1% of transactions, followed by the transportation sector which accounted for 13.6% of deals. The conventional energy sector accounted for 11.6% of deals during the second quarter.[1]

Opportunity [4]

- Mid-market core+ and value-add infrastructure as well as a platform investing approach continue to offer the best relative value
- Assess funds with pre-specified assets with caution due to possible lag in and uncertainty around valuation impact
- Blind-pool funds may be better positioned to take advantage of the market dislocation in certain sub-sectors, however careful review of such strategies is required
- Build-to-core greenfield strategies particularly in the social / PPP infrastructure space offer a premium for investors willing to take on construction / development risk

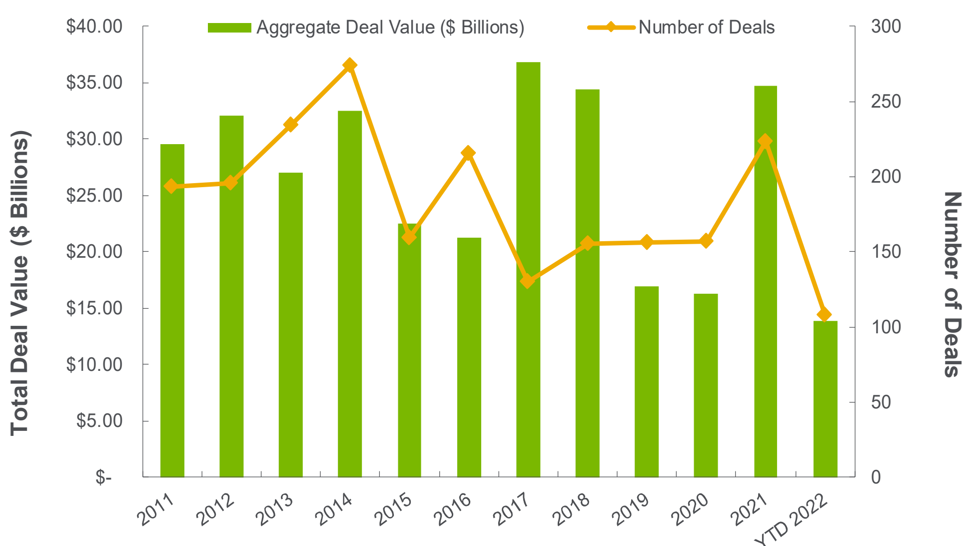
Natural Resources

Natural Resources Fundraising



Source: Preqin

Energy & Utilities Deal Activity



Source: Preqin

Fundraising

- During Q2 2022, an estimated 6 funds closed on $1.3 billion compared to 9 funds totaling $2.1 billion in Q1 2022.[1]
- Dry powder stood at roughly $38.0 billion at the end of Q2 2022, which was 6.7% lower than 4Q 2021's level of $40.8 billion and down from the five-year average level by 25.2%.[1]

Activity

- Energy and utilities industry managers completed 53 deals totaling $11.6 billion in Q2 2022, compared to $2.3 billion across 55 deals in Q1 2022.
- Crude oil prices increased during the quarter.
  - WTI crude oil prices increased 5.8% during the quarter to $114.84 per bbl. This was also an increase of 60.9% compared to Q2 2021.[10]
  - Brent crude oil prices ended the quarter at $122.71/bbl, up 4.7% compared to the prior quarter, and up 67.7% from Q2 2021.[10]
- Natural gas prices (Henry Hub) finished Q2 2022 at $7.70 per MMBtu, which was up 57.1% from the prior quarter and up 136.2% from Q2 2021.[10]
- A total of 750 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of the quarter. This was up by 11.4% from the prior quarter and up 57.9% over Q2 2021.[13]
  - Crude oil rigs represented 79.3% of the total rigs in operation. 58.5% of the 595 active oil rigs were in the Permian basin.
  - At the end of Q2 2022, 44.4% and 24.8% of natural gas rigs were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the quarter at $130.75 per dry metric ton, down from $152.07 at the end of Q2 2022.[10]

Opportunity [4]

- Acquire and exploit existing oil and gas strategies over early-stage exploration in core U.S. and Canadian basins
- Select midstream opportunities

Notes

1. Preqin
2. UBS
3. Standard & Poor's
4. Aon Investments USA Inc.
5. Moody's
6. Fitch Ratings
7. PitchBook/National Venture Capital Association Venture Monitor
8. Cooley Venture Financing Report
9. U.S. Energy Information Administration
10. Bloomberg
11. Setter Capital Volume Report: Secondary Market
12. KPMG and CB Insights
13. Baker Hughes
14. Evercore
15. Campbell Lyutens

Notes:
FY: Fiscal year ended 12/31
YTD: Year to date
YE: Year end
LTM: Last twelve months (aka trailing twelve months or TTM)
PPM: Purchase Price Multiples: Total Purchase Price / EBITDA
/bbl: Price per barrel
MMBtu: Price per million British thermal units

Appendix B:

Real Estate Market Update

2Q 2022

United States Real Estate Market Update (2Q22)

General

- Townsend witnessed a robust recovery across the U.S. economy and U.S. real estate markets in 2021 but begun to moderate in 2022. The post-pandemic economic recovery has remained generally on track; however, an array of headwinds have emerged including rising interest rates, persistent inflation, various geopolitical events, and widespread global supply chain struggles. In first half 2022, tightening federal reserve policy and market volatility sent public markets plummeting. The S&P 500 produced a gross total return of -20.6% during the first six months of the year. The MSCI US REIT index also continued its cool off following a strong 2021, posting a gross second quarter return of -17.0%.

- Based on some definitions, the U.S. entered into a recession during second quarter 2022, as GDP decreased for a second straight quarter, at an annualized rate of 0.9%. Slowing economic growth is attributable to decreased federal, state and government spending, and decreased exports. As a result of the atrocities of the Russian-Ukraine war, prolonged lockdowns in Shanghai, and a rise in protectionist measures, commodity pricing has skyrocketed, in lockstep with inflation. Federal reserve officials remain committed to taming inflation and reducing the central bank's balance sheet, approving a 75-bps hike during its June session.

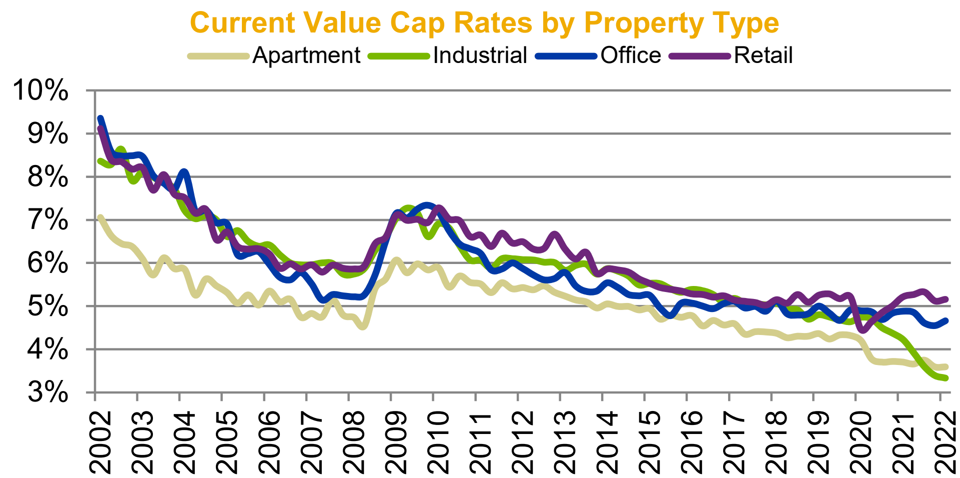
Commercial Real Estate

- Through the second quarter of 2022, total CRE transaction activity for the quarter was up 17% YoY, with annual transaction activity up 86% YoY. In 2Q22, U.S. private real estate deal volumes across all sectors remained strong but moderated from a historic high witnessed in fourth quarter 2021. Transaction volume has been the strongest in the apartment and industrial sectors.

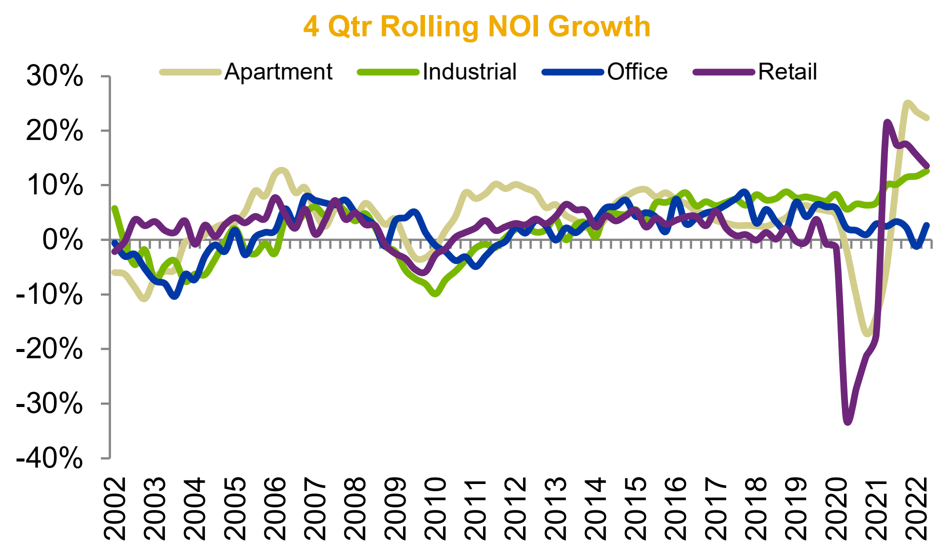
- Transaction cap rates (4.6%) compressed during the quarter, to the tune of 35 bps. This decrease comes after a +74 bps quarter-over-quarter increase in 1Q22. Current valuation cap rates increased for retail (+21 bps) and office (+5 bps), while the industrial (-15 bps) and apartment (-2 bps) property sectors experienced slight cap rate compression.

- NOI growth has substantially diverged between property sectors due to the impacts of COVID-19. Retail NOI has expanded substantially (+14%) YoY as the sector continues to recover from decreased rent collections and retailer shutdowns. Apartment sector fundamentals remain strong, as many millennials seek out a more opportune time to purchase their first home. Apartment NOI expanded (+22%) YoY.

- 10-year treasury bond yields soared to nearly 3.5% intra-quarter; however, closed the quarter at 3.0% an increase of 70 basis points quarter-over-quarter. As economists expected rates have moved modestly higher throughout 2022.



Source: NCREIF



Source: NCREIF

Sources: Bureau of Economic Analysis, U.S. Census Bureau, St. Louis Fed, NCREIF, Real Capital Analytics, Bloomberg LP., Preqin.

United States Property Matrix (2Q22)

INDUSTRIAL

- In 2Q22, industrial properties were the highest returning sector at 5.9% and outperformed the NPI by 263 bps.
- Transaction volumes decreased to $35 billion in the second quarter of the year, resulting in an 8% increase year-over-year. Individual asset sales increased 4% year-over-year, while portfolio purchases turned in a year-over-year volume increase of 25%. At $35 billion, the industrial sector decreased by $4 billion quarter-over-quarter.
- The industrial sector turned in NOI growth of 12.6% over the past year. NOI continues to reach all time highs for the sector.
- Vacancy decreased by 144 bps year-over-year to 1.7%. Vacancy in the sector decreased 14 bps from last quarter, reaching all-time historic lows. E-commerce continues to drive demand across the sector.
- Industrial cap rates compressed approximately 89 bps from a year ago, to 3.3%. Industrial overall fundamentals still top all property sectors.

MULTIFAMILY

- The apartment sector delivered a 3.9% return during the quarter, underperforming the NPI by 63 bps.
- Transaction volume in the second quarter of 2022 increased to $86 billion, resulting in an increase of 42% year-over-year. Transaction volume for the sector is near historical levels. This volume continues to make multifamily the most actively traded sector for the eighteenth straight quarter.
- Cap rates remained steady at 3.6% quarter-over-quarter, decreasing 11 bps year-over-year. Multifamily cap rates remain at the lowest level observed in years, driven by continued increases in valuation.
- The multifamily sector saw increasing vacancy rates throughout the entirety of 2020 due to the global pandemic. Through 2021, the sector appeared to have shaken that trend although vacancy rates remained steady during the last 3 quarters. Vacancy rates slightly decreased by 22 bps quarter-over-quarter and are back to slightly below pre-pandemic levels. The aging millennials have begun shifting their desires to suburban living, but continued home price appreciation has deterred the full effect of this migratory trend.

OFFICE

- The office sector returned 0.6% in 2Q22, 266 bps below the NPI return over the period.
- Transaction volumes decreased by 9% year-over-year in the second quarter. Transaction volume equated to $25 billion for the quarter, a decrease of $6 billion quarter-over-quarter. Office transaction levels have regressed from 1Q22 but not quite to levels seen during the COVID-19 pandemic.
- Office sector vacancy rates have expanded since the beginning of the pandemic due to work from home orders and uncertainty revolving around the future of office space. Office continues to be the highest vacancy property type at 12.9%, increasing 6 bps from last quarter.
- NOI growth in the office sector expanded quarter-over-quarter by 148 bps and appears to be in the midst of its recovery to pre-pandemic levels.
- Office cap rates compressed from a year ago, sitting at approximately 4.6%. Office-using job growth was stunted significantly through out 2020 due to work from home orders. Though we are observing a slow but steady flow back to in-office work, there is still uncertainty in the sector as many companies remain hesitant.

RETAIL

- As of 2Q22, the retail sector delivered a quarterly return of 1.7%, underperforming 155 bps below the NPI.
- Transaction volumes totaled $23 billion in the second quarter, increasing 46% year-over-year. Single asset transactions accounted for just over 81% of all sales volume for the quarter.
- Cap rates have compressed approximately 6 bps within the sector over the last year, to 5.2%. Current valuation cap rates compressed quarter-over-quarter by 4 bps due to valuation adjustments made across the sector in general.
- NOI growth slightly decreased, 2.0% over the last year. Retail has begun its slow recovery as vaccine rollouts have allowed a large portion of store nationally to open and operate safely.
- Retail vacancy rates decreased over the quarter by 35 bps, and down 102 bps over the past year to 8.7%. Many big box stores have closed as the need for retail space shrinks, translating to a negative outlook for rent growth. Paired with the global economic crisis, which has had a significant negative impact on this sector.

Sources: Real Capital Analytics, Green Street, NCREIF

Global Real Estate Market Update (2Q22)

TOWNSEND® GROUP
an Aon company

- Significant headwinds have materialized in rising inflation, energy costs, and interest rates significantly impacting the global investment landscape in the first half of 2022. Rising debt costs have seen the number of traded properties recede, impacting pricing and bidding dynamics around the global market. This has culminated in the impending threat of a recession in some of the world's largest economies.

- Tangible effects of these challenges can be witnessed in the EMEA region, with deal volume falling 26% YOY. European markets, specifically Germany, have experienced liquidity issues with their economy being vulnerable due to its dependence on Russian energy supplies and global export markets. The UK market has remained steadfast, with demand remaining strong in the multifamily and industrial sector sustaining deal flow.

- That withstanding, the U.S. was at the forefront of this growth in deal volume improving 27% YOY reaching $180.5B. This was the third best recorded quarter based on transactions $10M or more. This was led by its multifamily sector, with rising demand in the Sun Belt Region resulting in record deal volumes and double-digit price growth.

- Inversely, the Asia Pacific market had an 8% decline YOY. A major proponent was China's continued widespread lockdowns in major cities to quell the spread of Covid-19 which has hampered deal activity (just $1B in spent on income producing properties in April 2022, lowest since 2018).

- The hotel sector continued its strong recovery in Q2, despite global economic turbulence and labor shortages across travel/tourism industries. With consumers shifting their priories towards experiences rather than material goods this favors leisure and resort destinations. Performance in luxury hotels across major European markets (Paris, Barcelona, London, Milan) is aiding in expediting the regions recovery. Asian markets with very little border or quarantine restrictions such as Bali and the Maldives have become more in favor.

- In Q2 demand for logistics and industrial space slowed year-over-year across all three regions. However, transaction activity was hampered by a lack of available supply in many markets and Q2 2021 leasing volumes were very high. Demand this year has become more broad-based with supply chain restructuring increasing demand from Logistics & Distribution and 3PL operators.

- Vacancy rates have remained broadly stable across the regions, and in the case of both the U.S. and Europe is at all-time lows. In the short term, high inflation should subdue consumer spending through the end of the year which may delay expansion plans for online retailers, with grocery delivery likely to be the only online sector that will continue to expand in the immediate future.

Global Total Commercial Real Estate Volume - 2021 - 2022

$ US Billions	Q2 2022	Q2 2021	% Change Q2 22 - Q2 21	H1 2022	H1 2021	% Change H1 22 - H2 21
Americas	181	142	27%	355	238	49%
EMEA	65	89	-27%	154	167	-8%
Asia Pacific	212	231	-8%	347	377	-8%
Total	458	462	-1%	856	783	9%

Source: Real Capital Analytics, Inc., Q2' 22

Global Outlook - GDP (Real) Growth % pa, 2022-2024

	2022	2023	2024
Global	**5.9**	**4.3**	**3.6**
Asia Pacific	**4.4**	**4.6**	**4.4**
Australia	4.1	2.8	2.5
China	4.5	5.2	5.1
India	8.7	7.3	6.5
Japan	1.8	1.8	1.1
North America	**2.7**	**2.0**	**1.9**
US	2.6	2.0	1.9
Middle East	**4.1**	**4.4**	**4.5**
European Union	**3.0**	**2.1**	**2.0**
France	2.7	1.8	1.7
Germany	1.8	2.3	2.0
UK	3.7	1.2	1.7

Source: Bloomberg

Sources: Jones Lang LaSalle Research, Cushman & Wakefield, Real Capital Analytics, Inc., CBRE

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REPORT

Meketa Capital Markets Outlook & Risk Metrics

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Capital Markets Outlook & Risk Metrics

As of September 30, 2022

Capital Markets Outlook

Markets

→ Global equities and bonds sold-off in September reflecting the deteriorating economic outlook as major central banks hiked interest rates, effectively threatening to tip the global economy into recession in order to suppress inflationary pressures.

→ The Russian-Ukrainian war continued to drive natural gas prices higher, and incremental political escalation of hostilities between Russia and the west cumulated in considerable damage to the vital Nordstream 1 pipeline.

→ China stands out in its efforts to ease policy to support the floundering real estate sector and bolster domestic demand as it has been forced to slow the rapid depreciation of the renminbi against major trade partners. Despite these efforts, they have yet to boost domestic spending or resolve the real estate crisis.

→ US equities posted negative returns in September but outperformed developed non-US and emerging market indices, and value outperformed growth in most regions.

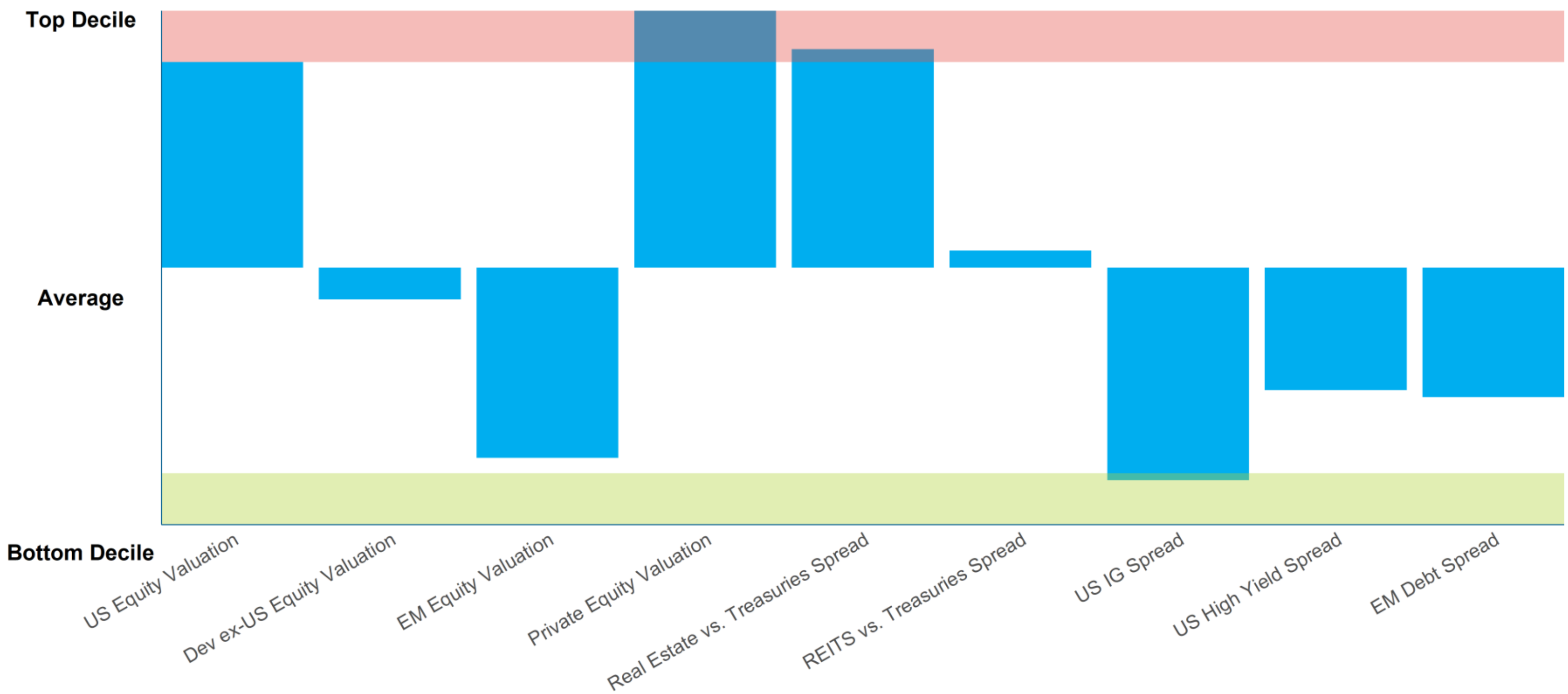
→ Broad emerging market equities outperformed Chinese equities. Buffeted by a strong US dollar, rising inflation, and falling global growth, investors repriced equities based on deteriorating fundamentals.

→ The UK suffered a brief but severe dislocation in its bond market requiring the new government to retreat from its fiscal reform package and for the Bank of England to intervene in the bond markets.

→ US fixed income markets posted losses, although high yield and short-duration TIPS fared better than the Bloomberg Aggregate.

→ After benefiting from higher commodity prices earlier in the year, commodities and public natural resources suffered negative returns as deteriorating economic growth outlook repriced estimates for future demand for energy, industrial metals, and lumber.

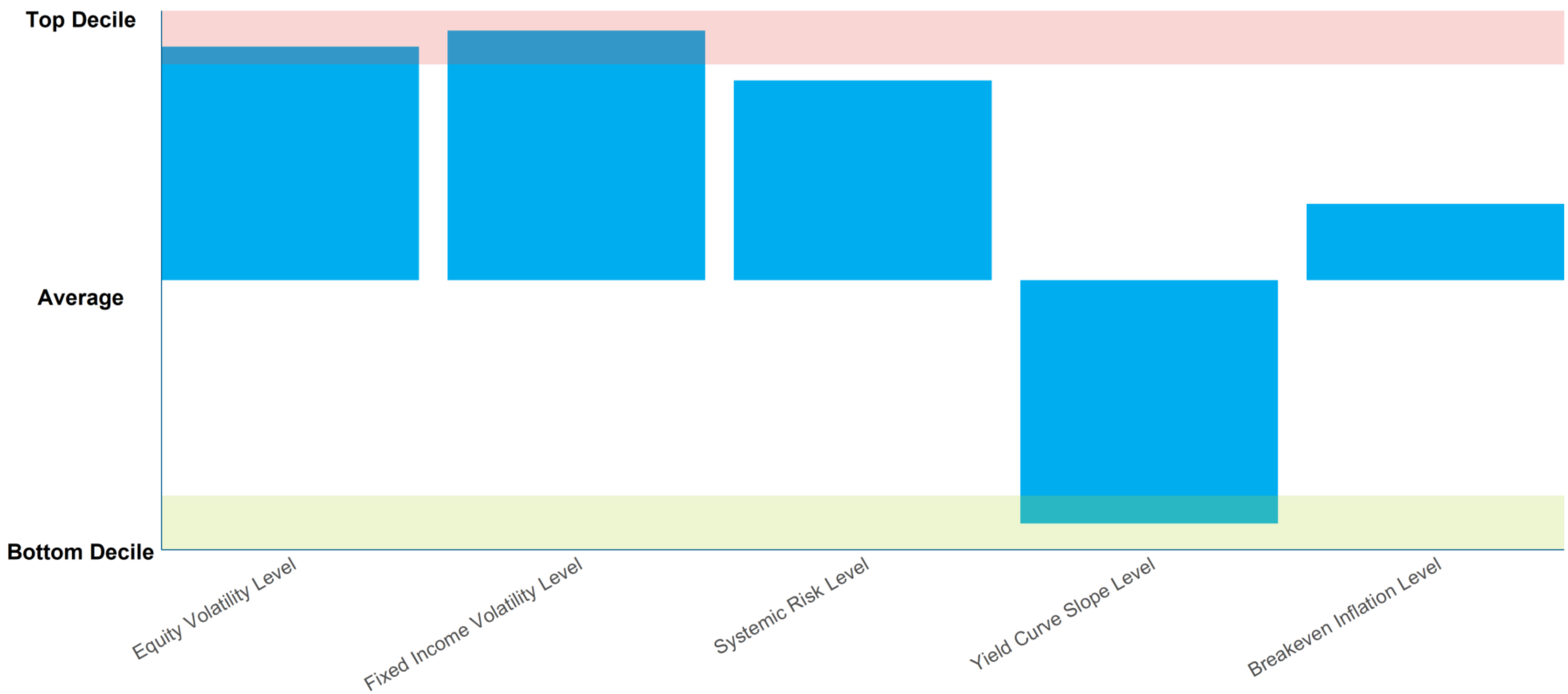
Risk Overview/Dashboard (1)
(As of September 30, 2022)[1]



→ Dashboard (1) summarizes the current state of the different valuation metrics per asset class relative to their own history.

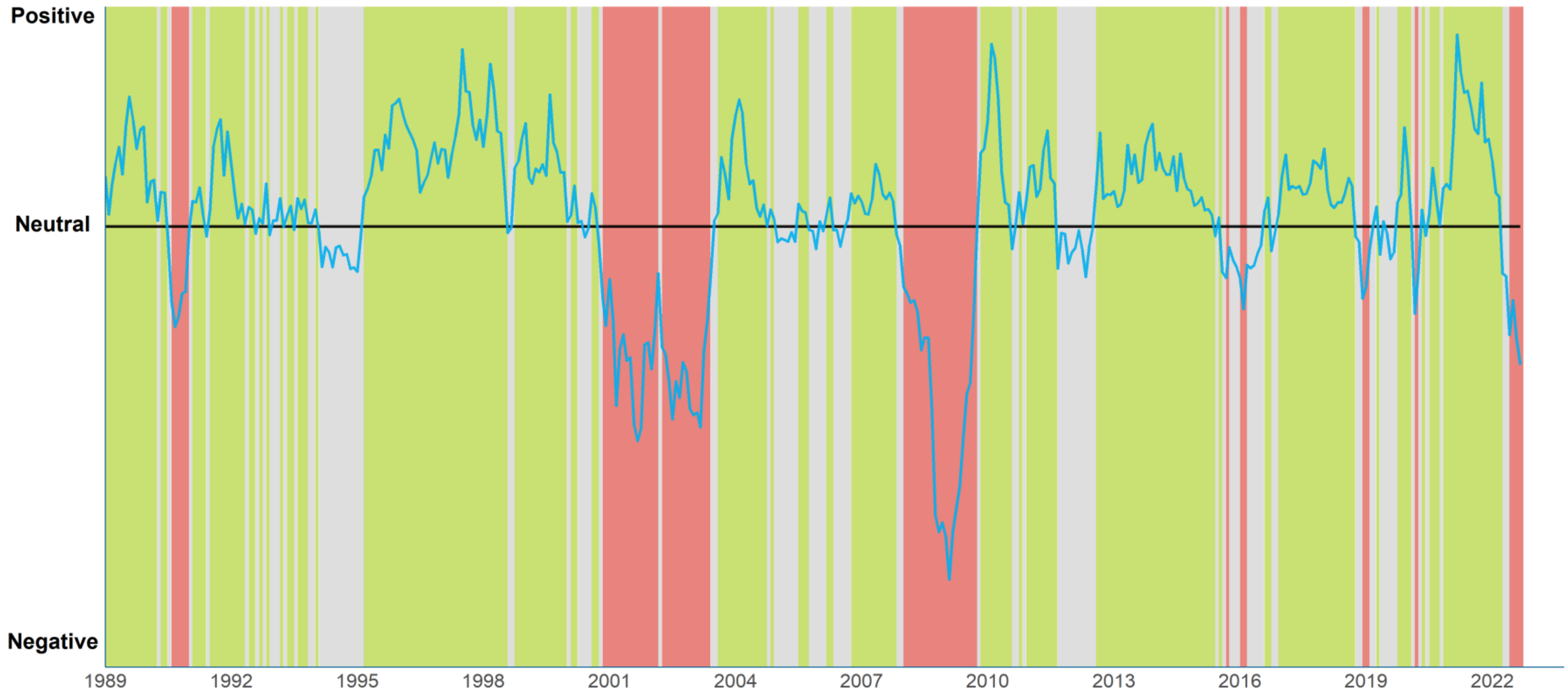
[1] With the exception of Private Equity Valuation, that is YTD as of December 31, 2021.

Risk Overview/Dashboard (2)
(As of September 30, 2022)

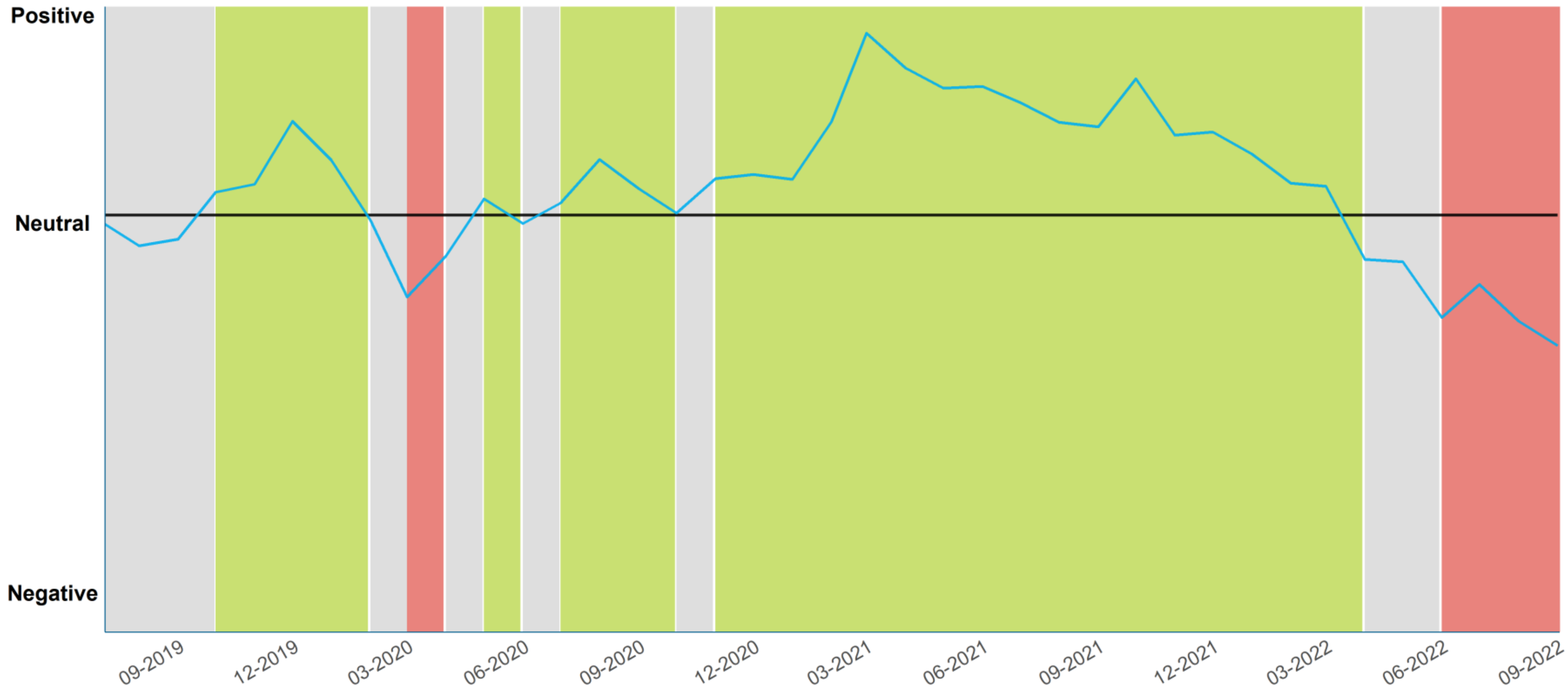


→ Dashboard (2) shows how the current level of each indicator compares to its respective history.

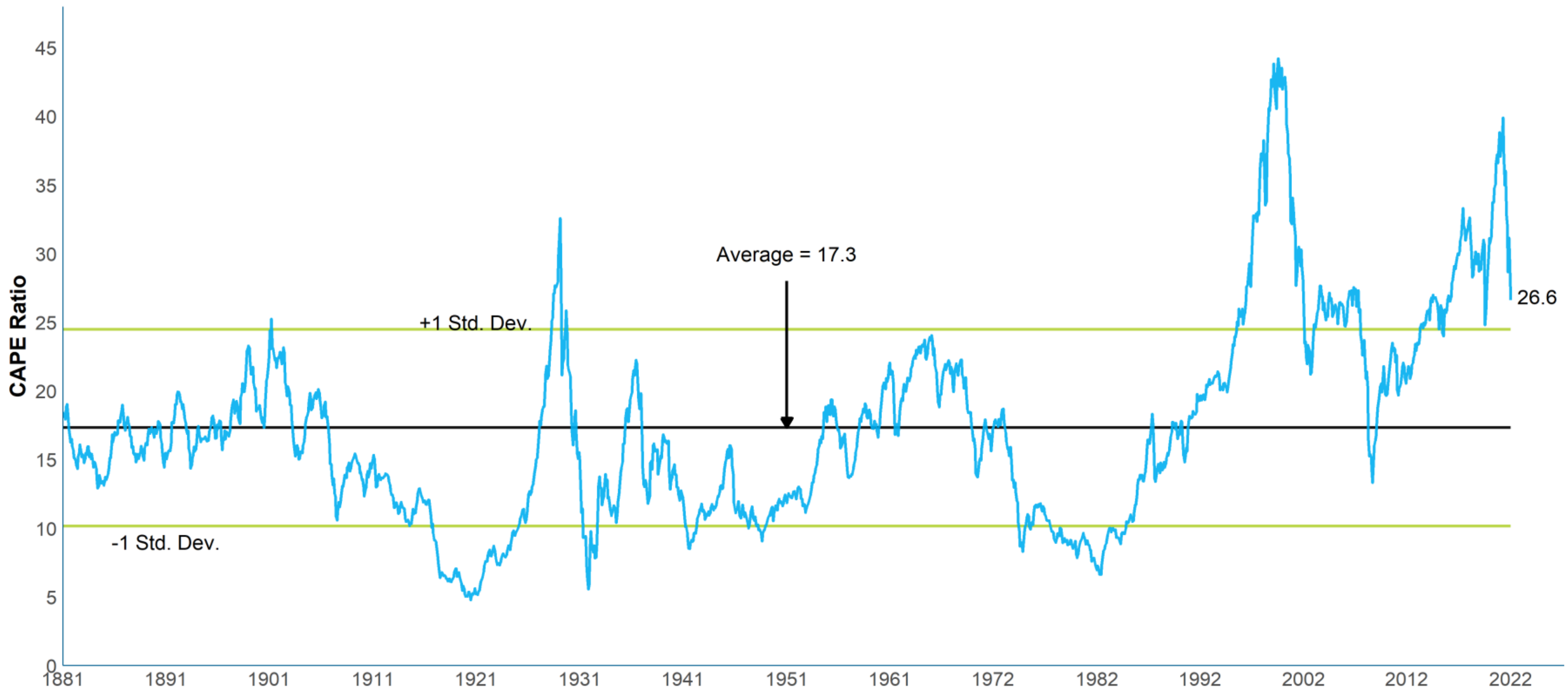
Market Sentiment Indicator (All History)
(As of September 30, 2022)



Market Sentiment Indicator (Last Three Years)
(As of September 30, 2022)



US Equity Cyclically Adjusted P/E[1]
(As of September 30, 2022)



→ This chart details one valuation metric for US equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group.

Small Cap P/E vs. Large Cap P/E[1]
(As of September 30, 2022)

→ This chart compares the relative attractiveness of small cap US equities vs. large cap US equities on a valuation basis. A higher (lower) figure indicates that large cap (small cap) is more attractive.

[1] Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.

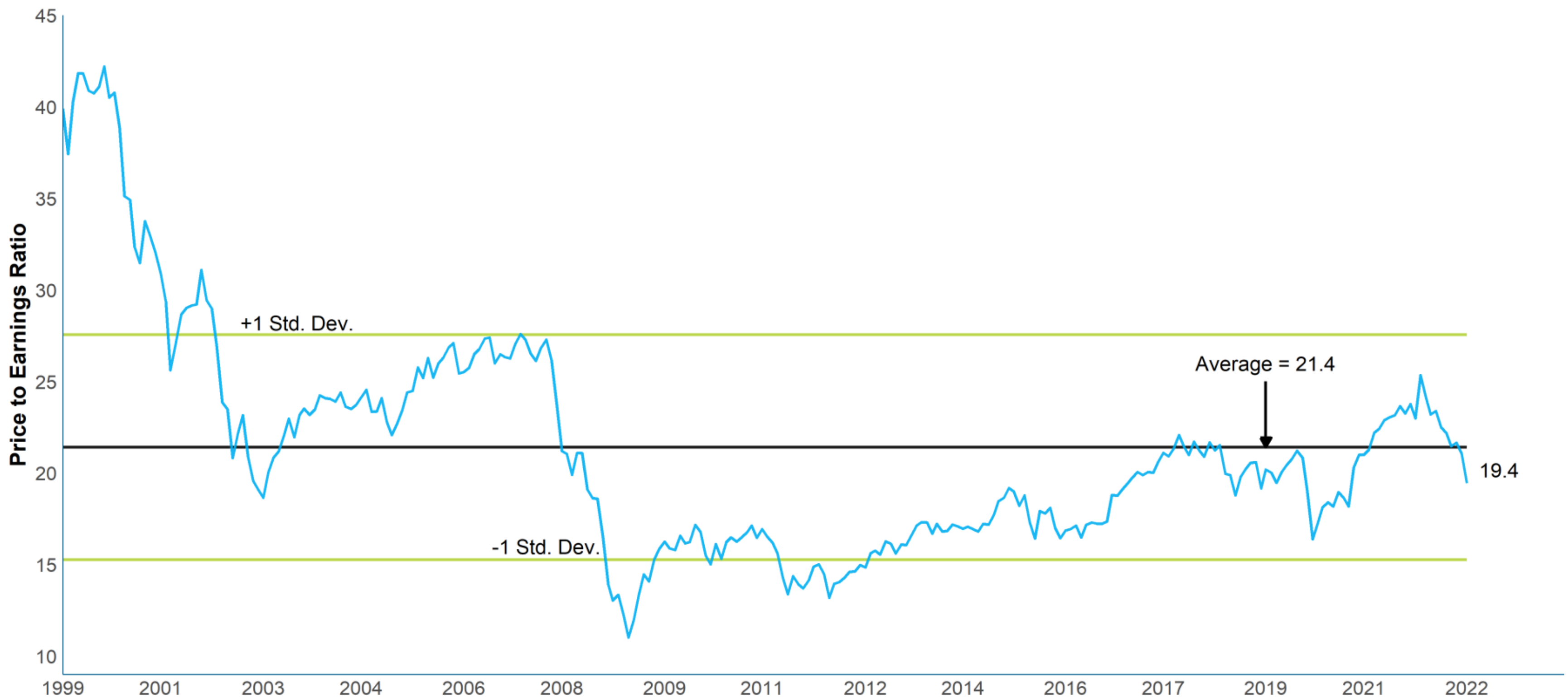
Growth P/E vs. Value P/E[1]

(As of September 30, 2022)

→ This chart compares the relative attractiveness of US growth equities vs. US value equities on a valuation basis. A higher (lower) figure indicates that value (growth) is more attractive.

[1] Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.

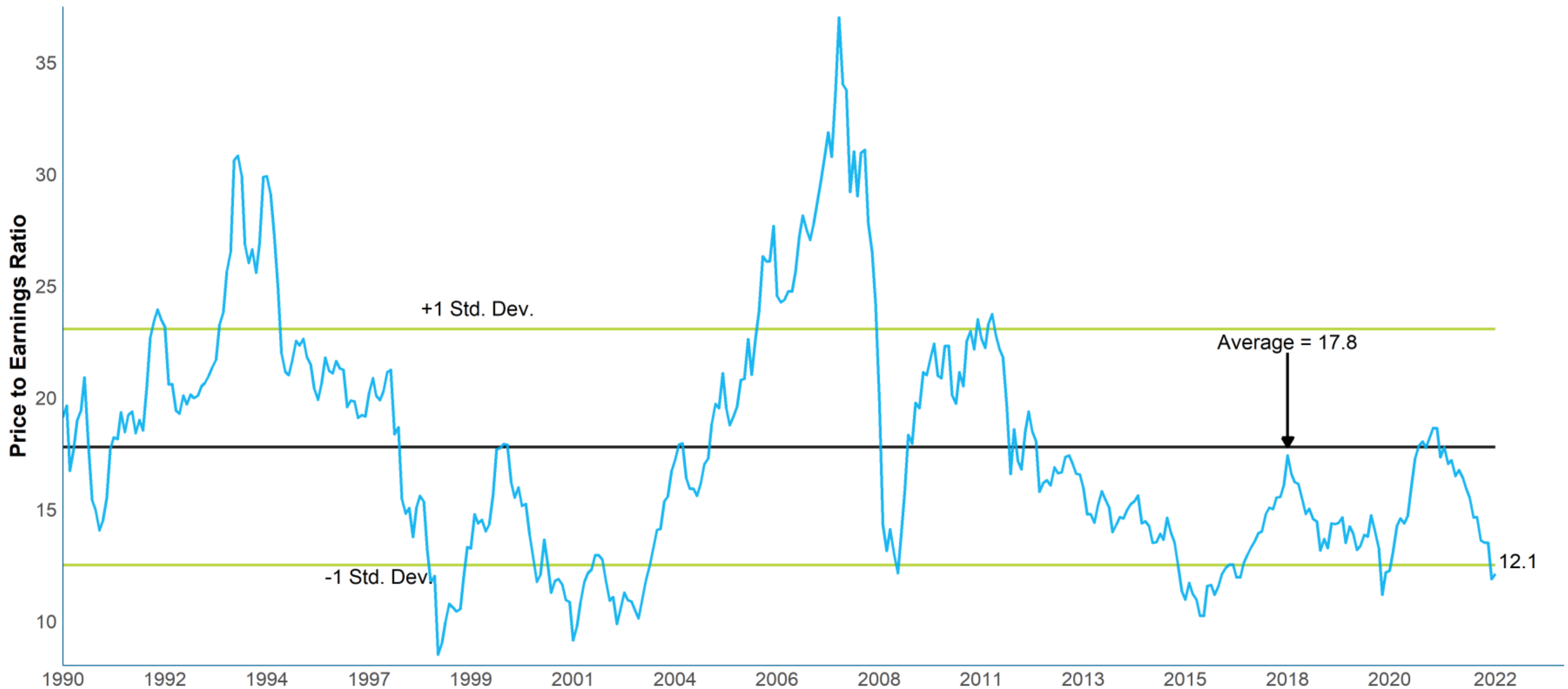
Developed International Equity Cyclically Adjusted P/E[1]
(As of September 30, 2022)



→ This chart details one valuation metric for developed international equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Developed International Equity (MSCI EAFE Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

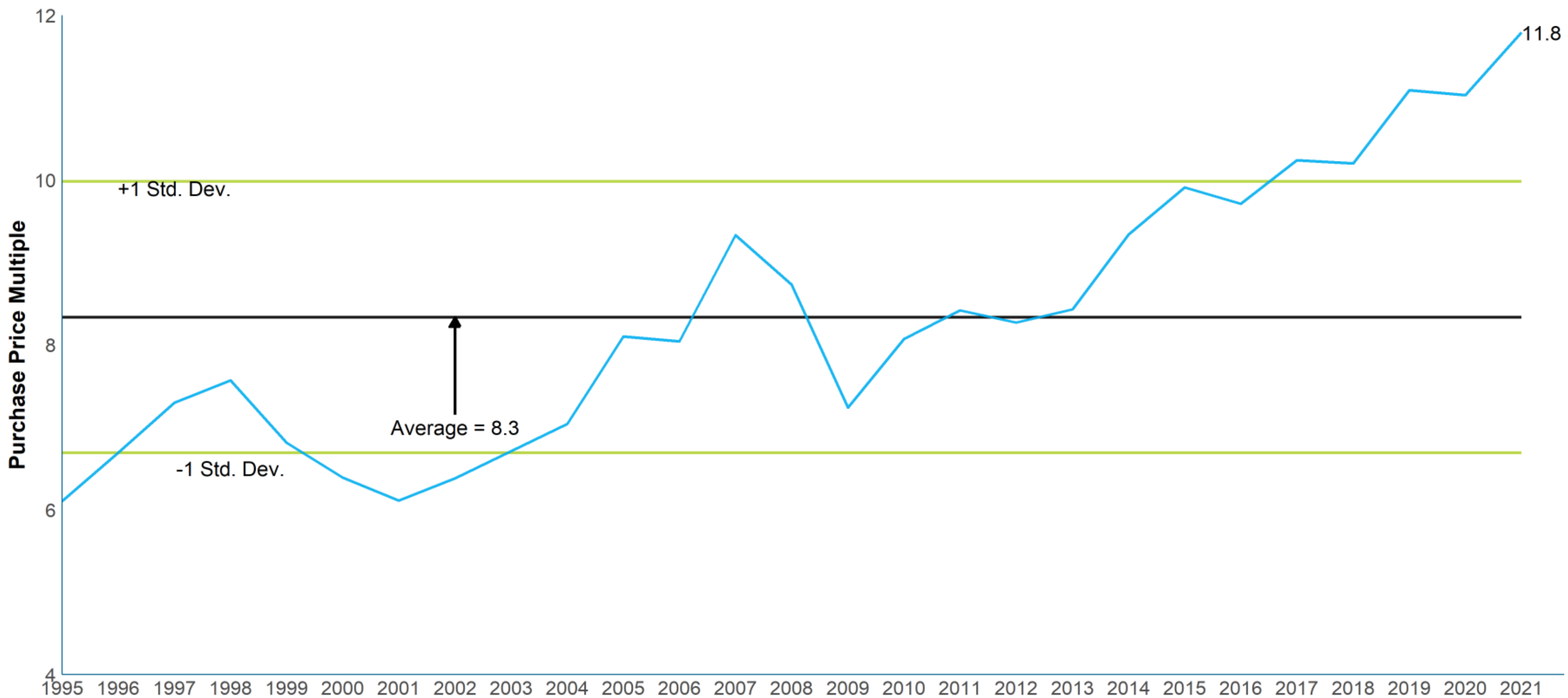
Emerging Market Equity Cyclically Adjusted P/E[1]
(As of September 30, 2022)



→ This chart details one valuation metric for emerging markets equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

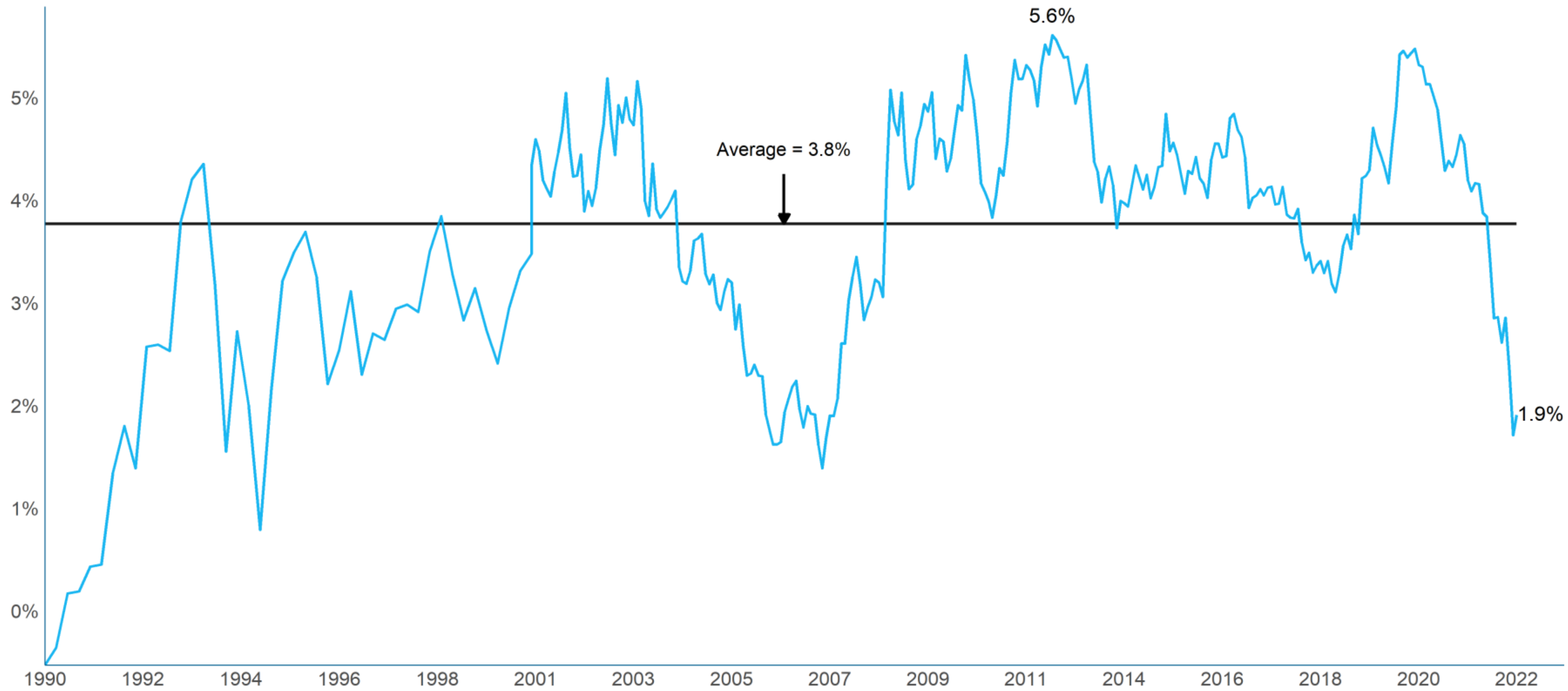
Private Equity Multiples[1]
(As of September 30, 2022)[2]



→ This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.
[2] Annual Data, as of December 31, 2021

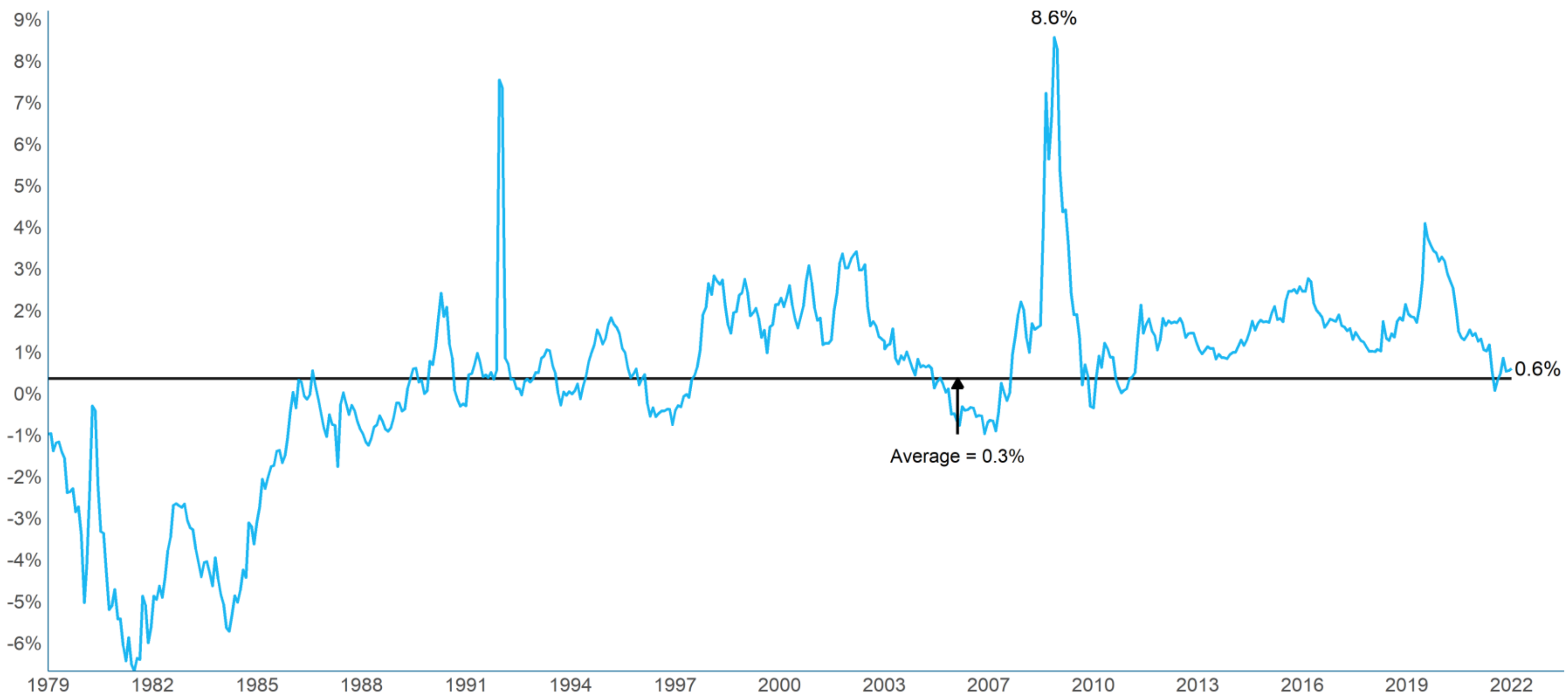
Core Real Estate Spread vs. Ten-Year Treasury[1]
(As of September 30, 2022)



→ This chart details one valuation metric for the private core real estate market. A higher (lower) figure indicates cheaper (more expensive) valuation.

[1] Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction-based indices from Real Capital Analytics and Meketa Investment Group.

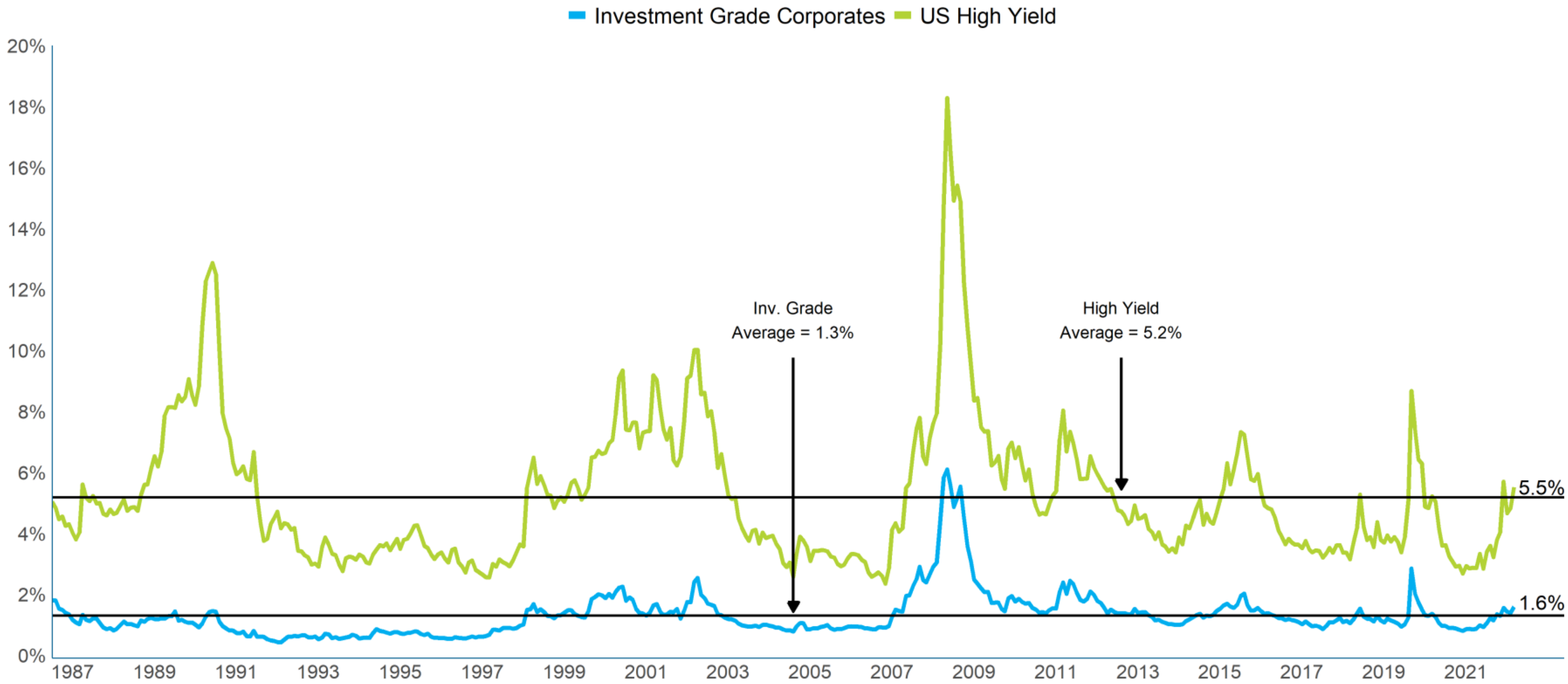
REITs Dividend Yield Spread vs. Ten-Year Treasury[1]
(As of September 30, 2022)



→ This chart details one valuation metric for the public REITs market. A higher (lower) figure indicates cheaper (more expensive) valuation.

[1] REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity Index.

Credit Spreads[1]
(As of September 30, 2022)



→ This chart details one valuation metric for the US credit markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

[1] Credit Spreads – Source: Bloomberg. High Yield is proxied by the Bloomberg High Yield Index and Investment Grade Corporates are proxied by the Bloomberg US Corporate Investment Grade Index. Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year US Treasury yield.

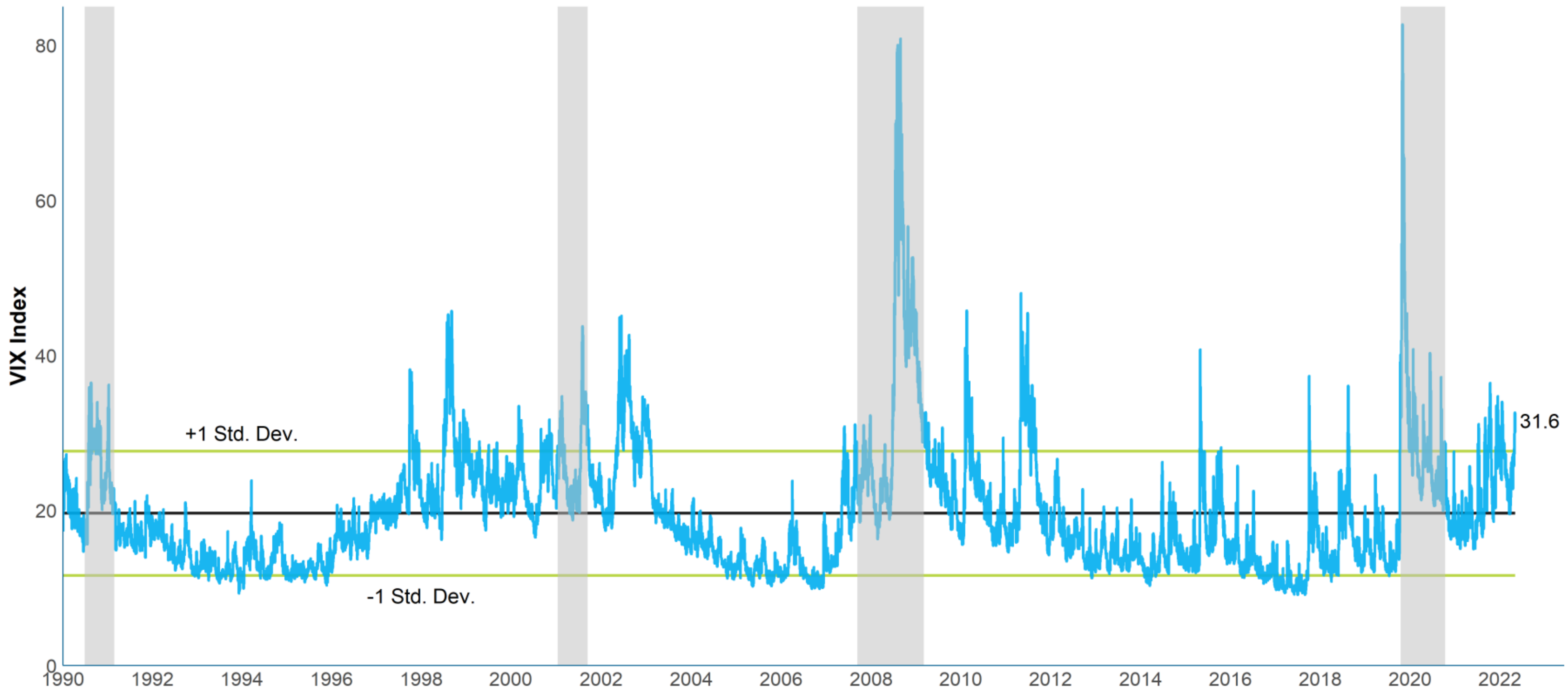
Emerging Market Debt Spreads[1]
(As of September 30, 2022)

→ This chart details one valuation metric for the EM debt markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

[1] EM Spreads – Source: Bloomberg. Option Adjusted Spread (OAS) for the Bloomberg EM USD Aggregate Index.

Equity Volatility[1]

(As of September 30, 2022)

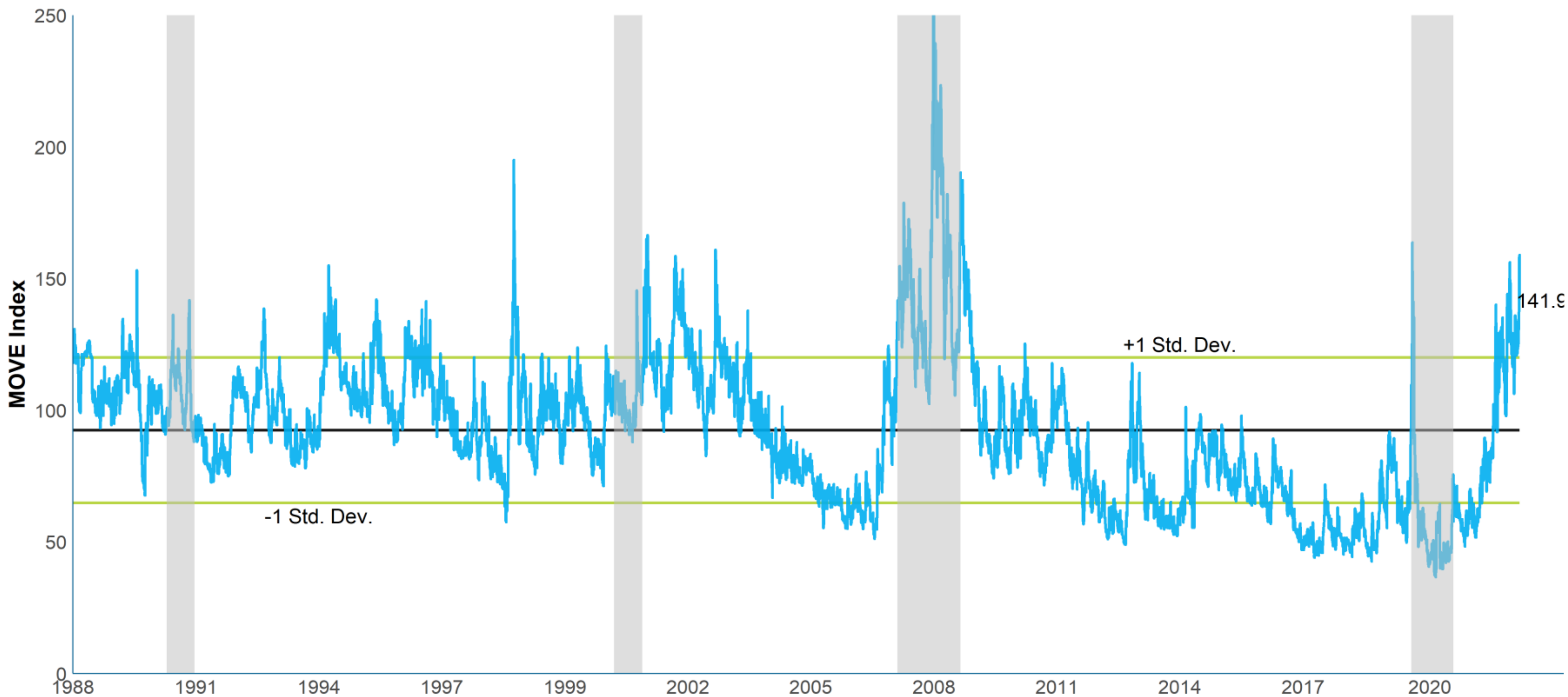


→ This chart details historical implied equity market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

[1] Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.

Fixed Income Volatility[1]

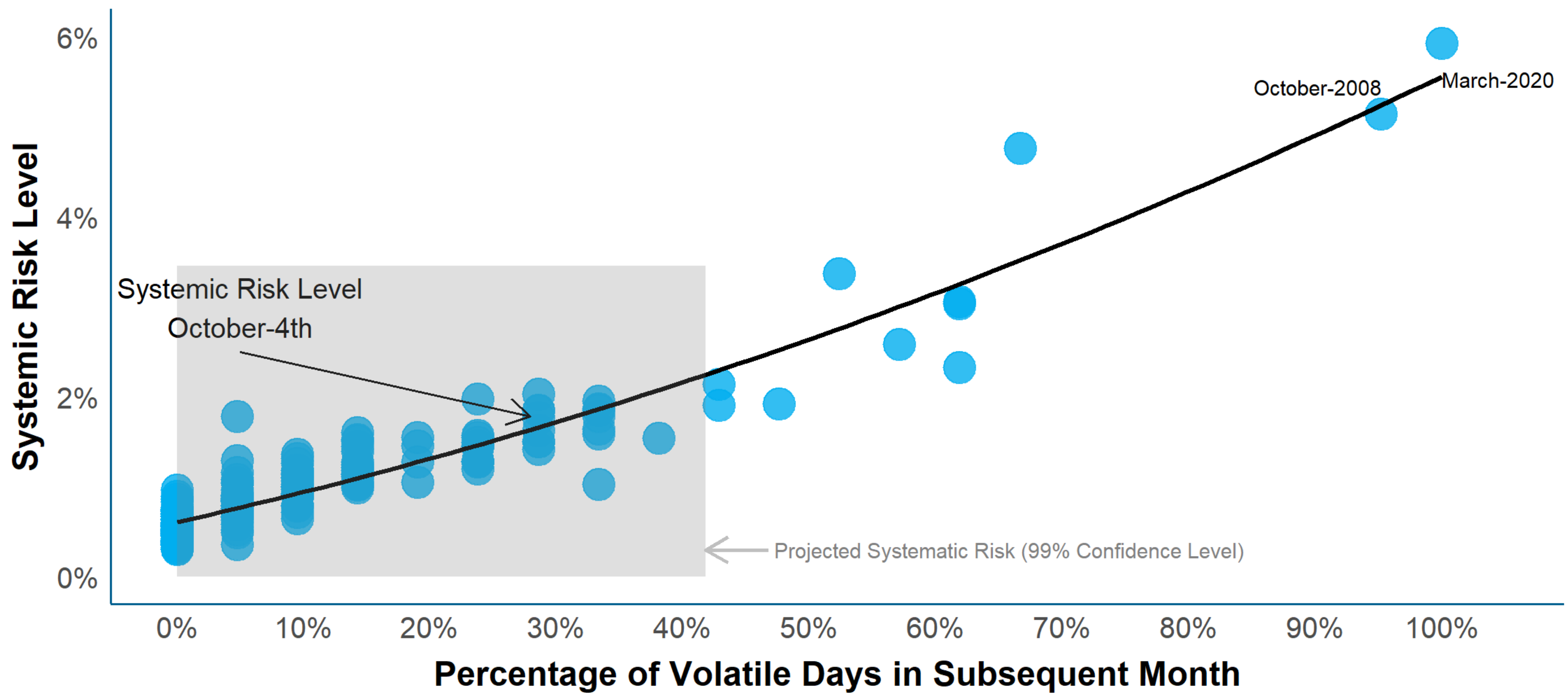
(As of September 30, 2022)



→ This chart details historical implied fixed income market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

[1] Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Fixed Income Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.

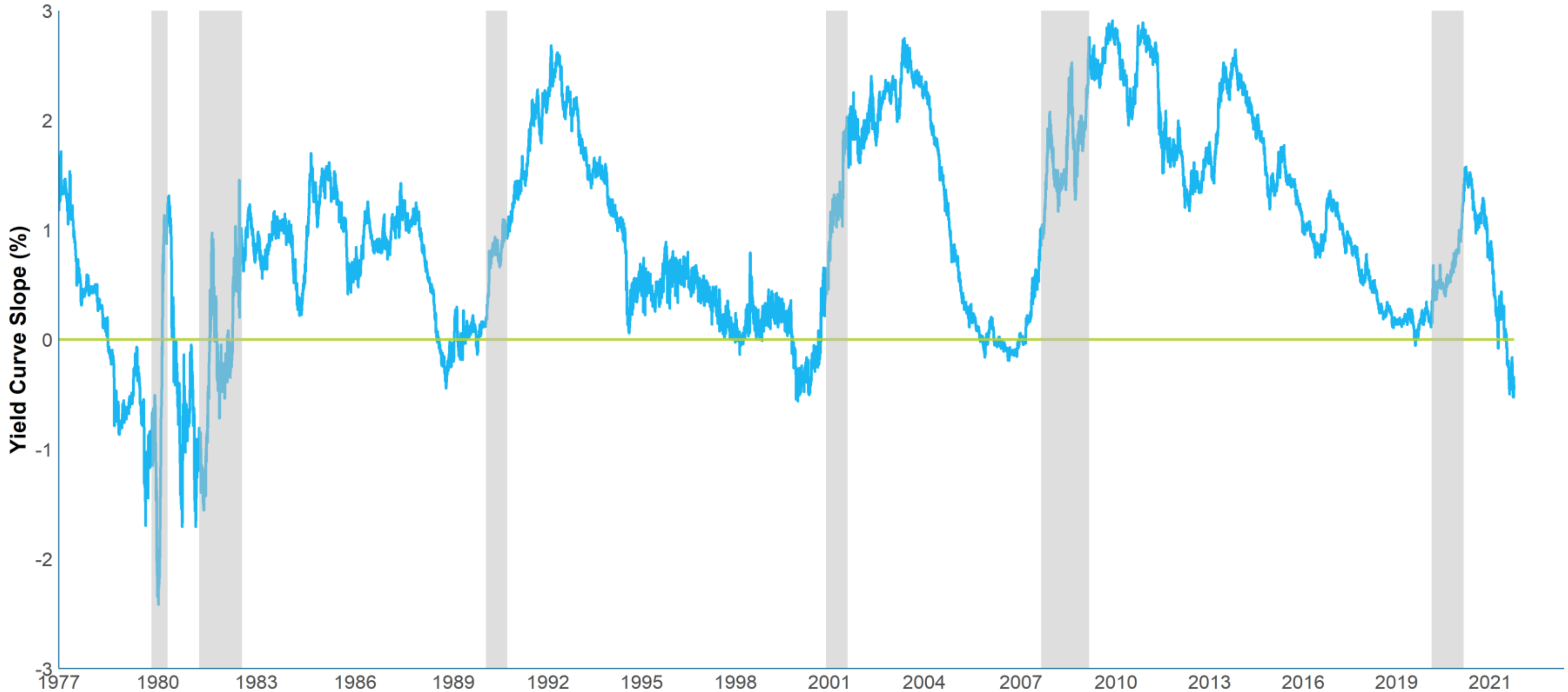
Systemic Risk and Volatile Market Days[1]
(As of September 30, 2022)



→ Systemic Risk is a measure of 'System-wide' risk, which indicates herding type behavior.

[1] Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.

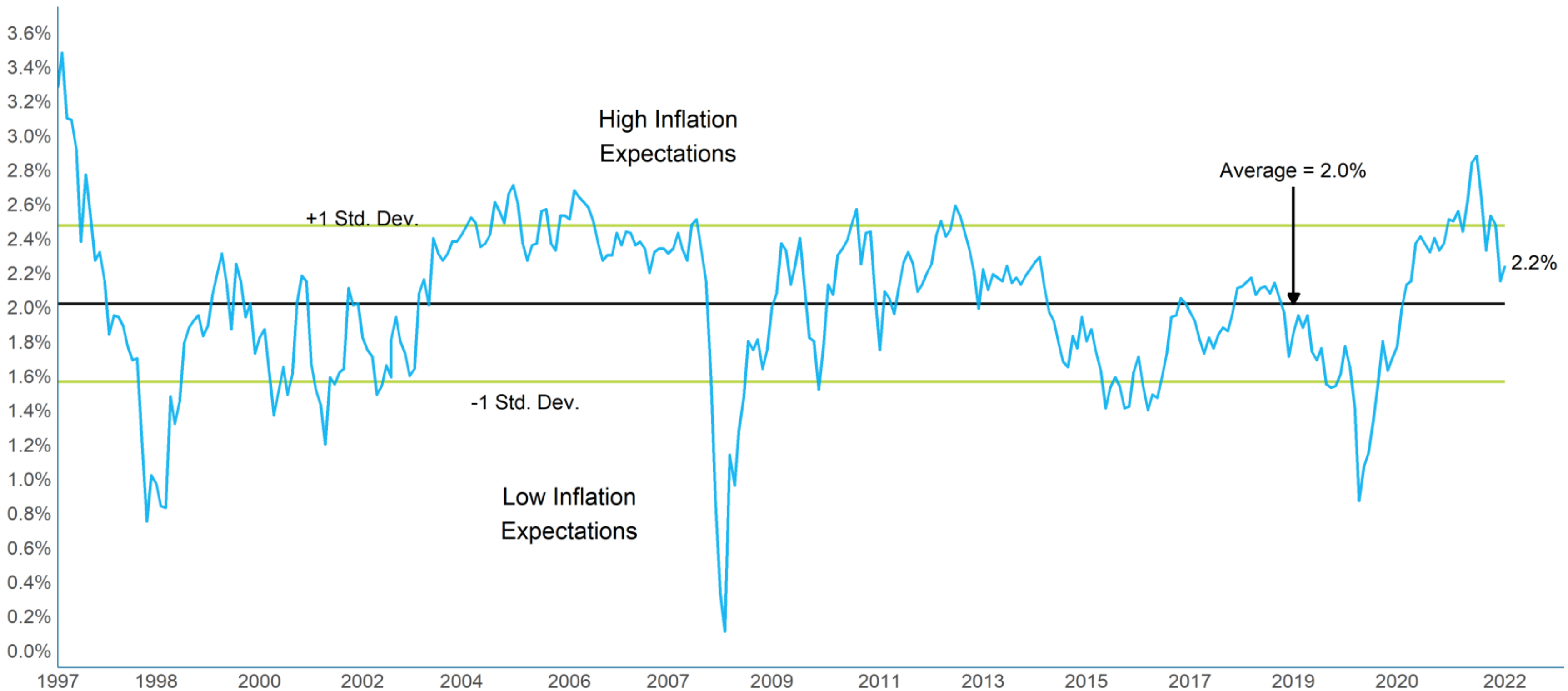
Yield Curve Slope (Ten Minus Two)[1]
(As of September 30, 2022)



→ This chart details the historical difference in yields between ten-year and two-year US Treasury bonds/notes. A higher (lower) figure indicates a steeper (flatter) yield curve slope.

[1] Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.

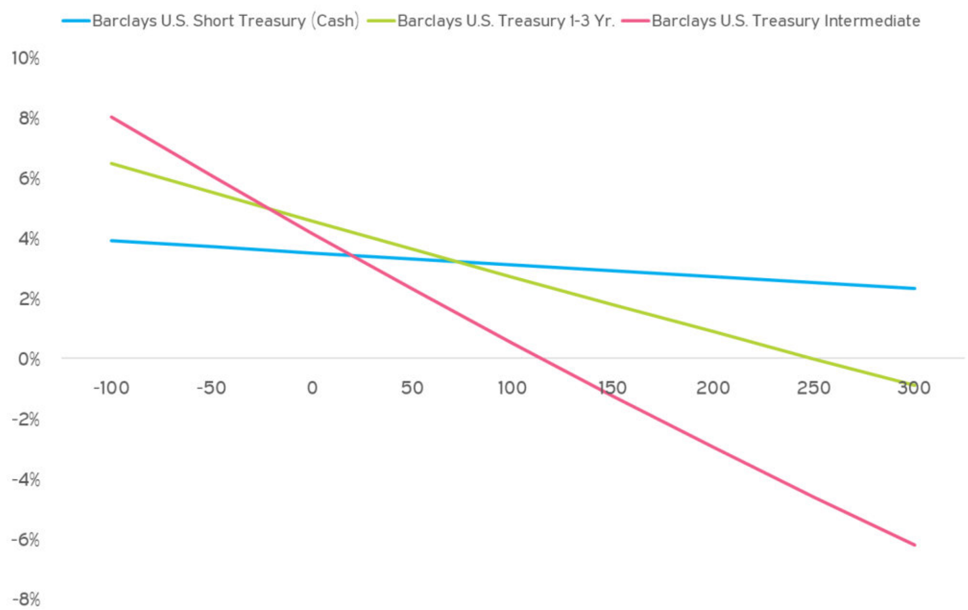
Ten-Year Breakeven Inflation[1]
(As of September 30, 2022)



→ This chart details the difference between nominal and inflation-adjusted US Treasury bonds. A higher (lower) figure indicates higher (lower) inflation expectations.

[1] Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

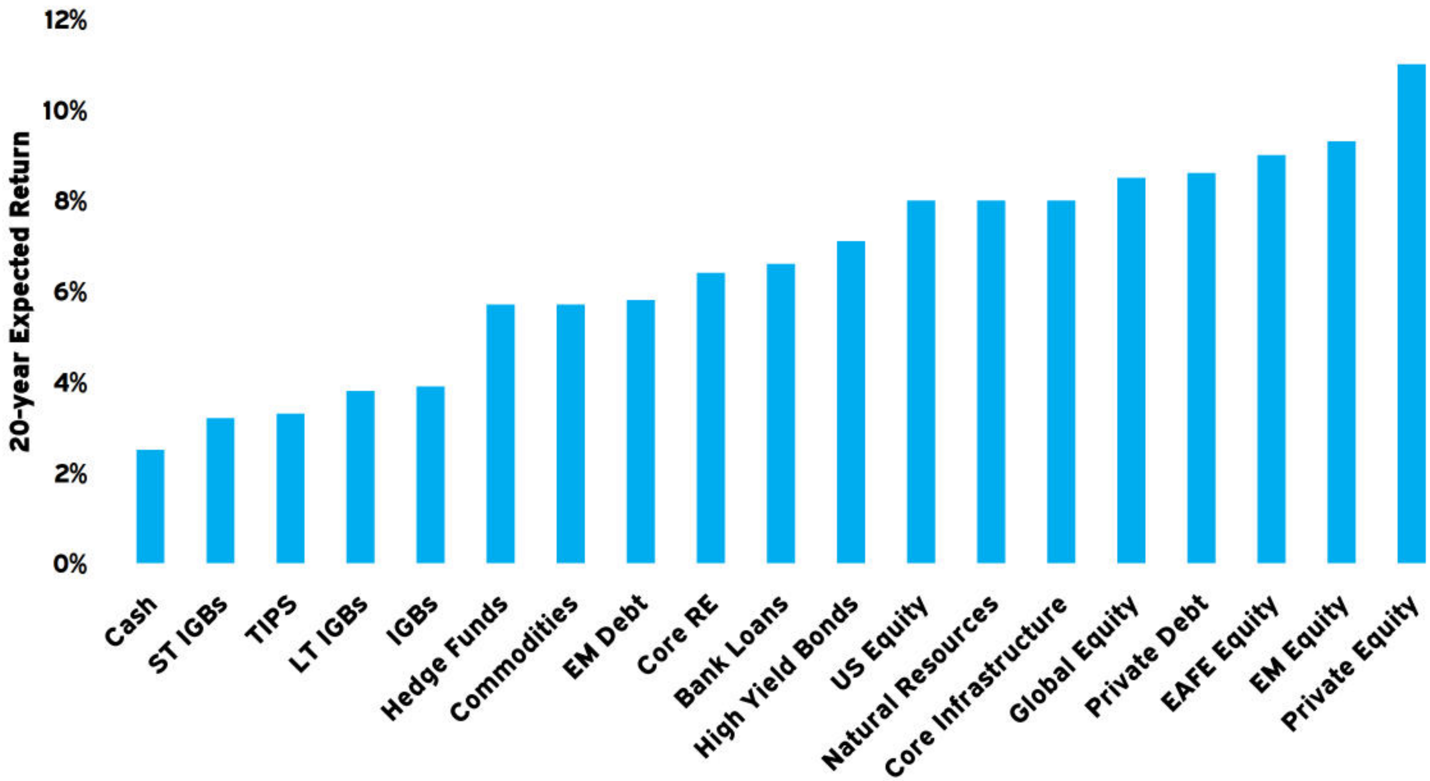
Total Return Given Changes in Interest Rates (bps)[1]
(As of September 30, 2022)



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays US Short Treasury (Cash)	3.9%	3.7%	3.5%	3.3%	3.1%	2.9%	2.7%	2.5%	2.3%	0.40	3.51%
Barclays US Treasury 1-3 Yr.	6.5%	5.5%	4.6%	3.6%	2.7%	1.8%	0.9%	0.0%	-0.9%	1.89	4.57%
Barclays US Treasury Intermediate	8.0%	6.1%	4.2%	2.3%	0.5%	-1.3%	-3.0%	-4.6%	-6.2%	3.77	4.16%
Barclays US Treasury Long	22.1%	12.6%	4.0%	-3.7%	-10.6%	-16.6%	-21.8%	-26.0%	-29.4%	16.35	4.00%

[1] Data represents the expected total return from a given change in interest rates (shown in basis points) over a 12-month period assuming a parallel shift in rates. Source: Bloomberg, and Meketa Investment Group.

Long-Term Outlook – 20-Year Annualized Expected Returns[1]



→ This chart details Meketa's long-term forward-looking expectations for total returns across asset classes.

[1] Source: Meketa Investment Group's 2022 Intrayear Asset Study.

Appendix

Data Sources and Explanations[1]

→ US Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller and Yale University.

→ Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.

→ Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.

→ Developed International Equity (MSCI EAFE) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

→ Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

→ Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.

→ Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction-based indices from Real Capital Analytics and Meketa Investment Group.

[1] All Data as of September 30, 2022, unless otherwise noted.

Appendix

Data Sources and Explanations[1]

→ REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity Index.

→ Credit Spreads – Source: Bloomberg High Yield is proxied by the Bloomberg High Yield Index and Investment Grade Corporates are proxied by the Bloomberg US Corporate Investment Grade Index.

- Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year Treasury Yield.

→ EM Debt Spreads – Source: Bloomberg, and Meketa Investment Group. Option Adjusted Spread (OAS) for the Bloomberg EM USD Aggregate Index.

→ Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.

→ Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.

→ Systemic Risk and Volatile Market Days – Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.

→ Systemic Risk, which measures risk across markets, is important because the more contagion of risk that exists between assets, the more likely it is that markets will experience volatile periods.

[1] All Data as of September 30, 2022, unless otherwise noted.

Appendix

Data Sources and Explanations[1]

→ Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.

→ Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

[1] All Data as of September 30, 2022, unless otherwise noted.

Meketa Market Sentiment Indicator

Explanation, Construction and Q&A

Meketa has created the MIG Market Sentiment Indicator (MIG-MSI) to complement our valuation-focused Risk Metrics. This measure of sentiment is meant to capture significant and persistent shifts in long-lived market trends of economic growth risk, either towards a risk-seeking trend or a risk-aversion trend.

This appendix explores:

→ What is the Meketa Market Sentiment Indicator?

→ How do I read the indicator graph?

→ How is the Meketa Market Sentiment Indicator constructed?

→ What do changes in the indicator mean?

Meketa has created a market sentiment indicator for monthly publication (the MIG-MSI – see below) to complement Meketa's Risk Metrics.

→ Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk concerns long before a market correction take place. The MIG-MSI helps to address this early-warning bias by measuring whether the markets are beginning to acknowledge key Risk Metrics trends, and / or indicating non-valuation-based concerns. Once the MIG-MSI indicates that the market sentiment has shifted, it is our belief that investors should consider significant action, particularly if confirmed by the Risk Metrics. Importantly, Meketa believes the Risk Metrics and MIG-MSI should always be used in conjunction with one another and never in isolation. The questions and answers below highlight and discuss the basic underpinnings of the Meketa MIG-MSI:

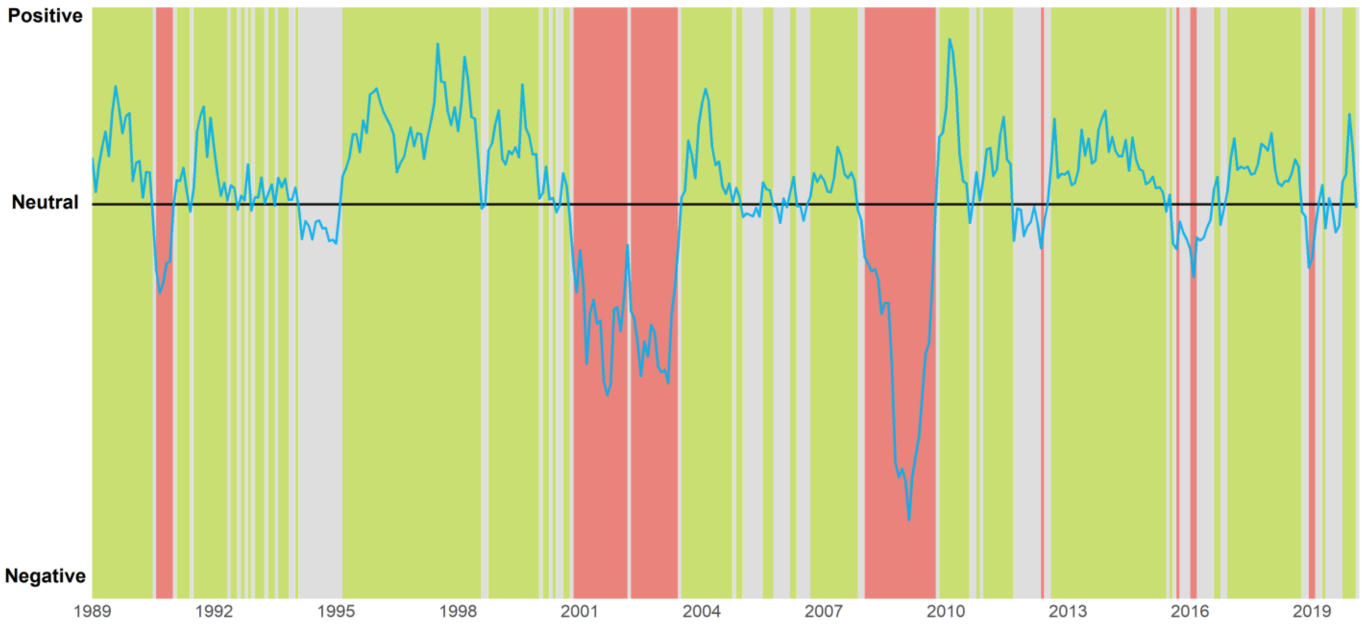
What is the Meketa Market Sentiment Indicator (MIG-MSI)?

→ The MIG-MSI is a measure meant to gauge the market's sentiment regarding economic growth risk. Growth risk cuts across most financial assets and is the largest risk exposure that most portfolios bear. The MIG-MSI takes into account the momentum (trend over time, positive or negative) of the economic growth risk exposure of publicly traded stocks and bonds, as a signal of the future direction of growth risk returns; either positive (risk seeking market sentiment), or negative (risk averse market sentiment).

How do I read the Meketa Market Sentiment Indicator graph?

→ Simply put, the MIG-MSI is a color-coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the MIG-MSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the MIG-MSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.

→ Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.



How is the Meketa Market Sentiment Indicator (MIG-MSI) Constructed?

→ The MIG-MSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:

- Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months).
- Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration US Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight).
- Both measures are converted to Z-scores and then combined to get an "apples to apples" comparison without the need of re-scaling.

→ The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure[1]. The color reading on the graph is determined as follows:

- If both stock return momentum and bond spread momentum are positive = GREEN (positive).
- If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive).
- If both stock return momentum and bond spread momentum are negative = RED (negative).

[1] Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.
"Time Series Momentum" Moskowitz, Ooi, Pedersen, August 2010. *http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf*

What does the Meketa Market Sentiment Indicator (MIG-MSI) mean? Why might it be useful?

→ There is strong evidence that time series momentum is significant and persistent. Across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12-month period. The MIG-MSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

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REPORT

SBI Comprehensive Performance Report

September 30, 2022

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Comprehensive Performance Report

September 30, 2022

Description of SBI Investment Programs

The Minnesota State Board of Investment is responsible for the investment management of various retirement funds, trust funds and cash accounts.

Combined Funds

The Combined Funds represent the assets for both the active and retired public employees in the statewide retirement systems, the biggest of which are the Public Employees Retirement Association (PERA), the Teachers Retirement Association (TRA), and the Minnesota State Retirement System (MSRS). The SBI commingles the assets of these plans into the Combined Funds to capture investment efficiencies. All assets in the Combined Funds are managed externally by investment management firms retained by contract.

Fire Plans + Other Retirement Plans

Fire Plans and Other Retirement Plans include assets from volunteer fire relief plans and other public retirement plans with authority to invest with the SBI, if they so choose. Fire Plans that are not eligible to be consolidated with Public Employees Retirement Association (PERA) or elect not to be administered by PERA may invest their assets with the SBI using the same asset pools as the Combined Funds. The Statewide Volunteer Firefighter Retirement Plan is administered by PERA and has its own investment vehicle called the Volunteer Firefighter Account.

Participant Directed Investment Program

The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. Investment goals among the PDIP’s many participants are varied. In order to meet the variety of goals, participants may allocate their investments among one or more accounts that are appropriate for their needs within statutory requirements and rules established by the participating organizations.

Non-Retirement Funds

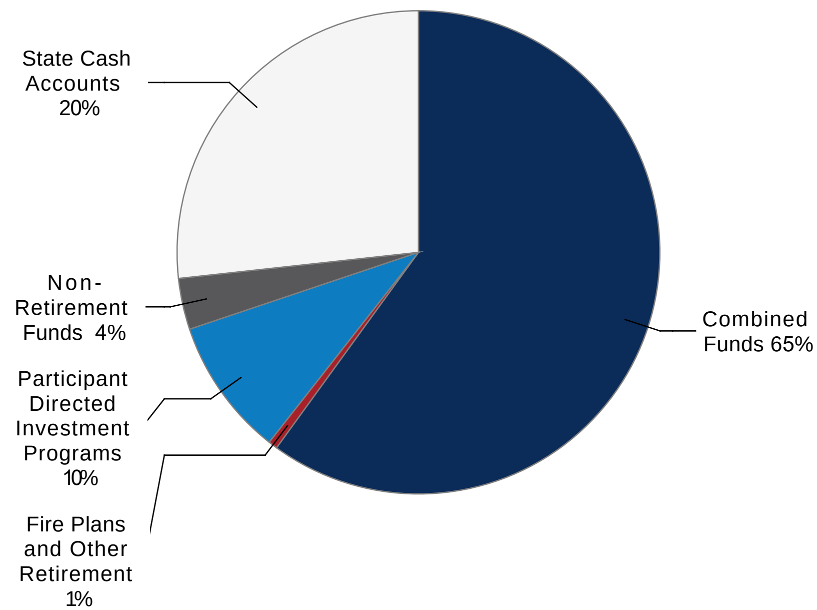
The Non-Retirement Funds are funds established by the State of Minnesota and other government entities for various purposes which include the benefit of public schools, the environment, other post-employment benefits, workers compensation insurance, and other purposes.

State Cash

The State Cash accounts are cash balances of state government funds including the State General Fund. Most accounts are invested by SBI staff through a short-term pooled fund referred to as the Treasurer's Cash Pool. It contains the cash balances of special or dedicated accounts necessary for the operation of certain State agencies and non-dedicated cash in the State Treasury. Because of special legal restrictions, a small number of cash accounts cannot be commingled.

Funds Under Management

	$ Millions
Combined Funds	**$77,122**
Fire Plans + Other Retirement Plans	**781**
Participant Directed Investment Program	**11,872**
State Deferred Compensation Plan	8,138
Health Care Savings Plan	1,565
Unclassified Employees Retirement Plan	311
Hennepin County Supplemental Retirement Plan	147
PERA Defined Contribution Plan	79
Minnesota College Savings Plan	1,604
Minnesota Achieving a Better Life Experience Plan	28
Non-Retirement Funds	**4,412**
Assigned Risk Plan	232
Permanent School Fund	1,665
Environmental Trust Fund	1,374
Closed Landfill Investment Fund	109
Miscellaneous Trust Funds	306
Other Postemployment Benefits Accounts	727
State Cash	**23,747**
Invested Treasurer's Cash	23,584
Other State Cash Accounts	163
Total SBI AUM	**117,934**



Note: Differentials within column amounts may occur due to rounding

Quarterly Report

Table of Contents

Performance Reporting Legend

Manager Level Data
Aggregate Level Data
Sub-Asset Class Level Data
Asset Class Level Data

Note:

Throughout this report performance is calculated net of investment management fees, gross of administrative fees. Aggregates include terminated managers, and returns for all periods greater than one year are annualized. Inception Date and Since Inception Returns refer to the date of retention by the SBI. FYTD refers to the return generated by an account since July 1 of the most recent year. For historical benchmark details, please refer to the addendum of this report. Some aggregate inception to date return are based portfolio management decisions to re-group manager accounts in different or newly created aggregates.

Combined Funds

September 30, 2022

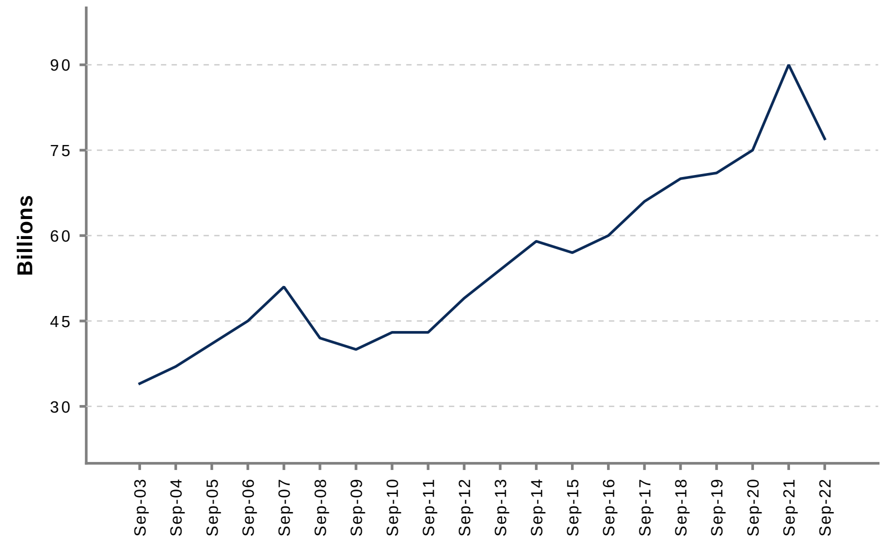
Combined Funds Summary

Combined Funds Change in Market Value ($Millions)

	One Quarter
Combined Funds	
Beginning Market Value	$81,320
Net Contributions	-710
Investment Return	-3,489
Ending Market Value	77,122

The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

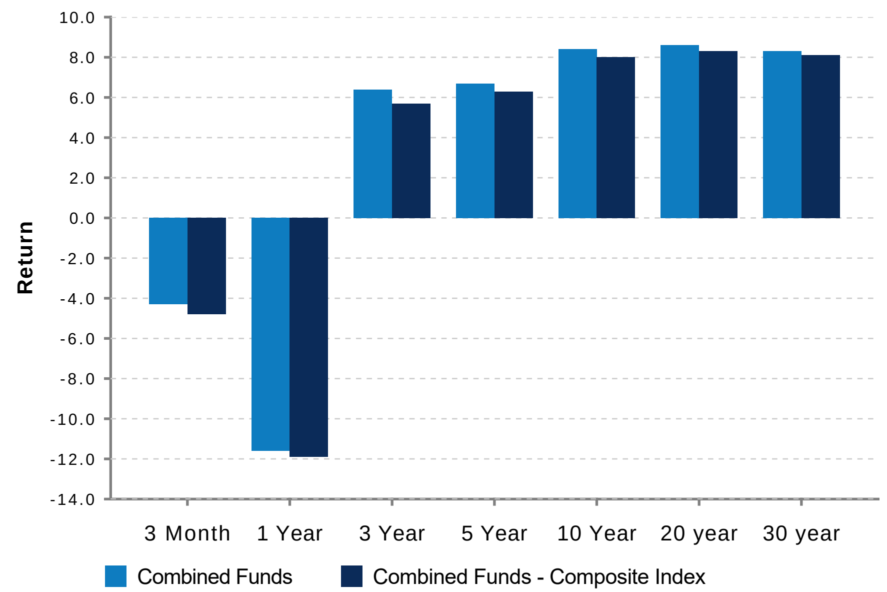
Asset Growth



Performance (Net of Fees)

The Combined Funds' performance is evaluated relative to a composite of public market index and private market investment returns. The Composite performance is calculated by multiplying the beginning of month Composite weights and the monthly returns of the asset class benchmarks.

	Qtr	FYTD	1 Yr	3 Yr	5 Yr	10 Yr	20 Yr	30 Yr
Combined Funds	-4.3%	-4.3%	-11.6%	6.4%	6.7%	8.4%	8.6%	8.3%
Combined Funds - Composite Index	-4.8%	-4.8%	-11.9%	5.7%	6.3%	8.0%	8.3%	8.1%
Excess	0.5%	0.5%	0.3%	0.7%	0.4%	0.4%	0.3%	0.3%



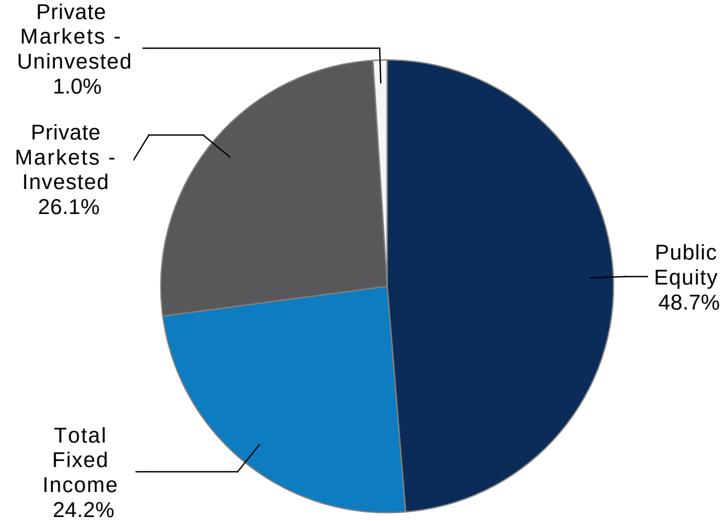
STATE STREET.

Combined Funds Summary

Asset Mix

The Combined Funds actual asset mix relative to the Strategic Asset Allocation Policy Target is shown below. Any uninvested portion of the Private Markets allocation is held in Public Equity.

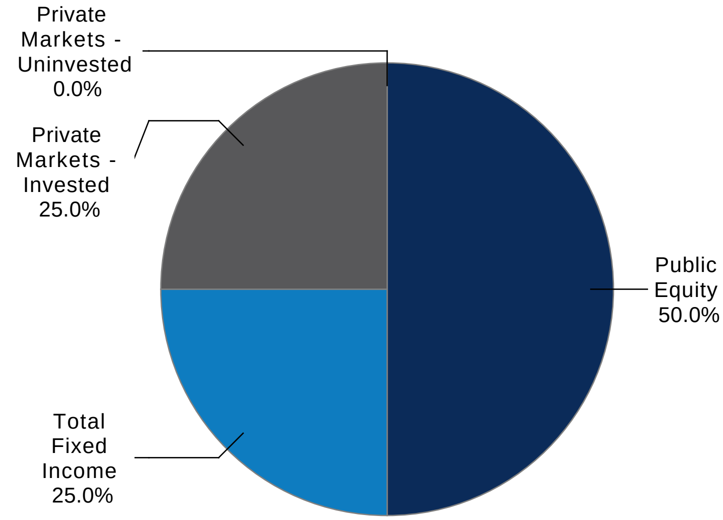
	(Millions)	Actual Mix	Policy Target
Public Equity	$37,572	48.7%	50.0%
Total Fixed Income	18,641	24.2	25.0
Private Markets - Total	20,908	27.1	25.0
Private Markets - Invested	20,155	26.1	
Private Markets - Uninvested	754	1.0	
TOTAL	77,122	100.0	



Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target. Asset class weights for Private Markets - Invested and Private Markets - Uninvested are reset at the start of each month. The Combined Funds Composite weighting shown below is as of the first day of the quarter.

	Policy Weight	Market Index
Public Equity	50.0%	Public Equity Benchmark
Total Fixed Income	25.0	Total Fixed Income Benchmark
Private Markets - Invested	25.0	Private Markets
Private Markets - Uninvested	0.0	S&P 500



Combined Funds Asset Class Performance Summary

Public Equity

The Combined Funds Public Equity includes Domestic Equity, International Equity and Global Equity.

The Public Equity benchmark is 67% Russell 3000 and 33% MSCI ACWI ex US (net).

	Market Value	Actual Weight	Policy Weight	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year
Public Equity	$37.6	48.7%	50.0%	-5.4%	-5.4%	-19.3%	5.3%	5.9%	9.2%	9.0%	8.5%
Public Equity Benchmark				-6.3	-6.3	-20.1	4.6	5.4			
Excess				0.9	0.9	0.8	0.7	0.4			
Domestic Equity	25.6	33.2	33.5	-4.4	-4.4	-18.0	7.9	8.6	11.4	9.8	9.3
Domestic Equity Benchmark				-4.5	-4.5	-17.6	7.7	8.6	11.4	9.9	9.4
Excess				0.0	0.0	-0.4	0.2	0.1	0.0	-0.1	-0.1
International Equity	11.2	14.5	16.5	-7.2	-7.2	-21.3	0.6	0.5	4.1	6.9	5.9
International Equity Benchmark				-9.9	-9.9	-25.2	-1.6	-0.8	3.0	6.3	5.1
Excess				2.7	2.7	3.9	2.2	1.3	1.1	0.5	0.8
Global Equity	0.8	1.0	0.0	-8.9	-8.9	-31.2					
MSCI AC World Index Net				-6.8	-6.8	-20.7					
Excess				-2.1	-2.1	-10.6					

Note:

Prior to 6/30/16 the returns of Domestic and International Equity were not reported as a Total Public Equity return. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

Combined Funds Asset Class Performance Summary

Total Fixed Income

The Combined Funds Fixed Income program includes Core/Core Plus, Return Seeking Fixed Income, Treasuries and Laddered Bond + Cash.

The Total Fixed Income benchmark is 40% Bloomberg U.S. Aggregate Index/ 40% Bloomberg Treasury 5+ Years Index/ 20% ICE BofA US 3-Month Treasury Bill.

	Market Value	Actual Weight	Policy Weight	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year
Total Fixed Income	$18.6	24.2%	25.0%	-4.3%	-4.3%	-14.4%	-2.6%	0.7%	1.7%	3.7%	5.0%
Total Fixed Income Benchmark				-4.6%	-4.6%	-13.8%	-2.9%				
Excess				0.3%	0.3%	-0.7%	0.3%				
Core/Core Plus	$4.1	5.3%	5.0	-4.7%	-4.7%	-16.0%	-2.8%	0.1%	1.4%	3.6%	4.9%
Core Bonds Benchmark				-4.8%	-4.8%	-14.6%	-3.3%	-0.3%	0.9%	3.1%	4.5%
Excess				0.1%	0.1%	-1.4%	0.4%	0.4%	0.5%	0.5%	0.4%
Return Seeking Fixed Income	$3.8	5.0%	5.0	-2.6%	-2.6%	-14.5%					
Bloomberg U.S. Aggregate				-4.8%	-4.8%	-14.6%					
Excess				2.1%	2.1%	0.1%					
Treasury Protection	$7.2	9.3%	10.0	-6.9%	-6.9%	-19.7%	-5.5%				
Bloomberg Treasury 5+ Year				-6.9%	-6.9%	-19.6%	-5.6%				
Excess				-0.0%	-0.0%	-0.0%	0.1%				
Laddered Bond + Cash	$3.6	4.6%	5.0	0.4%	0.4%	0.1%	0.4%	1.1%	0.7%	1.5%	3.1%
ICE BofA US 3-Month Treasury Bill				0.5%	0.5%	0.6%	0.6%	1.1%	0.7%	1.3%	2.4%
Excess				-0.1%	-0.1%	-0.5%	-0.2%	-0.1%	0.1%	0.2%	0.7%

Note:

Since 12/1/2020 the Total Fixed Income includes allocations to Core/Core Plus Bonds, Return Seeking Bonds, Treasuries and Laddered Bond + Cash. From 7/1/2020 to 11/30/2020 Total Fixed Income was Core Bonds, Treasuries and Cash. From 2/1/2018-6/30/20 Total Fixed Income was Core Bonds and Treasuries. Prior to 2/1/2018, Total Fixed Income was Core Bonds. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

Combined Funds Asset Class Performance Summary

Private Markets

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 Year	30 Year
Private Markets - Invested	-2.5%	-2.5%	11.3%	17.1%	15.0%	13.4%	14.0%	13.2%	13.3%
Private Markets - Uninvested (1)	-4.5%	-4.5%	-14.8%						
Private Equity	-4.1%	-4.1%	6.1%	20.5%	18.8%	16.9%	15.8%	14.6%	15.6%
Private Credit	1.1%	1.1%	16.0%	12.9%	12.7%	13.2%	12.8%	12.8%	
Resources	3.3%	3.3%	29.5%	7.7%	5.1%	3.5%	13.4%	11.4%	13.0%
Real Estate	1.4%	1.4%	32.2%	18.7%	15.5%	14.0%	10.4%	10.7%	9.6%

Private Markets

The time-weighted rates of return for the Private Markets portfolio are shown here. Private Markets included Private Equity, Private Credit, Resources, and Real Estate. Some of the existing investments are relatively immature and returns may not be indicative of future results.

Private Equity Investments - The objectives of the Private Equity portfolio, which may include leveraged buyouts, growth equity, venture capital and special situations, are to achieve attractive returns and to provide overall portfolio diversification to the total plan.

Private Credit Investments - The objectives of the Private Credit portfolio, which may include mezzanine debt, direct lending, and other forms of non-investment grade fixed income instruments, are to achieve a high total return over a full market cycle and to provide some degree of downside protection and typically provide current income in the form of a coupon. In certain situations, investments in the Private Credit portfolio also provide an equity component of return in the form of warrants or re-organized equity.

Resource Investments - The objectives of the Resources portfolio, which may include energy, infrastructure, and other hard assets, are to provide protection against the risks associated with inflation and to provide overall portfolio diversification to the total plan.

Real Estate Investments - The objectives of the Real Estate portfolio, which may include core and non-core real estate investments, are to achieve attractive returns, preserve capital, provide protection against risks associated with inflation, and provide overall portfolio diversification to the total plan.

The SBI also monitors Private Markets performance using money-weighted return metrics such as Internal Rate of Return and Multiple of Invested Capital. For money-weighted return metrics please refer to the Combined Funds Performance Report.

(1) The Uninvested portion of the Private Markets allocation is invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash.

Source: State Street Bank

Asset Class & Manager Performance
September 30, 2022

The assets of the Combined Funds are allocated to public equity, fixed income, private markets, and cash. Each asset class may be further differentiated by geography, management style, and/or strategy. Managers are hired to manage the assets accordingly. This diversification is intended to reduce wide fluctuations in investment returns on a year-to-year basis and enhances the Funds' ability to meet or exceed the actuarial return target over the long-term.

The Combined Funds consist of the assets of active employees and retired members of the statewide retirement plans. The SBI commingles the assets of these plans into the Combined Funds to capture investment efficiencies. This sharing is accomplished by grouping managers by asset class, geography, and management style, into several Investment Pools. The individual funds participate in the Investment Pools by purchasing units which function much like the shares of a mutual fund.

While the vast majority of the units of these pools are owned by the Combined Funds, the Supplemental Investment Fund also owns units of these pools. The Supplemental Investment Funds are mutual fund-like investment vehicles which are used by investors in the Participant Directed Investment Program. Please refer to the Participant Directed Investment Program report for more information.

The performance information presented on the following pages for Public Equity and Fixed Income includes both the Combined Funds and Supplemental Investment Fund. The Private Markets is Combined Funds only. All assets in the Combined Funds are managed externally by investment management firms retained by contract.

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Domestic Equity
September 30, 2022

Total Domestic Equity

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	**$2,583,514,602**	**9.9%**	**-3.0%**	**-3.0%**	**-24.5%**	**6.5%**	**6.6%**	**10.4%**	**7.6%**	**06/1996**
Active Domestic Equity Benchmark			-3.4	-3.4	-20.5	5.9	6.1	10.1	8.3	06/1996
Excess			0.4	0.4	-4.1	0.7	0.5	0.3	-0.6	
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**2,553,432,038**	**9.8**	**-4.6**	**-4.6**	**-16.0**	**8.6**	**9.4**	**11.8**	**8.4**	**06/1996**
Semi Passive Domestic Equity Benchmark			-4.6	-4.6	-17.2	7.9	9.0	11.6	8.3	06/1996
Excess			0.0	0.0	1.2	0.7	0.4	0.2	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	**20,993,923,038**	**80.3**	**-4.6**	**-4.6**	**-17.3**	**7.9**	**8.9**	**11.5**	**8.5**	**06/1996**
Passive Domestic Equity Benchmark			-4.6	-4.6	-17.3	7.9	8.9	11.5	8.6	06/1996
Excess			0.0	0.0	-0.0	0.0	-0.0	-0.0	-0.1	
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	10	0.0								
TOTAL DOMESTIC EQUITY (5)	**26,130,869,688**	**100.0**	**-4.4**	**-4.4**	**-18.0**	**7.9**	**8.6**	**11.4**	**10.2**	**01/1984**
Domestic Equity Benchmark			-4.5	-4.5	-17.6	7.7	8.6	11.4	10.4	01/1984
Excess			0.0	0.0	-0.4	0.2	0.1	0.0	-0.2	

(1) The Active Domestic Equity Benchmark is a weighted composite each of the individual active domestic equity manager’s benchmarks.

(2) The current Semi-Passive Domestic Equity Benchmark is the Russell 1000 index.

(3) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.

(4) The Transition Domestic Equity Aggregate will periodically contain residual Domestic Equity securities from transitions.

(5) The current Domestic Equity Benchmark is the Russell 3000.

Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Total Domestic Equity					
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	**18.5%**	**27.3%**	**27.6%**	**-6.5%**	**20.6%**
Active Domestic Equity Benchmark	20.3	19.8	28.2	-8.0	18.3
Excess	-1.7	7.5	-0.6	1.4	2.3
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**28.8**	**21.0**	**30.9**	**-4.9**	**22.5**
Semi Passive Domestic Equity Benchmark	26.5	21.0	31.4	-4.8	21.7
Excess	2.3	0.0	-0.5	-0.1	0.8
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	**26.5**	**20.8**	**31.3**	**-5.0**	**21.3**
Passive Domestic Equity Benchmark	26.4	20.8	31.3	-5.0	21.5
Excess	0.1	0.0	0.0	-0.0	-0.2
TRANSITION AGGREGATE DOMESTIC EQUITY (4)					
TOTAL DOMESTIC EQUITY (5)	**25.8**	**21.7**	**30.7**	**-5.3**	**21.4**
Domestic Equity Benchmark	25.7	20.8	30.8	-5.2	21.1
Excess	0.1	0.9	-0.1	-0.0	0.2

(1) The Active Domestic Equity Benchmark is a weighted composite each of the individual active domestic equity manager's benchmarks.

(2) The current Semi-Passive Domestic Equity Benchmark is the Russell 1000 index.

(3) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.

(4) The Transition Domestic Equity Aggregate will periodically contain residual Domestic Equity securities from transitions.

(5) The current Domestic Equity Benchmark is the Russell 3000.

Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Large Cap Growth										
SANDS	**$137,408,851**	**0.5%**	**-3.5%**	**-3.5%**	**-53.4%**	**-0.3%**	**5.9%**	**9.9%**	**9.0%**	**01/2005**
Russell 1000 Growth			-3.6	-3.6	-22.6	10.7	12.2	13.7	10.1	01/2005
Excess			0.1	0.1	-30.9	-11.0	-6.3	-3.8	-1.1	
WINSLOW	**138,143,111**	**0.5**	**-5.6**	**-5.6**	**-30.7**	**6.4**	**10.3**	**12.4**	**10.0**	**01/2005**
Russell 1000 Growth			-3.6	-3.6	-22.6	10.7	12.2	13.7	10.1	01/2005
Excess			-2.0	-2.0	-8.1	-4.3	-1.9	-1.3	-0.1	
RUSSELL 1000 GROWTH AGGREGATE (1)	**275,551,963**	**1.1**	**-4.6**	**-4.6**	**-44.3**	**8.7**	**11.5**	**13.6**	**9.6**	**11/2003**
Russell 1000 Growth			-3.6	-3.6	-22.6	10.7	12.2	13.7	10.0	11/2003
Excess			-1.0	-1.0	-21.8	-2.0	-0.7	-0.1	-0.4	

(1) Prior to 1/1/2021 the Russell 1000 Growth Aggregate included returns from Zevenbergen, which moved to the Russell 3000 Growth benchmark and is now reported separately.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Large Cap Growth					
SANDS	**5.2%**	**71.0%**	**33.5%**	**7.0%**	**35.3%**
Russell 1000 Growth	27.6	38.5	36.4	-1.5	30.2
Excess	-22.4	32.5	-2.8	8.6	5.1
WINSLOW	**24.8**	**37.6**	**34.2**	**4.2**	**33.2**
Russell 1000 Growth	27.6	38.5	36.4	-1.5	30.2
Excess	-2.8	-0.9	-2.2	5.7	3.0
RUSSELL 1000 GROWTH AGGREGATE (1)	**12.8**	**81.3**	**37.3**	**4.7**	**33.4**
Russell 1000 Growth	27.6	38.5	36.4	-1.5	30.2
Excess	-14.8	42.8	0.9	6.2	3.2

(1) Prior to 1/1/2021 the Russell 1000 Growth Aggregate included returns from Zevenbergen, which moved to the Russell 3000 Growth benchmark and is now reported separately.

STATE STREET.

Semi-Passive Large Cap

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
BLACKROCK	**$1,273,778,487**	**4.9%**	**-5.0%**	**-5.0%**	**-16.9%**	**8.0%**	**9.2%**	**12.1%**	**9.7%**	**01/1995**
Semi Passive Domestic Equity Benchmark			-4.6	-4.6	-17.2	7.9	9.0	11.6	9.4	01/1995
Excess			-0.4	-0.4	0.3	0.0	0.2	0.5	0.4	
J.P. MORGAN	**1,279,653,551**	**4.9**	**-4.2**	**-4.2**	**-15.2**	**9.3**	**9.6**	**12.2**	**9.7**	**01/1995**
Semi Passive Domestic Equity Benchmark			-4.6	-4.6	-17.2	7.9	9.0	11.6	9.4	01/1995
Excess			0.5	0.5	2.0	1.4	0.6	0.6	0.4	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	**2,553,432,038**	**9.8**	**-4.6**	**-4.6**	**-16.0**	**8.6**	**9.4**	**11.8**	**8.4**	**06/1996**
Semi Passive Domestic Equity Benchmark			-4.6	-4.6	-17.2	7.9	9.0	11.6	8.3	06/1996
Excess			0.0	0.0	1.2	0.7	0.4	0.2	0.1	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Semi-Passive Large Cap					
BLACKROCK	**28.3%**	**20.7%**	**30.4%**	**-4.1%**	**24.6%**
Semi Passive Domestic Equity Benchmark	26.5	21.0	31.4	-4.8	21.7
Excess	1.8	-0.3	-1.0	0.7	2.9
J.P. MORGAN	**29.3**	**21.2**	**31.3**	**-5.4**	**21.8**
Semi Passive Domestic Equity Benchmark	26.5	21.0	31.4	-4.8	21.7
Excess	2.8	0.3	-0.1	-0.6	0.1
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	**28.8**	**21.0**	**30.9**	**-4.9**	**22.5**
Semi Passive Domestic Equity Benchmark	26.5	21.0	31.4	-4.8	21.7
Excess	2.3	0.0	-0.5	-0.1	0.8

Active Large Cap Value

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
BARROW HANLEY	**$318,476,697**	**1.2%**	**-4.7%**	**-4.7%**	**-4.2%**	**6.6%**	**7.7%**	**10.4%**	**7.9%**	**04/2004**
Russell 1000 Value			-5.6	-5.6	-11.4	4.4	5.3	9.2	7.2	04/2004
Excess			0.9	0.9	7.2	2.2	2.4	1.3	0.8	
LSV	**301,255,478**	**1.2**	**-6.7**	**-6.7**	**-12.4**	**4.7**	**4.7**	**10.3**	**8.0**	**04/2004**
Russell 1000 Value			-5.6	-5.6	-11.4	4.4	5.3	9.2	7.2	04/2004
Excess			-1.1	-1.1	-1.0	0.3	-0.6	1.1	0.8	
RUSSELL 1000 VALUE AGGREGATE	**619,732,175**	**2.4**	**-5.7**	**-5.7**	**-8.3**	**6.3**	**6.7**	**10.3**	**8.1**	**10/2003**
Russell 1000 Value			-5.6	-5.6	-11.4	4.4	5.3	9.2	7.9	10/2003
Excess			-0.1	-0.1	3.0	1.9	1.4	1.1	0.2	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Large Cap Value					
BARROW HANLEY	**27.7%**	**2.4%**	**26.9%**	**-5.9%**	**14.6%**
Russell 1000 Value	25.2	2.8	26.5	-8.3	13.7
Excess	2.5	-0.4	0.4	2.4	0.9
LSV	**29.7**	**-1.3**	**26.9**	**-11.8**	**18.6**
Russell 1000 Value	25.2	2.8	26.5	-8.3	13.7
Excess	4.5	-4.1	0.4	-3.6	4.9
RUSSELL 1000 VALUE AGGREGATE	**28.8**	**1.6**	**27.4**	**-8.7**	**17.3**
Russell 1000 Value	25.2	2.8	26.5	-8.3	13.7
Excess	3.7	-1.2	0.9	-0.4	3.7

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Small Cap Growth										
ARROWMARK	**$148,399,301**	**0.6%**	**-3.1%**	**-3.1%**	**-32.5%**	**1.3%**	**3.0%**		**7.5%**	**11/2016**
Russell 2000 Growth			0.2	0.2	-29.3	2.9	3.6		7.6	11/2016
Excess			-3.3	-3.3	-3.2	-1.6	-0.6		-0.1	
HOOD RIVER	**208,083,901**	**0.8**	**4.2**	**4.2**	**-24.1**	**16.9**	**11.5**		**14.4**	**11/2016**
Russell 2000 Growth			0.2	0.2	-29.3	2.9	3.6		7.6	11/2016
Excess			4.0	4.0	5.2	14.0	7.9		6.8	
RICE HALL JAMES	**169,468,099**	**0.6**	**-4.4**	**-4.4**	**-23.4**	**4.8**	**4.6**		**8.9**	**11/2016**
Russell 2000 Growth			0.2	0.2	-29.3	2.9	3.6		7.6	11/2016
Excess			-4.7	-4.7	5.9	1.8	1.0		1.3	
WELLINGTON	**211,197,258**	**0.8**	**-1.3**	**-1.3**	**-31.3**	**2.4**	**3.4**		**7.6**	**11/2016**
Russell 2000 Growth			0.2	0.2	-29.3	2.9	3.6		7.6	11/2016
Excess			-1.5	-1.5	-2.0	-0.5	-0.2		0.0	
RUSSELL 2000 GROWTH AGGREGATE	**737,148,560**	**2.8**	**-0.9**	**-0.9**	**-27.9**	**6.5**	**5.6**	**8.7%**	**7.0**	**11/2003**
Russell 2000 Growth			0.2	0.2	-29.3	2.9	3.6	8.8	7.8	11/2003
Excess			-1.2	-1.2	1.4	3.6	2.0	-0.1	-0.8	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Small Cap Growth					
ARROWMARK	**6.1%**	**21.9%**	**20.1%**	**0.9%**	**26.2%**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	3.2	-12.8	-8.4	10.3	4.1
HOOD RIVER	**24.2**	**61.7**	**24.3**	**-7.0**	**21.3**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	21.4	27.0	-4.2	2.3	-0.9
RICE HALL JAMES	**15.6**	**23.8**	**18.0**	**-6.9**	**27.9**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	12.8	-10.8	-10.5	2.4	5.8
WELLINGTON	**4.3**	**33.1**	**35.6**	**-11.6**	**22.6**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	1.4	-1.5	7.1	-2.3	0.4
RUSSELL 2000 GROWTH AGGREGATE	**12.4**	**35.4**	**24.6**	**-6.2**	**22.0**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	9.5	0.8	-3.9	3.2	-0.1

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Small Cap Value										
GOLDMAN SACHS	**$245,235,319**	**0.9%**	**-5.2%**	**-5.2%**	**-16.7%**	**2.7%**	**2.4%**	**8.2%**	**8.0%**	**01/2004**
Russell 2000 Value			-4.6	-4.6	-17.7	4.7	2.9	7.9	7.0	01/2004
Excess			-0.6	-0.6	1.0	-2.0	-0.5	0.3	1.0	
HOTCHKIS AND WILEY	**164,721,367**	**0.6**	**-0.7**	**-0.7**	**-6.2**	**10.2**	**5.2**	**10.0**	**7.9**	**01/2004**
Russell 2000 Value			-4.6	-4.6	-17.7	4.7	2.9	7.9	7.0	01/2004
Excess			3.9	3.9	11.5	5.4	2.3	2.1	1.0	
MARTINGALE	**147,985,031**	**0.6**	**-3.7**	**-3.7**	**-10.3**	**6.4**	**3.2**	**9.6**	**7.1**	**01/2004**
Russell 2000 Value			-4.6	-4.6	-17.7	4.7	2.9	7.9	7.0	01/2004
Excess			0.9	0.9	7.4	1.7	0.3	1.7	0.2	
PEREGRINE	**232,478,629**	**0.9**	**-5.5**	**-5.5**	**-14.7**	**5.2**	**3.5**	**8.4**	**9.0**	**07/2000**
Russell 2000 Value			-4.6	-4.6	-17.7	4.7	2.9	7.9	8.4	07/2000
Excess			-0.9	-0.9	3.0	0.5	0.6	0.4	0.6	
RUSSELL 2000 VALUE AGGREGATE	**790,420,345**	**3.0**	**-4.1**	**-4.1**	**-12.9**	**5.5**	**3.2**	**8.8**	**8.1**	**10/2003**
Russell 2000 Value			-4.6	-4.6	-17.7	4.7	2.9	7.9	7.7	10/2003
Excess			0.5	0.5	4.8	0.7	0.4	0.9	0.4	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Small Cap Value					
GOLDMAN SACHS	**27.0%**	**2.4%**	**23.2%**	**-13.3%**	**12.6%**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	-1.3	-2.3	0.8	-0.5	4.7
HOTCHKIS AND WILEY	**36.5**	**-0.2**	**19.7**	**-14.4**	**7.9**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	8.2	-4.8	-2.7	-1.5	0.0
MARTINGALE	**41.3**	**-4.6**	**21.1**	**-15.0**	**6.9**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	13.0	-9.2	-1.3	-2.1	-0.9
PEREGRINE	**28.6**	**7.3**	**21.1**	**-16.1**	**12.5**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	0.3	2.7	-1.3	-3.3	4.7
RUSSELL 2000 VALUE AGGREGATE	**31.8**	**1.5**	**21.3**	**-14.7**	**10.2**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	3.5	-3.1	-1.1	-1.8	2.3

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active All Cap										
ZEVENBERGEN (1)	**$160,661,558**	**0.6%**	**8.1%**	**8.1%**	**-52.0%**	**6.1%**	**9.6%**	**13.4%**	**10.2%**	**04/1994**
Zevenbergen Custom Benchmark			-3.4	-3.4	-23.0	12.0	13.0	14.1		04/1994
Excess			11.4	11.4	-29.0	-5.9	-3.4	-0.7		
ACTIVE RUSSELL 3000 GROWTH (2)	**160,661,558**	**0.6**	**8.1**	**8.1**	**-52.0**				**-35.9**	**01/2021**
Russell 3000 Growth TR			-3.4	-3.4	-23.0				-7.4	01/2021
Excess			11.4	11.4	-29.0				-28.5	

(1) Effective 1/1/2021, the SBI changed the Zevenbergen Benchmark to the Russell 3000 Growth. Prior to this date it was the Russell 1000 Growth.

(2) Prior to 1/1/2021, Zevenbergen returns were reported as part of the Russell 1000 Growth Aggregate.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active All Cap					
ZEVENBERGEN (1)	**-9.7%**	**126.2%**	**43.0%**	**2.3%**	**35.1%**
Zevenbergen Custom Benchmark	32.3	38.5	36.4	-1.5	30.2
Excess	-42.0	87.7	6.7	3.8	4.9
ACTIVE RUSSELL 3000 GROWTH (2)	**-9.7**				
Russell 3000 Growth TR	25.8				
Excess	-35.6				

(1) Effective 1/1/2021, the SBI changed the Zevenbergen Benchmark to the Russell 3000 Growth. Prior to this date it was the Russell 1000 Growth.

(2) Prior to 1/1/2021, Zevenbergen returns were reported as part of the Russell 1000 Growth Aggregate.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Total Passive Domestic Equity										
BLACKROCK RUSSELL 1000	**$19,961,191,388**	**76.4%**	**-4.6%**	**-4.6%**	**-17.3%**	**7.9%**	**9.0%**		**11.0%**	**11/2016**
RUSSELL 1000 (DAILY)			-4.6	-4.6	-17.2	7.9	9.0		11.1	11/2016
Excess			0.0	0.0	-0.1	-0.0	-0.0		-0.0	
BLACKROCK RUSSELL 2000	**159,395,389**	**0.6**	**-2.2**	**-2.2**	**-22.7**	**5.2**			**4.6**	**11/2018**
RUSSELL 2000 (DAILY)			-2.2	-2.2	-23.5	4.3			3.8	11/2018
Excess			-0.0	-0.0	0.8	0.9			0.7	
BLACKROCK RUSSELL 3000 (1)	**873,336,261**	**3.3**	**-4.4**	**-4.4**	**-17.6**	**8.0**	**8.8**	**11.5%**	**9.1**	**07/1995**
Passive Manager Benchmark			-4.5	-4.5	-17.6	7.7	8.6	11.4	9.0	07/1995
Excess			0.0	0.0	0.0	0.3	0.2	0.1	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**20,993,923,038**	**80.3**	**-4.6**	**-4.6**	**-17.3**	**7.9**	**8.9**	**11.5**	**8.5**	**06/1996**
Passive Domestic Equity Benchmark			-4.6	-4.6	-17.3	7.9	8.9	11.5	8.6	06/1996
Excess			0.0	0.0	-0.0	0.0	-0.0	-0.0	-0.1	

(1) The current Passive Manager Benchmark is the Russell 3000. For historical benchmark details please refer to the addendum of this report.

(2) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Total Passive Domestic Equity					
BLACKROCK RUSSELL 1000	**26.5%**	**20.9%**	**31.4%**	**-4.8%**	**21.7%**
RUSSELL 1000 (DAILY)	26.5	21.0	31.4	-4.8	21.7
Excess	0.1	-0.0	0.0	-0.0	-0.0
BLACKROCK RUSSELL 2000	**16.0**	**20.8**	**25.2**		
RUSSELL 2000 (DAILY)	14.8	20.0	25.5		
Excess	1.2	0.8	-0.3		
BLACKROCK RUSSELL 3000 (1)	**26.2**	**21.2**	**31.1**	**-5.2**	**21.1**
Passive Manager Benchmark	25.7	20.9	31.0	-5.2	21.1
Excess	0.5	0.3	0.0	-0.0	0.0
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**26.5**	**20.8**	**31.3**	**-5.0**	**21.3**
Passive Domestic Equity Benchmark	26.4	20.8	31.3	-5.0	21.5
Excess	0.1	0.0	0.0	-0.0	-0.2

(1) The current Passive Manager Benchmark is the Russell 3000. For historical benchmark details please refer to the addendum of this report.

(2) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.

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International Equity

September 30, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Total International Equity										
DEVELOPED MARKETS (1)	**$8,055,539,170**	**71.2%**	**-5.7%**	**-5.7%**	**-18.2%**	**1.9%**	**1.5%**	**5.1%**	**4.7%**	**01/1997**
BENCHMARK DM			-9.2	-9.2	-23.9	-1.2	-0.4	3.6	1.5	01/1997
Excess			3.5	3.5	5.8	3.1	2.0	1.5	3.2	
EMERGING MARKETS (2)	**2,804,289,080**	**24.8**	**-10.4**	**-10.4**	**-28.9**	**-2.2**	**-2.0**	**1.1**	**4.6**	**11/1996**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8	1.0	4.9	11/1996
Excess			1.2	1.2	-0.8	-0.2	-0.2	0.0	-0.3	
ACWI EX-US AGGREGATE	**307,635,835**	**2.7**	**-9.3**	**-9.3**	**-22.1**				**-8.0**	**01/2021**
MSCI AC WORLD ex US (NET) - DAILY			-9.9	-9.9	-25.2				-12.5	01/2021
Excess			0.6	0.6	3.1				4.4	
CHINA ONLY AGGREGATE	**138,429,929**	**1.2**	**-19.3**	**-19.3**	**-28.7**				**-21.2**	**01/2021**
MSCI China A			-18.3	-18.3	-26.7				-16.3	01/2021
Excess			-1.0	-1.0	-2.0				-4.9	
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	1,142,429	0.0								
TOTAL INTERNATIONAL EQUITY (4)	**11,307,036,443**	**100.0**	**-7.2**	**-7.2**	**-21.3**	**0.6**	**0.5**	**4.1**	**5.7**	**10/1992**
International Equity Benchmark			-9.9	-9.9	-25.2	-1.6	-0.8	3.0	5.1	10/1992
Excess			2.7	2.7	3.9	2.2	1.3	1.1	0.6	

(1) The current benchmark for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net).

(2) The current benchmark for Emerging Markets, Benchmark EM, is the Standard (large + mid) MSCI Emerging Markets Free (net).

(3) The Transition Aggregate International Equity contains International Equity securities that are being transitioned to a different manager.

(4) The current International Equity Benchmark is the MSCI ACWI ex USA (net). Does not includes impact of currency overlay on the passive EAFE portfolio from 12/1/95-10/31/00. This impact is included in the return for the Combined Funds portion of the International Equity portfolio.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Total International Equity					
DEVELOPED MARKETS (1)	**13.5%**	**8.9%**	**23.3%**	**-14.2%**	**24.9%**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.9	1.3	0.8	-0.1	0.7
EMERGING MARKETS (2)	**-1.5**	**17.9**	**20.3**	**-15.4**	**37.7**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	1.1	-0.4	1.9	-0.8	0.4
ACWI EX-US AGGREGATE	**12.8**				
MSCI AC WORLD ex US (NET) - DAILY	7.8				
Excess	4.9				
CHINA ONLY AGGREGATE	**-2.9**				
MSCI China A	3.2				
Excess	-6.1				
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)					
TOTAL INTERNATIONAL EQUITY (4)	**8.9**	**11.4**	**22.4**	**-14.5**	**27.6**
International Equity Benchmark	7.8	10.5	21.5	-14.2	27.2
Excess	1.1	0.8	0.9	-0.3	0.4

(1) The current benchmark for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net).

(2) The current benchmark for Emerging Markets, Benchmark EM, is the Standard (large + mid) MSCI Emerging Markets Free (net).

(3) The Transition Aggregate International Equity contains International Equity securities that are being transitioned to a different manager.

(4) The current International Equity Benchmark is the MSCI ACWI ex USA (net). Does not includes impact of currency overlay on the passive EAFE portfolio from 12/1/95-10/31/00. This impact is included in the return for the Combined Funds portion of the International Equity portfolio.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Developed Markets										
ACADIAN	**$303,885,376**	**2.7%**	**-7.9%**	**-7.9%**	**-20.9%**	**1.1%**	**0.9%**	**7.0%**	**5.3%**	**07/2005**
BENCHMARK DM			-9.2	-9.2	-23.9	-1.2	-0.4	3.6	3.6	07/2005
Excess			1.3	1.3	3.1	2.3	1.3	3.4	1.7	
COLUMBIA	**310,203,687**	**2.7**	**-7.9**	**-7.9**	**-25.4**	**0.9**	**2.1**	**5.3**	**2.7**	**03/2000**
BENCHMARK DM			-9.2	-9.2	-23.9	-1.2	-0.4	3.6	2.7	03/2000
Excess			1.3	1.3	-1.5	2.2	2.5	1.7	0.1	
FIDELITY	**301,385,654**	**2.7**	**-10.3**	**-10.3**	**-26.8**	**0.2**	**1.0**	**5.0**	**5.1**	**07/2005**
BENCHMARK DM			-9.2	-9.2	-23.9	-1.2	-0.4	3.6	3.6	07/2005
Excess			-1.1	-1.1	-2.8	1.5	1.4	1.4	1.5	
JP MORGAN	**265,271,763**	**2.3**	**-8.3**	**-8.3**	**-26.1**	**-0.7**	**0.3**	**4.0**	**4.0**	**07/2005**
BENCHMARK DM			-9.2	-9.2	-23.9	-1.2	-0.4	3.6	3.6	07/2005
Excess			0.9	0.9	-2.2	0.6	0.7	0.4	0.3	
MARATHON	**295,777,253**	**2.6**	**-8.8**	**-8.8**	**-23.8**	**-0.1**	**0.2**	**5.1**	**7.0**	**11/1993**
BENCHMARK DM			-9.2	-9.2	-23.9	-1.2	-0.4	3.6	4.3	11/1993
Excess			0.4	0.4	0.1	1.1	0.6	1.5	2.7	
MCKINLEY	**218,528,969**	**1.9**	**-9.8**	**-9.8**	**-27.1**	**-0.1**	**0.3**	**4.5**	**3.6**	**07/2005**
BENCHMARK DM			-9.2	-9.2	-23.9	-1.2	-0.4	3.6	3.6	07/2005
Excess			-0.6	-0.6	-3.2	1.1	0.7	0.8	0.0	
AQR CAPITAL MANAGEMENT	**279,757,691**	**2.5**	**-10.4**	**-10.4**	**-23.9**	**-2.1**	**-2.6**	**3.4**	**3.5**	**07/2005**
BENCHMARK DM			-9.2	-9.2	-23.9	-1.2	-0.4	3.6	3.6	07/2005
Excess			-1.2	-1.2	0.0	-0.9	-2.2	-0.3	-0.1	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Developed Markets					
ACADIAN	**13.6%**	**11.7%**	**19.1%**	**-13.5%**	**37.0%**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.9	4.2	-3.4	0.6	12.8
COLUMBIA	**14.2**	**15.0**	**28.9**	**-14.9**	**32.7**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	1.6	7.4	6.4	-0.8	8.5
FIDELITY	**13.0**	**15.4**	**27.1**	**-14.6**	**25.9**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.4	7.8	4.6	-0.5	1.7
JP MORGAN	**13.3**	**14.2**	**28.5**	**-17.3**	**28.3**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.7	6.6	6.0	-3.3	4.1
MARATHON	**12.8**	**7.6**	**23.5**	**-13.4**	**23.1**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.2	0.1	1.0	0.7	-1.1
MCKINLEY	**11.6**	**16.4**	**25.6**	**-15.9**	**28.5**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	-1.0	8.8	3.1	-1.9	4.3
AQR CAPITAL MANAGEMENT	**8.1**	**6.5**	**20.8**	**-18.2**	**25.1**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	-4.5	-1.1	-1.7	-4.1	0.9

Total Developed Markets

	Ending Market Value	Portfolio Weight	1 Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Developed Markets Aggregate (1)	**$1,974,810,392**	**17.5%**	**-9.0%**	**-9.0%**	**-24.8%**	**-0.1%**	**0.2%**	**4.8%**	**4.7%**	**06/1996**
BENCHMARK DM			-9.2%	-9.2%	-23.9%	-1.2%	-0.4%	3.6%	1.5%	06/1996
Excess			0.2%	0.2%	-0.9%	1.1%	0.6%	1.1%	3.2%	
SSgA DEVELOPED MARKETS PASSIVE	**$5,653,285,586**	**50.0%**	**-9.2%**	**-9.2%**	**-23.5%**	**-0.7%**	**0.0%**	**4.0%**		
BENCHMARK DM			-9.2%	-9.2%	-23.9%	-1.2%	-0.4%	3.6%		
Excess			-0.0%	-0.0%	0.4%	0.5%	0.4%	0.4%		
RECORD CURRENCY (2)	**$427,443,191**	**3.8%**	**3.5%**	**3.5%**	**5.7%**					**10/2020**
DEVELOPED MARKETS	**$8,055,539,170**	**71.2%**	**-5.7%**	**-5.7%**	**-18.2%**	**1.9%**	**1.5%**	**5.1%**	**4.7%**	**01/1997**
BENCHMARK DM			-9.2	-9.2	-23.9	-1.2	-0.4	3.6	1.5	01/1997
Excess			3.5	3.5	5.8	3.1	2.0	1.5	3.2	

(1) Includes the historical returns of AQR and terminated managers previously classified as "Semi-Passive Developed Markets."

(2) Return for Record Currency is the difference between the DM Equity with Currency Management and without.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Total Developed Markets					
Active Developed Markets Aggregate (1)	**12.5%**	**12.2%**	**24.4%**	**-15.1%**	**26.8%**
BENCHMARK DM	12.6%	7.6%	22.5%	-14.1%	24.2%
Excess	-0.1%	4.6%	1.9%	-1.0%	2.6%
SSgA DEVELOPED MARKETS PASSIVE	**13.0%**	**8.2%**	**23.0%**	**-13.9%**	**24.7%**
BENCHMARK DM	12.6%	7.6%	22.5%	-14.1%	24.2%
Excess	0.4%	0.6%	0.5%	0.2%	0.5%
DEVELOPED MARKETS	**13.5%**	**8.9%**	**23.3%**	**-14.2%**	**24.9%**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.9	1.3	0.8	-0.1	0.7

(1) Includes the historical returns of AQR and terminated managers previously classified as "Semi-Passive Developed Markets"

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Emerging Markets										
MARTIN CURRIE	**$321,010,919**	**2.8%**	**-11.4%**	**-11.4%**	**-34.0%**	**-2.3%**	**-1.3%**		**2.4%**	**04/2017**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8		0.8	04/2017
Excess			0.2	0.2	-5.9	-0.2	0.5		1.6	
MACQUARIE	**302,149,489**	**2.7**	**-12.8**	**-12.8**	**-30.8**	**-2.1**	**-2.0**		**1.5**	**04/2017**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8		0.8	04/2017
Excess			-1.3	-1.3	-2.7	0.0	-0.2		0.6	
MORGAN STANLEY	**388,043,196**	**3.4**	**-6.9**	**-6.9**	**-30.8**	**-2.9**	**-2.7**	**1.2%**	**7.3**	**01/2001**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8	1.0	7.1	01/2001
Excess			4.7	4.7	-2.7	-0.8	-0.9	0.2	0.2	
NEUBERGER BERMAN	**286,590,009**	**2.5**	**-10.7**	**-10.7**	**-29.7**	**-5.7**	**-3.9**		**-0.7**	**04/2017**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8		0.8	04/2017
Excess			0.9	0.9	-1.6	-3.6	-2.1		-1.6	
PZENA	**306,009,678**	**2.7**	**-7.6**	**-7.6**	**-19.1**	**3.0**	**0.6**		**2.4**	**04/2017**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8		0.8	04/2017
Excess			4.0	4.0	9.0	5.1	2.4		1.6	
ROCK CREEK	**318,125,025**	**2.8**	**-9.7**	**-9.7**	**-28.0**	**-1.3**	**-1.7**		**0.6**	**04/2017**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8		0.8	04/2017
Excess			1.9	1.9	0.1	0.8	0.1		-0.2	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Emerging Markets					
MARTIN CURRIE	**-3.5%**	**26.5%**	**27.3%**	**-16.6%**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	-1.0	8.2	8.8	-2.0	
MACQUARIE	**-2.2**	**24.2**	**23.2**	**-13.3**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	0.3	5.9	4.7	1.3	
MORGAN STANLEY	**3.5**	**15.7**	**20.4**	**-16.7**	**37.9%**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	6.0	-2.6	1.9	-2.2	0.6
NEUBERGER BERMAN	**-5.6**	**14.2**	**19.7**	**-17.1**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	-3.1	-4.1	1.3	-2.6	
PZENA	**9.3**	**7.7**	**13.4**	**-10.8**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	11.8	-10.6	-5.1	3.8	
ROCK CREEK	**-5.2**	**22.0**	**22.3**	**-17.6**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	-2.7	3.7	3.9	-3.1	

Total Emerging Markets

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ACTIVE EMERGING MARKETS AGGREGATE	**$1,921,928,315**	**17.0%**	**-9.8%**	**-9.8%**	**-29.1%**	**-2.3%**	**-2.0%**	**0.9%**	**1.9%**	**01/2012**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8	1.0	2.0	01/2012
Excess			1.8	1.8	-1.0	-0.2	-0.2	-0.2	-0.2	
SSGA EMERGING MARKETS PASSIVE	**882,360,765**	**7.8**	**-11.7**	**-11.7**	**-28.3**	**-2.3**	**-2.0**	**1.1**	**2.0**	**01/2012**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8	1.0	2.0	01/2012
Excess			-0.1	-0.1	-0.2	-0.2	-0.2	0.0	-0.0	
EMERGING MARKETS TOTAL	**2,804,289,080**	**24.8**	**-10.4**	**-10.4**	**-28.9**	**-2.2**	**-2.0**	**1.1**	**4.6**	**11/1996**
BENCHMARK EM			-11.6	-11.6	-28.1	-2.1	-1.8	1.0	4.9	11/1996
Excess			1.2	1.2	-0.8	-0.2	-0.2	0.0	-0.3	

Total Emerging Markets

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
ACTIVE EMERGING MARKETS AGGREGATE	**-0.9%**	**17.6%**	**21.4%**	**-15.6%**	**37.2%**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	1.6	-0.7	3.0	-1.0	-0.1
SSGA EMERGING MARKETS PASSIVE	**-2.9**	**18.3**	**18.1**	**-14.7**	**37.4**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	-0.3	0.0	-0.3	-0.1	0.1
EMERGING MARKETS TOTAL	**-1.5**	**17.9**	**20.3**	**-15.4**	**37.7**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	1.1	-0.4	1.9	-0.8	0.4

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active ACWI ex-US										
EARNEST PARTNERS ACWI EX US	**$307,635,835**	**2.7%**	**-9.3%**	**-9.3%**	**-22.1%**				**-8.0%**	**01/2021**
MSCI AC WORLD ex US (NET) - DAILY			-9.9%	-9.9%	-25.2%				-12.5%	01/2021
Excess			0.6%	0.6%	3.1%				4.4%	
TOTAL ACWI EX-US AGGREGATE	**$307,635,835**	**2.7%**	**-9.3%**	**-9.3%**	**-22.1%**				**-8.0%**	**01/2021**
MSCI AC WORLD ex US (NET) - DAILY			-9.9%	-9.9%	-25.2%				-12.5%	01/2021
Excess			0.6%	0.6%	3.1%				4.4%	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active ACWI ex-US					
EARNEST PARTNERS ACWI EX US	**12.8%**				
MSCI AC WORLD ex US (NET) - DAILY	7.8				
Excess	4.9				
TOTAL ACWI EX-US AGGREGATE	**12.8**				
MSCI AC WORLD ex US (NET) - DAILY	7.8				
Excess	4.9				

China Only Managers

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
EARNEST PARTNERS CHINA	**$138,429,929**	**1.2%**	**-19.3%**	**-19.3%**	**-28.7%**				**-21.2%**	**01/2021**
MSCI China A			-18.3	-18.3	-26.7				-16.3	01/2021
Excess			-1.0	-1.0	-2.0				-4.9	
CHINA ONLY AGGREGATE	**138,429,929**	**1.2**	**-19.3**	**-19.3**	**-28.7**				**-21.2**	**01/2021**
MSCI China A			-18.3	-18.3	-26.7				-16.3	01/2021
Excess			-1.0	-1.0	-2.0				-4.9	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
China Only Managers					
EARNEST PARTNERS CHINA	**-2.9%**				
MSCI China A	3.2				
Excess	-6.1				
CHINA ONLY AGGREGATE	**-2.9**				
MSCI China A	3.2				
Excess	-6.1				

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Global Equity

September 30, 2022

Global Equity Managers

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ARIEL INVESTMENTS	**$332,698,772**	**43.3%**	**-9.4%**	**-9.4%**	**-8.8%**				**-2.0%**	**01/2021**
MSCI AC WORLD NET USD DAILY			-6.8	-6.8	-20.7				-7.0	01/2021
Excess			-2.6	-2.6	11.9				5.0	
BAILLIE GIFFORD	**170,496,187**	**22.2**	**-5.1**	**-5.1**	**-49.1**				**-29.7**	**01/2021**
MSCI AC WORLD NET USD DAILY			-6.8	-6.8	-20.7				-7.0	01/2021
Excess			1.7	1.7	-28.4				-22.8	
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	**265,711,599**	**34.6**	**-10.6**	**-10.6**	**-36.5**				**-20.1**	**01/2021**
MSCI AC WORLD NET USD DAILY			-6.8	-6.8	-20.7				-7.0	01/2021
Excess			-3.8	-3.8	-15.8				-13.1	
GLOBAL EQUITY	**768,906,558**	**100.0**	**-8.9**	**-8.9**	**-31.2**				**-16.5**	**01/2021**
MSCI AC WORLD NET USD DAILY			-6.8	-6.8	-20.7				-7.0	01/2021
Excess			-2.1	-2.1	-10.6				-9.5	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Global Equity Managers					
ARIEL INVESTMENTS	**12.1%**				
MSCI AC WORLD NET USD DAILY	18.5				
Excess	-6.5				
BAILLIE GIFFORD	**3.1**				
MSCI AC WORLD NET USD DAILY	18.5				
Excess	-15.5				
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	**12.8**				
MSCI AC WORLD NET USD DAILY	18.5				
Excess	-5.8				
GLOBAL EQUITY	**9.6**				
MSCI AC WORLD NET USD DAILY	18.5				
Excess	-8.9				

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Core/Core Plus Bonds
September 30, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Bonds										
CORE (1)	**$1,724,634,157**	**40.3%**	**-4.2%**	**-4.2%**	**-14.3%**				**-7.2%**	**11/2020**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6				-8.1	11/2020
Excess			0.5	0.5	0.3				0.9	
CORE PLUS (1)	**2,558,840,126**	**59.7**	**-5.0**	**-5.0**	**-17.1**				**-8.7**	**11/2020**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6				-8.1	11/2020
Excess			-0.2	-0.2	-2.5				-0.6	
TRANSITION AGGREGATE CORE BONDS (2)	19,085	0.0								
TOTAL CORE/CORE PLUS BONDS (3)	**4,283,493,368**	**100.0**	**-4.7**	**-4.7**	**-16.0**	**-2.8%**	**0.1%**	**1.4%**	**6.7**	**07/1984**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6	-3.3	-0.3	0.9	6.4	07/1984
Excess			0.1	0.1	-1.4	0.4	0.4	0.5	0.3	

(1) Prior to 12/1/2020 the Core and Core Plus managers were categorized as Active or Semi-Passive. For historical performance of each manager, see the following pages in this report. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.

(2) The Transition Aggregate Core Bonds includes core bonds securities that are being transition to a different manager.

(3) The current Core Bonds Benchmark is the Bloomberg U.S. Aggregate calculated daily. For historical benchmark details please refer to the addendum of this report.

Note: All aggregates include the performance of terminated managers. Inception refers to the date of retention by the SBI.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Bonds					
CORE (1)	**-1.0%**				
Bloomberg U.S. Aggregate	-1.5				
Excess	0.5				
CORE PLUS (1)	**-1.1**				
Bloomberg U.S. Aggregate	-1.5				
Excess	0.4				
TRANSITION AGGREGATE CORE BONDS (2)					
TOTAL CORE/CORE PLUS BONDS (3)	**-1.1**	**9.7%**	**9.7%**	**-0.0%**	**4.2%**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.5	2.2	1.0	-0.1	0.7

(1) Prior to 12/1/2020 the Core and Core Plus managers were categorized as Active or Semi-Passive. For historical performance of each manager, see the following pages in this report. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.

(2) The Transition Aggregate Core Bonds includes core bonds securities that are being transition to a different manager.

(3) The current Core Bonds Benchmark is the Bloomberg U.S. Aggregate calculated daily. For historical benchmark details please refer to the addendum of this report.

Note: All aggregates include the performance of terminated managers. Inception refers to the date of retention by the SBI.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Core										
DODGE & COX	**$921,025,985**	**21.5%**	**-3.8%**	**-3.8%**	**-13.6%**	**-1.8%**	**0.7%**	**2.0%**	**5.0%**	**02/2000**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6	-3.3	-0.3	0.9	4.0	02/2000
Excess			0.9	0.9	1.0	1.5	1.0	1.1	1.0	
BLACKROCK	**803,608,172**	**18.8**	**-4.7**	**-4.7**	**-15.1**	**-3.1**	**-0.1**	**1.1**	**4.3**	**04/1996**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6	-3.3	-0.3	0.9	4.2	04/1996
Excess			0.0	0.0	-0.5	0.2	0.2	0.2	0.1	
CORE	**1,724,634,157**	**40.3**	**-4.2**	**-4.2**	**-14.3**				**-7.2**	**11/2020**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6				-8.1	11/2020
Excess			0.5	0.5	0.3				0.9	

(1) Prior to 12/1/2020 the Core managers were categorized as Active or Semi-Passive. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Core					
DODGE & COX	**-0.7%**	**9.4%**	**9.6%**	**-0.0%**	**4.2%**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.8	1.8	0.9	-0.1	0.7
BLACKROCK	**-1.3**	**8.3**	**9.3**	**-0.1**	**3.7**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.2	0.8	0.6	-0.2	0.1
CORE	**-1.0**				
Bloomberg U.S. Aggregate	-1.5				
Excess	0.5				

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Core Plus Bonds										
GOLDMAN SACHS	**$805,763,251**	**18.8%**	**-5.0%**	**-5.0%**	**-15.5%**	**-3.1%**	**-0.0%**	**1.1%**	**4.7%**	**07/1993**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6	-3.3	-0.3	0.9	4.4	07/1993
Excess			-0.2	-0.2	-0.9	0.1	0.2	0.3	0.3	
NEUBERGER	**838,095,857**	**19.6**	**-4.4**	**-4.4**	**-15.5**	**-2.5**	**0.2**	**1.2**	**5.6**	**07/1988**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6	-3.3	-0.3	0.9	5.3	07/1988
Excess			0.4	0.4	-0.9	0.7	0.5	0.3	0.3	
WESTERN	**914,981,018**	**21.4**	**-5.5**	**-5.5**	**-19.8**	**-3.8**	**-0.3**	**1.5**	**7.4**	**07/1984**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6	-3.3	-0.3	0.9	6.4	07/1984
Excess			-0.8	-0.8	-5.2	-0.6	-0.0	0.6	1.0	
CORE PLUS	**2,558,840,126**	**59.7**	**-5.0**	**-5.0**	**-17.1**				**-8.7**	**11/2020**
Bloomberg U.S. Aggregate			-4.8	-4.8	-14.6				-8.1	11/2020
Excess			-0.2	-0.2	-2.5				-0.6	

(1) Prior to 12/1/2020 the Core managers were categorized as Active or Semi-Passive. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Core Plus Bonds					
GOLDMAN SACHS	**-1.5%**	**9.0%**	**9.6%**	**-0.0%**	**3.9%**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.0	1.5	0.9	-0.0	0.4
NEUBERGER	**-0.6**	**9.9**	**9.0**	**-0.1**	**3.6**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	1.0	2.4	0.3	-0.1	0.0
WESTERN	**-1.3**	**10.9**	**11.1**	**-0.2**	**5.6**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.3	3.4	2.4	-0.3	2.1
CORE PLUS	**-1.1**				
Bloomberg U.S. Aggregate	-1.5				
Excess	0.4				

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Return Seeking Bonds

September 30, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Return Seeking Bonds Managers										
COLUMBIA CREDIT PLUS	**$810,649,024**	**21.2%**	**-4.5%**	**-4.5%**	**-18.0%**				**-9.2%**	**12/2020**
Credit Plus Benchmark			-4.2	-4.2	-16.8				-9.5	12/2020
Excess			-0.3	-0.3	-1.2				0.3	
PIMCO CREDIT PLUS	**771,268,460**	**20.2**	**-3.8**	**-3.8**	**-16.3**				**-8.6**	**12/2020**
Credit Plus Benchmark			-4.2	-4.2	-16.8				-9.5	12/2020
Excess			0.4	0.4	0.4				1.0	
CREDIT PLUS	**1,581,917,483**	**41.4**	**-4.2**	**-4.2**	**-17.2**				**-8.9**	**12/2020**
Credit Plus Benchmark			-4.2	-4.2	-16.8				-9.5	12/2020
Excess			0.0	0.0	-0.4				0.6	
BLACKROCK OPPORTUNISTIC	**513,031,504**	**13.4**	**-1.4**	**-1.4**	**-7.9**				**-3.9**	**12/2020**
ICE BofA US 3-Month Treasury Bill			0.5	0.5	0.6				0.4	12/2020
Excess			-1.9	-1.9	-8.5				-4.2	
ASHMORE EMERGING MARKET	**248,269,489**	**6.5**	**-6.0**	**-6.0**	**-26.6**				**-19.5**	**01/2021**
JPM JEMB Sovereign-only 50-50			-4.6	-4.6	-22.5				-15.5	01/2021
Excess			-1.3	-1.3	-4.2				-4.0	
TCW SECURITIZED CREDIT	**338,564,449**	**8.9**	**-1.1**	**-1.1**	**-3.4**				**-2.6**	**07/2021**
ICE BofA US 3-Month Treasury Bill			0.5	0.5	0.6				0.5	07/2021
Excess			-1.6	-1.6	-4.0				-3.1	

STATE STREET.

Return Seeking Bonds Managers	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
COLUMBIA CREDIT PLUS	**1.1%**				
Credit Plus Benchmark	0.0				
Excess	1.1				
PIMCO CREDIT PLUS	**0.8**				
Credit Plus Benchmark	0.0				
Excess	0.7				
CREDIT PLUS	**0.9**				
Credit Plus Benchmark	0.0				
Excess	0.9				
BLACKROCK OPPORTUNISTIC	**0.3**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	0.2				
ASHMORE EMERGING MARKET	**-10.1**				
JPM JEMB Sovereign-only 50-50	-5.3				
Excess	-4.8				
TCW SECURITIZED CREDIT					
ICE BofA US 3-Month Treasury Bill					
Excess					

STATE STREET

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Return Seeking Bonds Managers										
PAYDEN RYGEL	**$262,654,494**	**6.9%**	**-1.9%**	**-1.9%**	**-14.7%**				**-7.4%**	**01/2021**
Multi-Asset Credit Benchmark			-1.4	-1.4	-13.9				-7.0	01/2021
Excess			-0.5	-0.5	-0.8				-0.4	
PGIM	**304,948,079**	**8.0**	**-1.4**	**-1.4**	**-14.8**				**-7.9**	**01/2021**
Multi-Asset Credit Benchmark			-1.4	-1.4	-13.9				-7.0	01/2021
Excess			-0.1	-0.1	-0.9				-0.9	
MULTI-ASSET CREDIT	**567,602,573**	**14.9**	**-1.7**	**-1.7**	**-14.8**				**-7.7**	**01/2021**
Multi-Asset Credit Benchmark			-1.4	-1.4	-13.9				-7.0	01/2021
Excess			-0.3	-0.3	-0.9				-0.7	
KKR	**280,420,895**	**7.3**	**-0.1**	**-0.1**	**-13.4**				**-6.0**	**01/2021**
ICE BofA US Cash Pay HY Constrained			-0.7	-0.7	-14.0				-5.9	01/2021
Excess			0.6	0.6	0.6				-0.1	
OAKTREE	**278,437,328**	**7.3**	**-0.6**	**-0.6**	**-12.9**				**-5.7**	**01/2021**
ICE BofA US Cash Pay HY Constrained			-0.7	-0.7	-14.0				-5.9	01/2021
Excess			0.1	0.1	1.1				0.2	
HIGH YIELD	**558,858,223**	**14.6**	**-0.4**	**-0.4**	**-13.2**				**-5.8**	**01/2021**
ICE BofA US Cash Pay HY Constrained			-0.7	-0.7	-14.0				-5.9	01/2021
Excess			0.3	0.3	0.8				0.0	

Return Seeking Bonds Managers	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
PAYDEN RYGEL	**2.6%**				
Multi-Asset Credit Benchmark	2.7				
Excess	-0.1				
PGIM	**3.2**				
Multi-Asset Credit Benchmark	2.7				
Excess	0.5				
MULTI-ASSET CREDIT	**2.9**				
Multi-Asset Credit Benchmark	2.7				
Excess	0.2				
KKR	**4.7**				
ICE BofA US Cash Pay HY Constrained	5.3				
Excess	-0.6				
OAKTREE	**4.5**				
ICE BofA US Cash Pay HY Constrained	5.3				
Excess	-0.8				
HIGH YIELD	**4.6**				
ICE BofA US Cash Pay HY Constrained	5.3				
Excess	-0.7				

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Return Seeking Bonds										
CREDIT PLUS	**$1,581,917,483**	**41.4%**	**-4.2%**	**-4.2%**	**-17.2%**				**-8.9%**	**12/2020**
Credit Plus Benchmark			-4.2	-4.2	-16.8				-9.5	12/2020
Excess			0.0	0.0	-0.4				0.6	
OPPORTUNISTIC FI	**513,031,504**	**13.4**	**-1.4**	**-1.4**	**-7.9**				**-3.9**	**12/2020**
ICE BofA US 3-Month Treasury Bill			0.5	0.5	0.6				0.4	12/2020
Excess			-1.9	-1.9	-8.5				-4.2	
EMERGING MARKET DEBT	**248,269,489**	**6.5**	**-6.0**	**-6.0**	**-26.6**				**-19.5**	**01/2021**
JPM JEMB Sovereign-only 50-50			-4.6	-4.6	-22.5				-15.5	01/2021
Excess			-1.3	-1.3	-4.2				-4.0	
SECURITIZED CREDIT	**338,564,449**	**8.9**	**-1.1**	**-1.1**	**-3.4**				**-2.4**	**06/2021**
ICE BofA US 3-Month Treasury Bill			0.5	0.5	0.6				0.5	06/2021
Excess			-1.6	-1.6	-4.0				-2.9	
MULTI-ASSET CREDIT	**567,602,573**	**14.9**	**-1.7**	**-1.7**	**-14.8**				**-7.7**	**01/2021**
Multi-Asset Credit Benchmark			-1.4	-1.4	-13.9				-7.0	01/2021
Excess			-0.3	-0.3	-0.9				-0.7	
HIGH YIELD	**558,858,223**	**14.6**	**-0.4**	**-0.4**	**-13.2**				**-5.8**	**01/2021**
ICE BofA US Cash Pay HY Constrained			-0.7	-0.7	-14.0				-5.9	01/2021
Excess			0.3	0.3	0.8				0.0	
RETURN SEEKING BONDS (1)	**3,818,142,248**	**100.0**	**-2.6**	**-2.6**	**-14.5**				**-7.3**	**12/2020**
Return Seeking Fixed Income Benchmark			-2.3	-2.3	-12.8				-6.6	12/2020
Excess			-0.3	-0.3	-1.7				-0.8	

(1) Includes Return Seeking Bonds transition account.

STATE STREET.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Return Seeking Bonds					
CREDIT PLUS	**0.9%**				
Credit Plus Benchmark	0.0				
Excess	0.9				
OPPORTUNISTIC FI	**0.3**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	0.2				
EMERGING MARKET DEBT	**-10.1**				
JPM JEMB Sovereign-only 50-50	-5.3				
Excess	-4.8				
SECURITIZED CREDIT					
ICE BofA US 3-Month Treasury Bill					
Excess					
MULTI-ASSET CREDIT	**2.9**				
Multi-Asset Credit Benchmark	2.7				
Excess	0.2				
HIGH YIELD	**4.6**				
ICE BofA US Cash Pay HY Constrained	5.3				
Excess	-0.7				
RETURN SEEKING BONDS (1)	**0.9**				
Return Seeking Fixed Income Benchmark	0.8				
Excess	0.1				

(1) Includes Return Seeking Bonds transition account.

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Treasuries

September 30, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Treasuries Managers										
BLACKROCK	**$2,216,472,743**	**31.0%**	**-7.1%**	**-7.1%**	**-19.8%**	**-5.7%**			**-0.7%**	**02/2018**
Bloomberg Treasury 5+ Year			-6.9	-6.9	-19.6	-5.6			-0.6	02/2018
Excess			-0.1	-0.1	-0.2	-0.1			-0.1	
GOLDMAN SACHS	**2,376,269,903**	**33.2**	**-6.8**	**-6.8**	**-19.6**	**-5.5**			**-0.5**	**02/2018**
Bloomberg Treasury 5+ Year			-6.9	-6.9	-19.6	-5.6			-0.6	02/2018
Excess			0.1	0.1	-0.0	0.0			0.0	
NEUBERGER	**2,559,414,950**	**35.8**	**-7.0**	**-7.0**	**-19.5**	**-5.3**			**-0.4**	**02/2018**
Bloomberg Treasury 5+ Year			-6.9	-6.9	-19.6	-5.6			-0.6	02/2018
Excess			-0.0	-0.0	0.1	0.3			0.1	
TOTAL TREASURIES	**7,152,157,596**	**100.0**	**-6.9**	**-6.9**	**-19.7**	**-5.5**			**-0.6**	**02/2018**
Bloomberg Treasury 5+ Year			-6.9	-6.9	-19.6	-5.6			-0.6	02/2018
Excess			-0.0	-0.0	-0.0	0.1			-0.0	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Treasuries Managers					
BLACKROCK	**-4.0%**	**12.5%**	**10.4%**		
Bloomberg Treasury 5+ Year	-3.8	12.8	10.4		
Excess	-0.2	-0.3	-0.1		
GOLDMAN SACHS	**-3.9**	**12.7**	**10.6**		
Bloomberg Treasury 5+ Year	-3.8	12.8	10.4		
Excess	-0.1	-0.1	0.1		
NEUBERGER	**-3.4**	**12.8**	**10.4**		
Bloomberg Treasury 5+ Year	-3.8	12.8	10.4		
Excess	0.4	-0.1	-0.0		
TOTAL TREASURIES	**-3.7**	**12.7**	**10.4**		
Bloomberg Treasury 5+ Year	-3.8	12.8	10.4		
Excess	0.0	-0.2	0.0		

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Laddered Bonds + Cash

September 30, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Laddered Bond and Cash Managers									
Neuberger Berman Ladder Bond	**$1,048,416,620**	**29.3%**	**0.3%**	**-0.2%**				**-0.0%**	**11/2020**
ICE BofA US 3-Month Treasury Bill			0.5	0.6				0.4	11/2020
Excess			-0.2	-0.8				-0.4	
Goldman Sachs Ladder Bond	**1,049,532,214**	**29.4**	**0.3**	**-0.1**				**0.0**	**11/2020**
ICE BofA US 3-Month Treasury Bill			0.5	0.6				0.4	11/2020
Excess			-0.2	-0.7				-0.3	
Treasury Ladder Aggregate	**2,097,948,835**	**58.7**	**0.3**	**-0.1**				**0.0**	**11/2020**
ICE BofA US 3-Month Treasury Bill			0.5	0.6				0.4	11/2020
Excess			-0.2	-0.8				-0.3	
Combined Funds STIF	**1,447,351,649**	**40.5**	**0.6**	**0.8**	**0.6%**	**1.2%**	**0.7%**	**1.4**	**01/2004**
iMoneyNet Money Fund Average-All Taxable			0.4	0.5	0.4	0.9	0.5	1.1	01/2004
Excess			0.1	0.3	0.2	0.3	0.3	0.4	
TEACHERS RETIREMENT CD REPO	**29,747,027**	**0.8**	**0.5**	**0.7**	**0.8**	**1.3**	**0.9**	**0.9**	**02/2012**
ICE BofA US 3-Month Treasury Bill			0.5	0.6	0.6	1.1	0.7	0.6	02/2012
Excess			0.1	0.1	0.2	0.1	0.2	0.2	
Laddered Bond + Cash	**3,575,107,145**	**100.0**	**0.4**	**0.1**	**0.4**	**1.1**	**0.7**	**4.2**	**12/1977**
ICE BofA US 3-Month Treasury Bill			0.5	0.6	0.6	1.1	0.7	4.4	12/1977
Excess			-0.1	-0.5	-0.2	-0.1	0.1	-0.2	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Laddered Bond and Cash Managers					
Neuberger Berman Ladder Bond	**0.0%**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	-0.0				
Goldman Sachs Ladder Bond	**0.1**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	0.0				
Treasury Ladder Aggregate	**0.0**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	-0.0				
Combined Funds STIF	**0.1**	**0.5%**	**2.3%**	**2.0%**	**0.9%**
iMoneyNet Money Fund Average-All Taxable	0.0	0.3	1.9	1.5	0.5
Excess	0.1	0.2	0.5	0.5	0.4
TEACHERS RETIREMENT CD REPO	**0.1**	**1.0**	**2.5**	**1.8**	**1.3**
ICE BofA US 3-Month Treasury Bill	0.0	0.7	2.3	1.9	0.9
Excess	0.0	0.4	0.2	-0.0	0.5
Laddered Bond + Cash	**0.0**	**0.6**	**2.3**	**1.9**	**1.1**
ICE BofA US 3-Month Treasury Bill	0.0	0.7	2.3	1.9	0.9
Excess	-0.0	-0.1	0.1	0.0	0.2

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Uninvested Private Markets
September 30, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Uninvested Private Markets Managers										
NISA PRIVATE MKT UNINV OVERLAY	**$209,614,501**	**27.8%**	**-3.3%**	**-3.3%**	**-13.5%**				**-0.2%**	**01/2021**
S&P 500 INDEX (DAILY)			-4.9	-4.9	-15.5				-1.2	01/2021
Excess			1.6	1.6	2.0				1.0	
BLACKROCK SP INDEX	**543,923,384**	**72.2**	**-4.9**	**-4.9**	**-15.2**				**-0.9**	**01/2021**
S&P 500 INDEX (DAILY)			-4.9	-4.9	-15.5				-1.2	01/2021
Excess			0.0	0.0	0.3				0.2	
UNINVESTED PRIVATE MARKETS	**753,537,885**	**100.0**	**-4.5**	**-4.5**	**-14.8**				**-0.7**	**01/2021**
S&P 500 INDEX (DAILY)			-4.9	-4.9	-15.5				-1.2	01/2021
Excess			0.4	0.4	0.7				0.4	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Uninvested Private Markets Managers					
NISA PRIVATE MKT UNINV OVERLAY	**28.1%**				
S&P 500 INDEX (DAILY)	28.7				
Excess	-0.6				
BLACKROCK SP INDEX	**28.9**				
S&P 500 INDEX (DAILY)	28.7				
Excess	0.2				
UNINVESTED PRIVATE MARKETS	**28.6**				
S&P 500 INDEX (DAILY)	28.7				
Excess	-0.1				

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Private Markets
September 30, 2022

Combined Funds Asset Class Performance

Private Markets

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 Year	30 Year
Private Markets - Invested	-2.5%	-2.5%	11.3%	17.1%	15.0%	13.4%	14.0%	13.2%	13.3%
Private Markets - Uninvested (1)	-4.5%	-4.5%	-14.8%						
Private Equity	-4.1%	-4.1%	6.1%	20.5%	18.8%	16.9%	15.8%	14.6%	15.6%
Private Credit	1.1%	1.1%	16.0%	12.9%	12.7%	13.2%	12.8%	12.8%	
Resources	3.3%	3.3%	29.5%	7.7%	5.1%	3.5%	13.4%	11.4%	13.0%
Real Estate	1.4%	1.4%	32.2%	18.7%	15.5%	14.0%	10.4%	10.7%	9.6%

Private Markets

The time-weighted rates of return for the Private Markets portfolio are shown here. Private Markets included Private Equity, Private Credit, Resources, and Real Estate. Some of the existing investments are relatively immature and returns may not be indicative of future results.

Private Equity Investments - The objectives of the Private Equity portfolio, which may include leveraged buyouts, growth equity, venture capital and special situations, are to achieve attractive returns and to provide overall portfolio diversification to the total plan.

Private Credit Investments - The objectives of the Private Credit portfolio, which may include mezzanine debt, direct lending, and other forms of non-investment grade fixed income instruments, are to achieve a high total return over a full market cycle and to provide some degree of downside protection and typically provide current income in the form of a coupon. In certain situations, investments in the Private Credit portfolio also provide an equity component of return in the form of warrants or re-organized equity.

Resource Investments - The objectives of the Resources portfolio, which may include energy, infrastructure, and other hard assets, are to provide protection against the risks associated with inflation and to provide overall portfolio diversification to the total plan.

Real Estate Investments - The objectives of the Real Estate portfolio, which may include core and non-core real estate investments, are to achieve attractive returns, preserve capital, provide protection against risks associated with inflation, and provide overall portfolio diversification to the total plan.

The SBI also monitors Private Markets performance using money-weighted return metrics such as Internal Rate of Return and Multiple of Invested Capital. For money-weighted return metrics please refer to the Combined Funds Performance Report.

(1) The Uninvested portion of the Private Markets allocation is invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash.

Source: State Street Bank

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Equity	**24,571,785,758**	**18,329,183,255**	**14,620,582,659**	**8,065,128,900**	**14,367,159,093**	**1.58**	**13.41**	
Adams Street Partners, LLC	349,120,500	167,226,742	114,158,737	181,893,758	136,057,633	1.50	12.39	
Adams Street Global Secondary Fund 5 L.P.	100,000,000	77,114,692	75,128,710	22,885,308	29,228,761	1.35	6.59	2012
Adams Street Global Secondary Fund 6 L.P.	100,000,000	75,200,000	39,030,027	24,800,000	82,333,428	1.61	29.39	2017
Adams Street Global Secondary Fund 7 L.P.	149,120,500	14,912,050	0	134,208,450	24,495,445	1.64	64.27	2021
Advent International Group	505,000,000	344,792,247	324,631,020	163,291,707	309,160,662	1.84	17.44	
Advent International GPE VI-A, L.P.	50,000,000	52,993,313	103,400,194	0	4,564,779	2.04	16.51	2008
Advent International GPE VII, L.P.	90,000,000	86,490,641	138,972,935	3,600,000	19,462,331	1.83	13.78	2012
Advent International GPE VIII-B L.P.	100,000,000	100,000,000	73,062,483	0	119,627,001	1.93	18.80	2016
Advent International GPE IX L.P.	115,000,000	100,058,293	9,195,408	14,941,707	160,256,552	1.69	41.69	2019
Advent International GPE X L.P.	150,000,000	5,250,000	0	144,750,000	5,250,000	1.00		2022
Affinity Ventures	9,000,000	9,000,000	3,590,011	0	826,375	0.49	-11.74	
Affinity Ventures IV, L.P.	4,000,000	4,000,000	1,541,970	0	3,279	0.39	-36.91	2004
Affinity Ventures V, L.P.	5,000,000	5,000,000	2,048,042	0	823,096	0.57	-8.46	2008
Apax Partners	600,000,000	480,494,877	495,261,954	200,394,294	336,825,570	1.73	17.41	
APAX VIII - USD	200,000,000	233,892,465	335,200,854	11,285,376	64,269,105	1.71	14.38	2013
Apax IX USD L.P.	150,000,000	162,024,715	150,794,715	14,420,230	178,791,406	2.03	25.07	2016
Apax X USD L.P.	150,000,000	84,577,697	9,266,385	74,688,688	93,765,059	1.22	21.27	2019
Apax XI	100,000,000	0	0	100,000,000	0	0.00		2022
Arsenal Capital Partners	175,000,000	83,300,653	2,579,409	94,151,511	91,878,261	1.13	7.20	
Arsenal Capital Partners V, L.P.	75,000,000	68,574,422	2,579,409	8,877,742	77,152,030	1.16	7.43	2019
Arsenal Capital Partners VI LP	100,000,000	14,726,231	0	85,273,769	14,726,231	1.00		2021
Asia Alternatives	399,000,000	133,564,841	14,230,050	275,588,799	140,318,034	1.16	9.27	
Asia Alternatives Capital Partners V	99,000,000	90,995,539	13,100,628	18,158,101	102,944,737	1.28	12.22	2017
MN Asia Investors	300,000,000	42,569,302	1,129,422	257,430,698	37,373,297	0.90	-15.19	2020
Banc Fund	178,551,387	187,460,477	40,882,282	0	209,348,056	1.33	6.84	
Banc Fund IX, L.P.	107,205,932	107,205,932	35,362,612	0	120,678,180	1.46	6.96	2014
Banc Fund X, L.P.	71,345,455	80,254,545	5,519,670	0	88,669,877	1.17	6.39	2018
BlackRock	951,774,870	956,392,392	4,487,465	0	1,218,749,684	1.28	23.37	
BlackRock Long Term Capital, SCSP	950,000,000	954,617,522	2,660,745	0	1,218,613,450	1.28	23.51	2019
BlackRock Tempus Fund*	1,774,870	1,774,870	1,826,720	0	136,234	1.11	5.27	2015

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Blackstone Group L.P.	1,535,000,000	810,766,101	679,547,837	817,069,670	510,914,776	1.47	15.27	
Blackstone Capital Partners Asia II	270,000,000	0	0	270,000,000	0	0.00		2021
Blackstone Capital Partners IV, L.P.	70,000,000	84,459,884	200,562,452	1,832,302	1,014,899	2.39	37.02	2002
Blackstone Capital Partners V L.P.	140,000,000	152,406,707	245,675,051	7,027,560	882,780	1.62	8.02	2006
Blackstone Capital Partners VI, L.P.	100,000,000	106,536,126	146,006,935	11,175,309	40,030,012	1.75	12.16	2008
Blackstone Capital Partners VII	130,000,000	136,931,901	67,474,338	10,977,430	141,856,051	1.53	14.53	2015
Blackstone Capital Partners VIII LP	150,000,000	68,141,811	2,843,116	88,450,212	77,115,269	1.17	17.35	2019
Blackstone Capital Partners IX	150,000,000	0	0	150,000,000	0	0.00		2022
Blackstone Growth	250,000,000	199,032,081	16,985,944	65,706,856	186,736,497	1.02	2.63	2020
Blackstone Growth Equity II	150,000,000	0	0	150,000,000	0	0.00		2022
Blackstone Supplemental Account - M	125,000,000	63,257,591	0	61,900,000	63,279,267	1.00	0.05	2021
Blackstone Strategic Partners	915,500,000	681,773,427	814,525,354	322,846,753	272,009,679	1.59	11.95	
Strategic Partners III VC, L.P.	25,000,000	25,059,678	33,874,990	115,168	273,106	1.36	5.97	2004
Strategic Partners III-B, L.P.	100,000,000	79,629,077	118,509,586	12,304,709	226,553	1.49	6.35	2004
Strategic Partners IV VC, L.P.	40,500,000	42,142,465	61,953,059	2,280,277	2,914,555	1.54	9.22	2008
Strategic Partners IV-B	100,000,000	99,369,278	152,721,770	11,657,975	3,237,649	1.57	12.18	2008
Strategic Partners V, LP	100,000,000	87,094,418	134,154,655	15,934,286	9,468,041	1.65	18.61	2011
Strategic Partners VI, L.P.	150,000,000	103,469,306	126,170,186	53,202,770	33,011,506	1.54	14.88	2014
Strategic Partners VII, L.P.	150,000,000	116,175,419	114,306,781	50,685,502	86,545,403	1.73	20.27	2016
Strategic Partners VIII	150,000,000	112,971,385	72,021,177	92,349,399	116,224,186	1.67	45.33	2018
Strategic Partners IX	100,000,000	15,862,402	813,150	84,316,667	20,108,680	1.32	34.39	2022
Bridgepoint	253,708,396	135,728,894	13,311,036	117,979,502	167,412,864	1.33	18.39	
Bridgepoint Europe VI L.P.	165,539,921	135,728,894	13,311,036	29,811,026	167,412,864	1.33	18.39	2018
Bridgepoint Europe VII	88,168,475	0	0	88,168,475	0	0.00		2022
Brookfield Asset Management Inc.	500,000,000	334,908,062	189,061,751	204,104,511	358,282,166	1.63	35.19	
Brookfield Capital Partners Fund IV	100,000,000	107,053,430	168,651,562	13,303,704	96,006,340	2.47	45.72	2015
Brookfield Capital Partners V L.P.	250,000,000	227,854,632	20,410,189	40,800,807	262,275,826	1.24	15.08	2018
Brookfield Capital Partners Fund VI	150,000,000	0	0	150,000,000	0	0.00		2022
CVC Capital Partners	388,400,887	435,638,955	567,695,326	23,144,308	275,340,819	1.94	16.82	
CVC Capital Partners VI	254,685,451	281,754,857	272,281,201	21,745,134	271,360,590	1.93	16.92	2013
CVC European Equity Partners V, L.P.	133,715,436	153,884,098	295,414,125	1,399,174	3,980,230	1.95	16.75	2008
Canyon Partners	125,000,000	115,269,703	21,475,843	31,206,140	112,857,747	1.17	13.24	
Canyon Distressed Opportunity Fund III	125,000,000	115,269,703	21,475,843	31,206,140	112,857,747	1.17	13.24	2020

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
CarVal Investors	600,000,000	487,703,333	376,367,163	140,179,759	259,949,793	1.30	7.96	
CVI Credit Value Fund A II	150,000,000	142,500,000	199,242,174	7,500,000	4,111,097	1.43	8.30	2012
CVI Credit Value Fund A III	150,000,000	142,500,000	149,290,605	7,500,000	42,540,586	1.35	8.41	2015
CVI Credit Value Fund IV	150,000,000	135,203,333	27,679,818	42,679,759	144,567,585	1.27	7.42	2017
CVI Credit Value Fund V	150,000,000	67,500,000	154,566	82,500,000	68,730,525	1.02	1.93	2020
Cardinal Partners	10,000,000	10,000,000	39,196,082	0	30,380	3.92	10.61	
DSV Partners IV	10,000,000	10,000,000	39,196,082	0	30,380	3.92	10.61	1985
Carlyle Group	400,000,000	296,145,335	63,674,055	167,454,513	272,474,591	1.14	8.31	
Carlyle Strategic Partners IV, L.P.	100,000,000	119,316,692	52,212,670	32,838,147	80,111,166	1.11	7.22	2016
Carlyle Partners VII, L.P.	150,000,000	154,442,314	11,445,009	7,002,695	171,178,548	1.18	9.49	2017
Carlyle Partners VIII	150,000,000	22,386,329	16,376	127,613,671	21,184,877	0.95	-16.90	2021
Chicago Growth Partners	60,000,000	58,347,626	123,371,040	1,652,374	624,099	2.13	19.54	
Chicago Growth Partners II, L.P.	60,000,000	58,347,626	123,371,040	1,652,374	624,099	2.13	19.54	2008
Clearlake Capital	100,000,000	34,482,593	2,434	65,517,407	33,449,184	0.97	-3.64	
Clearlake Capital Partners VII	100,000,000	34,482,593	2,434	65,517,407	33,449,184	0.97	-3.64	2022
Court Square	489,419,132	470,839,925	595,262,817	71,133,749	260,832,354	1.82	14.98	
Court Square Capital Partners II, L.P.	164,419,132	170,029,204	295,744,454	6,176,873	6,247,839	1.78	12.42	2006
Court Square Capital Partners III, L.P.	175,000,000	188,280,408	259,017,390	7,909,729	142,949,611	2.13	20.41	2012
Court Square Capital Partners IV, L.P.	150,000,000	112,530,313	40,500,973	57,047,147	111,634,904	1.35	23.37	2018
Crescendo	101,500,000	103,101,226	57,982,654	0	305,374	0.57	-4.60	
Crescendo Ventures IV	101,500,000	103,101,226	57,982,654	0	305,374	0.57	-4.60	2000
GTCR	210,000,000	211,677,127	424,264,809	16,665,460	196,161,532	2.93	27.25	
GTCR Fund X	100,000,000	105,821,208	214,751,215	6,751,396	546,249	2.03	21.36	2010
GTCR XI	110,000,000	105,855,919	209,513,594	9,914,064	195,615,283	3.83	37.32	2013
Goldman, Sachs & Co.	549,800,000	440,661,231	513,095,460	173,148,295	235,846,002	1.70	15.10	
GS Capital Partners V, L.P.	100,000,000	74,319,006	191,435,136	1,041,099	430,862	2.58	18.23	2005
GS Capital Partners VI, L.P.	100,000,000	110,260,752	141,316,354	2,551,356	3,511,088	1.31	7.10	2007
GS China-US Cooperation Fund	99,800,000	30,613,445	0	69,361,000	42,866,026	1.40	16.33	2018
GS Vintage VII	100,000,000	86,023,145	63,054,247	59,320,828	76,118,739	1.62	17.22	2016
West Street Capital Partners VII, L.P.	150,000,000	139,444,883	117,289,723	40,874,012	112,919,286	1.65	20.68	2016
Goldner Hawn Johnson & Morrison	77,755,138	57,009,055	51,364,283	20,918,050	65,416,570	2.05	21.39	
GHJM TrailHead Fund	20,000,000	16,652,130	51,364,283	3,354,486	6,606,331	3.48	20.37	2012
Goldner Hawn Fund VII, L.P.	57,755,138	40,356,924	0	17,563,564	58,810,239	1.46	28.27	2018

Minnesota State Board of Investment

Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Green Equity Investors	325,000,000	333,548,416	234,641,442	28,263,703	340,844,555	1.73	14.59	
Green Equity Investors VI, L.P.	200,000,000	224,611,333	234,504,568	12,063,912	225,221,388	2.05	14.99	2012
Green Equity Investors VIII	125,000,000	108,937,083	136,874	16,199,791	115,623,167	1.06	5.76	2020
HarbourVest	21,601,643	20,932,406	25,785,301	756,599	6,268,607	1.53	12.48	
Dover Street VII Cayman Fund L.P.*	2,198,112	2,074,235	1,818,289	132,416	48,183	0.90	-4.41	2014
HarbourVest Intl PE Partners V-Cayman US*	3,497,349	3,346,005	4,413,905	156,744	116,636	1.35	13.56	2014
Harbourvest Intl PE Partners VI-Cayman*	4,208,573	4,039,458	5,299,990	171,439	2,305,160	1.88	15.04	2014
HarbourVest Partners VIII Cayman Buyout*	4,506,711	4,387,189	5,782,540	156,000	545,337	1.44	13.70	2014
HarbourVest Partners VIII-Cayman Venture*	7,190,898	7,085,519	8,470,577	140,000	3,253,292	1.65	12.59	2014
Hellman & Friedman	475,000,000	364,060,123	165,276,173	123,661,024	340,689,254	1.39	20.17	
Hellman & Friedman Capital Partners VII, L.P.	50,000,000	49,896,546	153,705,841	2,202,044	9,503,556	3.27	24.89	2009
Hellman & Friedman Investors IX, L.P.	175,000,000	171,414,924	4,158,129	6,795,430	205,769,545	1.22	12.50	2018
Hellman & Friedman Capital Partners X	250,000,000	142,748,653	7,412,203	114,663,550	125,416,153	0.93	-8.60	2021
IK Limited	495,892,068	451,391,705	448,476,352	65,583,059	274,330,463	1.60	14.70	
IK Fund VII	179,138,425	179,315,195	295,129,855	7,429,930	42,136,703	1.88	14.43	2013
IK Fund VIII	169,579,989	175,535,613	153,346,498	7,520,749	142,801,538	1.69	17.81	2016
IK Fund IX	147,173,654	96,540,897	0	50,632,380	89,392,222	0.93	-7.05	2019
Kohlberg, Kravis, Roberts & Co.	1,647,000,000	1,008,560,544	924,861,973	701,029,568	680,183,277	1.59	13.41	
KKR 2006 Fund L.P.	200,000,000	218,137,965	379,638,388	3,300,979	11,455,830	1.79	9.07	2006
KKR Americas Fund XII L.P.	150,000,000	145,210,855	50,557,068	17,494,569	201,958,726	1.74	23.45	2016
KKR Asian Fund III	100,000,000	91,981,007	48,897,408	17,930,332	119,743,889	1.83	28.15	2017
KKR Asian Fund IV	150,000,000	48,213,535	415,503	105,723,413	43,434,633	0.91	-12.09	2020
KKR Core Investments Partnership	97,000,000	82,904,883	3,598,448	19,309,407	88,934,950	1.12	11.80	2021
KKR Core Investments Fund II	100,000,000	0	0	100,000,000	0	0.00		2022
KKR Europe V	100,000,000	87,571,598	16,809,130	16,643,999	86,571,058	1.18	12.05	2018
KKR European Fund VI (USD) SCSp	100,000,000	0	0	100,000,000	0	0.00		2022
KKR Millennium Fund	200,000,000	205,167,570	424,946,028	0	161,924	2.07	16.37	2002
KKR MN Partnership L.P.	150,000,000	62,923,770	0	87,076,230	63,769,528	1.01	2.15	2021
KKR North America Fund XIII	300,000,000	66,449,361	0	233,550,639	64,152,738	0.97	-4.28	2021

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Lexington Partners	1,345,000,000	965,473,522	707,737,528	443,669,866	793,663,344	1.56	14.30	
Lexington Capital Partners VI-B, L.P.	100,000,000	98,374,022	145,572,539	1,634,703	967,171	1.49	7.91	2005
Lexington Capital Partners VII, L.P.	200,000,000	172,937,068	261,232,851	31,031,298	30,208,880	1.69	14.66	2009
Lexington Capital Partners VIII, L.P.	150,000,000	136,386,669	129,077,425	32,663,555	103,660,595	1.71	18.27	2014
Lexington Capital Partners IX, L.P.	150,000,000	101,383,471	27,468,456	60,529,544	140,570,991	1.66	49.12	2018
Lexington Capital Partners X	100,000,000	0	0	100,000,000	0	0.00		2021
Lexington Co-Investment Partners IV	200,000,000	213,209,165	111,670,988	7,565,919	241,341,236	1.66	18.57	2017
Lexington Co-Investment Partners V	300,000,000	150,757,999	7,588,884	156,830,885	168,397,661	1.17	23.75	2020
Lexington Co-Investment Partners V Overage	45,000,000	23,463,000	839,090	22,376,090	24,751,327	1.09	11.74	2021
Lexington Middle Market Investors IV	100,000,000	68,962,128	24,287,295	31,037,872	83,765,484	1.57	29.96	2016
MHR Institutional Partners	75,000,000	78,934,392	21,072,878	15,823,636	84,880,198	1.34	9.47	
MHR Institutional Partners IV LP	75,000,000	78,934,392	21,072,878	15,823,636	84,880,198	1.34	9.47	2014
Madison Dearborn Capital Partners LLC	200,000,000	155,940,244	55,621,857	67,308,990	173,341,822	1.47	14.82	
Madison Dearborn Capital Partners VII, L.P.	100,000,000	99,217,693	47,919,636	16,470,133	116,110,357	1.65	14.67	2015
Madison Dearborn Capital Partners VIII-A, L.P	100,000,000	56,722,551	7,702,221	50,838,857	57,231,465	1.14	16.54	2019
Marathon	200,000,000	149,906,171	6,185,200	56,000,000	162,686,016	1.13	12.12	
Marathon Distressed Credit Fund	200,000,000	149,906,171	6,185,200	56,000,000	162,686,016	1.13	12.12	2020
Merced Capital	278,737,500	288,144,755	274,839,922	0	74,190,848	1.21	4.16	
Merced Partners III	100,000,000	103,878,468	133,823,596	0	1,065,950	1.30	5.50	2010
Merced Partners IV	125,000,000	124,968,390	116,847,539	0	22,892,906	1.12	2.37	2013
Merced Partners V	53,737,500	59,297,897	24,168,787	0	50,231,992	1.25	5.18	2017
Neuberger Berman LLC	625,000,000	405,942,357	291,293,999	447,384,588	420,614,738	1.75	34.63	
Dyal Capital Partners III	175,000,000	204,704,818	195,810,158	108,834,364	147,383,936	1.68	26.57	2015
Dyal Capital Partners IV	250,000,000	166,237,540	94,769,114	173,550,224	223,163,792	1.91	61.02	2018
Dyal Capital Partners V	200,000,000	35,000,000	714,726	165,000,000	50,067,010	1.45	32.53	2020
Nordic Capital	569,804,749	459,529,281	321,629,558	186,824,956	390,916,197	1.55	16.26	
Nordic Capital Fund VIII	174,667,976	222,197,616	283,473,946	13,954,670	86,343,920	1.66	14.24	2013
Nordic Capital IX Beta, L.P.	167,523,058	165,466,149	38,155,612	17,122,087	221,549,102	1.57	23.47	2017
Nordic Capital Fund X	139,445,239	71,865,516	0	67,579,723	83,023,175	1.16	27.24	2020
Nordic Capital Fund XI	88,168,475	0	0	88,168,475	0	0.00		2022
North Sky Capital	2,454,339	1,998,089	2,491,492	456,250	131,173	1.31	10.59	
North Sky Capital LBO Fund III, LP*	1,070,259	720,259	1,026,684	350,000	56,613	1.50	14.07	2014
North Sky Capital Venture Fund III, LP*	1,384,080	1,277,830	1,464,808	106,250	74,560	1.20	7.98	2014

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Oak Hill Capital Management, Inc.	250,000,000	245,996,037	217,994,544	11,555,045	175,290,082	1.60	31.97	
Oak Hill Capital Partners IV Onshore LP	150,000,000	153,245,546	217,959,501	4,305,536	64,131,587	1.84	33.84	2016
Oak Hill Capital Partners V	100,000,000	92,750,491	35,043	7,249,509	111,158,495	1.20	19.64	2018
Oaktree Capital Management, LLC	295,000,000	171,207,605	50,714,692	165,568,839	186,246,798	1.38	12.10	
Oaktree Special Situations Fund, L.P.	100,000,000	101,556,418	20,335,451	10,241,294	94,450,569	1.13	3.26	2014
Oaktree Special Situations Fund II, L.P.	100,000,000	69,651,187	30,379,241	60,327,545	91,796,229	1.75	71.89	2018
Oaktree Special Situations Fund III, L.P.	95,000,000	0	0	95,000,000	0	0.00		2022
Paine & Partners, LLC	225,000,000	175,378,161	52,218,491	72,907,357	191,660,867	1.39	13.75	
Paine Schwartz Food Chain Fund IV	75,000,000	65,810,296	35,397,971	18,048,325	59,617,458	1.44	9.20	2014
Paine Schwartz Food Chain Fund V, L.P.	150,000,000	109,567,865	16,820,520	54,859,032	132,043,410	1.36	27.53	2018
Permal PE	5,337,098	4,387,326	4,339,751	1,090,000	765,140	1.16	5.08	
Glouston Private Equity Opportunities IV*	5,337,098	4,387,326	4,339,751	1,090,000	765,140	1.16	5.08	2014
Permira	606,844,191	445,526,506	453,870,823	202,499,503	387,832,494	1.89	19.31	
Permira V, L.P.	176,994,302	183,579,256	370,311,465	4,124,114	130,033,186	2.73	21.75	2013
Permira VI, L.P.	133,035,318	127,106,413	72,333,687	25,175,983	148,209,354	1.74	17.25	2016
Permira VII L.P.1	149,867,112	134,840,837	11,225,671	26,251,947	109,589,953	0.90	-7.73	2019
Permira VIII, L.P.	146,947,458	0	0	146,947,458	0	0.00		2022
Public Pension Capital Management	240,000,000	125,676,230	86,272,572	131,537,479	171,858,399	2.05	25.28	
Public Pension Capital, LLC	240,000,000	125,676,230	86,272,572	131,537,479	171,858,399	2.05	25.28	2014
Silver Lake Partners	335,000,000	343,238,591	354,127,678	30,570,834	336,001,447	2.01	19.27	
Silver Lake Partners III, L.P.	100,000,000	93,819,921	192,077,429	9,528,468	24,492,811	2.31	18.40	2007
Silver Lake Partners IV, L.P.	100,000,000	115,620,904	123,865,628	2,881,307	154,935,755	2.41	22.96	2012
Silver Lake Partners V, L.P.	135,000,000	133,797,766	38,184,621	18,161,059	156,572,880	1.46	15.30	2017
Siris Capital Group	67,875,000	0	0	67,875,000	0	0.00		
Siris V	67,875,000	0	0	67,875,000	0	0.00		2022
Split Rock	110,000,000	107,055,906	125,392,564	2,944,094	28,852,657	1.44	5.14	
Split Rock Partners, L.P.	50,000,000	47,890,906	58,794,192	2,109,094	1,686,379	1.26	2.87	2005
Split Rock Partners II, L.P.	60,000,000	59,165,000	66,598,372	835,000	27,166,278	1.58	7.84	2008
Summit Partners	600,000,000	380,278,627	395,684,665	423,119,288	353,092,799	1.97	28.48	
Summit Partners Growth Equity Fund VIII	100,000,000	116,727,192	232,143,262	23,129,320	62,185,298	2.52	27.13	2011
Summit Partners Growth Equity Fund IX	100,000,000	131,564,916	141,424,991	109,860,075	152,032,235	2.23	35.74	2015
Summit Partners Growth Equity Fund X-A	150,000,000	131,986,519	22,116,412	40,129,893	138,875,267	1.22	17.75	2019
Summit Partners Growth Equity Fund XI	250,000,000	0	0	250,000,000	0	0.00		2021

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
TPG Capital	650,000,000	321,969,073	171,711,154	372,114,826	304,704,508	1.48	22.18	
TPG Growth V	150,000,000	80,865,259	8,437,171	77,135,894	88,952,428	1.20	22.02	2021
TPG Partners VII, L.P.	100,000,000	101,117,808	135,130,268	16,771,045	67,576,664	2.00	21.23	2015
TPG Partners VIII, L.P.	150,000,000	111,741,390	28,138,806	56,452,503	121,778,507	1.34	30.37	2018
TPG Partners IX, L.P.	100,000,000	0	0	100,000,000	0	0.00		2022
TPG Tech Adjacencies II, L.P.	150,000,000	28,244,616	4,909	121,755,384	26,396,910	0.93	-11.00	2021
Thoma Bravo LLC	525,000,000	488,606,164	263,591,065	109,119,026	478,688,092	1.52	22.84	
Thoma Cressey Fund VII, L.P.	50,000,000	50,000,000	107,057,940	0	422,288	2.15	23.58	2000
Thoma Bravo Fund XII, L.P.	75,000,000	81,949,004	64,465,434	18,452,144	92,043,449	1.91	16.34	2016
Thoma Bravo Fund XIII, L.P.	150,000,000	184,783,234	92,067,654	12,475,387	218,967,371	1.68	33.89	2018
Thoma Bravo Fund XIV, L.P.	150,000,000	141,216,364	37	8,783,636	136,662,842	0.97	-2.92	2020
Thoma Bravo Fund XV, L.P.	100,000,000	30,657,562	0	69,407,859	30,592,141	1.00	-0.21	2021
Thomas H. Lee Partners	400,000,000	259,452,809	238,530,930	170,079,472	219,709,933	1.77	28.53	
Thomas H. Lee Equity Fund VII, LP.	100,000,000	99,558,385	137,442,415	10,603,772	49,307,193	1.88	22.57	2015
Thomas H. Lee Equity Fund VIII, L.P.	150,000,000	144,609,695	101,088,515	24,760,429	155,776,263	1.78	44.80	2018
Thomas H. Lee Equity Fund IX, L.P.	150,000,000	15,284,729	0	134,715,271	14,626,477	0.96	-5.81	2021
Thomas, McNerney & Partners	80,000,000	78,125,000	125,838,499	1,875,000	426,589	1.62	8.17	
Thomas, McNerney & Partners I, L.P.	30,000,000	30,000,000	16,170,973	0	30,599	0.54	-10.23	2002
Thomas, McNerney & Partners II, L.P.	50,000,000	48,125,000	109,667,526	1,875,000	395,990	2.29	16.41	2006
Varde Fund	600,000,000	494,000,000	464,600,624	106,000,000	226,144,076	1.40	7.38	
Varde Fund X, L.P.	150,000,000	150,000,000	252,548,040	0	8,690,928	1.74	10.07	2010
Varde Fund XI, L.P.	200,000,000	200,000,000	212,032,546	0	54,797,516	1.33	4.75	2013
Varde Fund XIII, L.P.	150,000,000	144,000,000	20,038	6,000,000	162,655,632	1.13	7.67	2018
Varde Fund XIV, L.P.	100,000,000	0	0	100,000,000	0	0.00		2022
Vestar Capital Partners	380,000,000	333,838,610	389,026,227	56,184,822	150,782,151	1.62	11.58	
Vestar Capital Partners IV, L.P.	55,000,000	55,652,024	102,293,320	57,313	381,043	1.84	14.62	1999
Vestar Capital Partners V, L.P.	75,000,000	76,797,458	100,961,586	0	105,795	1.32	3.88	2005
Vestar Capital Partners VI, L.P.	100,000,000	107,516,638	152,527,578	0	59,073,251	1.97	23.81	2011
Vestar Capital Partners VII, L.P.	150,000,000	93,872,491	33,243,742	56,127,509	91,222,063	1.33	13.86	2017
Vista Equity Partners	200,000,000	147,667,435	77,223	53,545,468	155,957,674	1.06	3.16	
Vista Equity Partners Perennial	200,000,000	147,667,435	77,223	53,545,468	155,957,674	1.06	3.16	2020

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Warburg Pincus	1,416,000,000	1,088,366,066	1,029,214,757	333,798,500	766,196,212	1.65	11.29	
Warburg Pincus China, L.P.	45,000,000	45,585,000	17,602,200	1,350,000	55,297,118	1.60	13.73	2016
Warburg Pincus China-Southeast Asia II	50,000,000	23,000,000	3,300,000	27,000,000	23,201,375	1.15	12.80	2019
Warburg Pincus Financial Sector	90,000,000	90,616,765	34,617,600	3,555,000	117,893,865	1.68	21.73	2017
Warburg Pincus Global Growth, L.P.	250,000,000	219,788,842	2,625,000	30,125,000	287,224,511	1.32	16.40	2018
Warburg Pincus Global Growth 14, L.P.	300,000,000	29,801,507	0	270,000,000	29,231,850	0.98	-2.44	2022
Warburg Pincus Equity Partners, L.P.	100,000,000	100,000,000	163,542,253	0	392,595	1.64	10.02	1998
Warburg Pincus Private Equity IX, L.P.	100,000,000	100,000,000	171,872,950	0	237,414	1.72	9.60	2005
Warburg Pincus Private Equity X, L.P.	150,000,000	150,000,000	266,203,541	0	3,140,616	1.80	9.51	2007
Warburg Pincus Private Equity XI, L.P.	200,000,000	200,342,452	262,255,748	0	85,964,976	1.74	12.31	2012
Warburg Pincus Private Equity XII, L.P.	131,000,000	129,231,500	107,195,466	1,768,500	163,611,892	2.10	19.97	2015
Wayzata Investment Partners	300,000,000	243,165,000	379,322,944	15,750,000	19,632,433	1.64	14.38	
Wayzata Opportunities Fund II, LLC	150,000,000	174,750,000	334,183,134	750,000	0	1.91	16.57	2007
Wayzata Opportunities Fund III	150,000,000	68,415,000	45,139,810	15,000,000	19,632,433	0.95	-1.24	2012
Wellspring Capital Partners	125,000,000	149,192,072	55,485,810	14,724,724	155,951,545	1.42	22.10	
Wellspring Capital Partners VI, L.P.	125,000,000	149,192,072	55,485,810	14,724,724	155,951,545	1.42	22.10	2016
Welsh, Carson, Anderson & Stowe	650,000,000	459,823,517	365,218,998	190,176,483	426,616,274	1.72	18.03	
Welsh, Carson, Anderson & Stowe XI, L.P.	100,000,000	100,000,000	161,464,441	0	7,136,609	1.69	11.74	2008
Welsh, Carson, Anderson & Stowe XII, L.P.	150,000,000	145,877,897	177,480,040	4,122,103	175,780,424	2.42	27.37	2014
Welsh, Carson, Anderson & Stowe XIII, L.P.	250,000,000	213,945,620	26,274,517	36,054,380	243,699,241	1.26	23.84	2018
Welsh, Carson, Anderson & Stowe XIV, L.P.	150,000,000	0	0	150,000,000	0	0.00		2022
Whitehorse Capital	300,000,000	226,200,694	133,582,794	131,987,566	151,649,793	1.26	23.32	
Whitehorse Liquidity Partners III	100,000,000	99,860,190	70,528,418	18,084,498	63,276,535	1.34	20.95	2019
Whitehorse Liquidity Partners IV	100,000,000	89,088,701	46,792,821	35,204,706	64,164,225	1.25	28.09	2020
Whitehorse Liquidity Partners V	100,000,000	37,251,803	16,261,554	78,698,362	24,209,034	1.09	22.10	2021
Wind Point Partners	200,000,000	87,447,711	1,912,585	114,469,477	106,638,686	1.24	20.13	
Wind Point Partners IX	100,000,000	87,447,711	1,912,585	14,469,477	106,638,686	1.24	20.13	2019
Wind Point Partners X	100,000,000	0	0	100,000,000	0	0.00		2022
Windjammer Capital Investors	266,708,861	221,937,286	251,920,723	60,533,300	164,647,745	1.88	12.49	
Windjammer Mezzanine & Equity Fund II	66,708,861	55,215,684	85,036,800	10,139,363	342,959	1.55	8.97	2000
Windjammer Senior Equity Fund IV, L.P.	100,000,000	94,740,728	165,677,026	21,167,914	67,150,658	2.46	17.98	2012
Windjammer Senior Equity Fund V, L.P.	100,000,000	71,980,874	1,206,897	29,226,023	97,154,128	1.37	19.28	2017

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Credit	**4,222,141,781**	**3,133,299,562**	**2,509,027,378**	**1,612,034,570**	**1,616,841,746**	**1.32**	**10.01**	
Audax Group	350,000,000	201,298,458	210,748,006	170,386,931	46,073,836	1.28	10.45	
Audax Mezzanine Fund III, L.P.	100,000,000	105,207,316	133,977,984	0	4,991,064	1.32	9.78	2010
Audax Mezzanine Fund IV-A, L.P.	100,000,000	85,592,246	75,886,788	30,885,827	28,505,755	1.22	11.27	2015
Audax Mezzanine Fund V, L.P.	150,000,000	10,498,895	883,234	139,501,105	12,577,016	1.28	41.63	2020
Avenue Capital Partners	200,000,000	200,977,328	158,744,651	0	156,180,358	1.57	9.17	
Avenue Energy Opportunities Fund, L.P.	100,000,000	100,977,328	77,640,191	0	64,257,640	1.41	5.90	2014
Avenue Energy Opportunities Fund II, L.P.	100,000,000	100,000,000	81,104,460	0	91,922,718	1.73	14.25	2017
BlackRock	97,500,000	92,646,829	11,145,751	4,853,171	98,657,199	1.19	7.17	
BlackRock Middle Market Senior Fund	97,500,000	92,646,829	11,145,751	4,853,171	98,657,199	1.19	7.17	2018
Brookfield Asset Management Inc.	200,000,000	34,157,840	0	165,842,160	35,735,454	1.05	5.27	
Brookfield Real Estate Finance Fund VI	200,000,000	34,157,840	0	165,842,160	35,735,454	1.05	5.27	2021
Energy Capital Partners	28,087,500	29,002,111	9,769,268	8,854,657	20,069,318	1.03	3.04	
Energy Capital Credit Solutions II-A	28,087,500	29,002,111	9,769,268	8,854,657	20,069,318	1.03	3.04	2018
Gold Hill	65,852,584	65,852,584	113,654,899	0	3,103,152	1.77	11.81	
Gold Hill Venture Lending	40,000,000	40,000,000	65,261,602	0	330,531	1.64	10.69	2004
Gold Hill 2008	25,852,584	25,852,584	48,393,297	0	2,772,621	1.98	14.48	2008
Goldman, Sachs & Co.	227,500,000	261,176,828	316,186,144	24,922,591	967,476	1.21	6.79	
GS Mezzanine Partners 2006 Institutional	100,000,000	113,458,168	135,335,344	9,858,563	395,383	1.20	5.00	2006
GS Mezzanine Partners V, L.P.	127,500,000	147,718,660	180,850,800	15,064,028	572,093	1.23	9.07	2007
HPS Investment Partners	200,000,000	113,870,340	19,367,489	100,957,581	108,905,855	1.13	9.95	
HPS Mezzanine Partners 2019, L.P.	100,000,000	93,859,334	19,367,489	20,968,587	88,894,849	1.15	10.01	2019
HPS Strategic Investment Partners V, L.P.	100,000,000	20,011,006	0	79,988,994	20,011,006	1.00		2022
Kohlberg, Kravis, Roberts & Co.	274,000,000	358,961,070	304,858,382	100,892,678	112,100,957	1.16	9.59	
KKR Lending Partner II L.P.	75,000,000	87,050,313	82,467,685	8,802,924	7,089,379	1.03	1.45	2015
KKR Lending Partners III L.P.	199,000,000	271,910,757	222,390,697	92,089,754	105,011,577	1.20	14.35	2017
LBC Credit Partners	200,000,000	192,917,328	140,704,880	75,767,387	83,495,632	1.16	9.88	
LBC Credit Partners IV, L.P.	100,000,000	110,943,649	107,939,239	36,220,071	22,931,896	1.18	8.34	2016
LBC Credit Partners V, L.P.	100,000,000	81,973,679	32,765,641	39,547,316	60,563,736	1.14	16.33	2019
Marathon	200,000,000	101,022,008	858,534	100,000,000	129,425,490	1.29	14.69	
Marathon Secured Private Strategies Fund II	100,000,000	96,022,008	858,534	5,000,000	124,425,490	1.30	14.72	2019
Marathon Secured Private Strategies Fund III	100,000,000	5,000,000	0	95,000,000	5,000,000	1.00		2022

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Merit Capital Partners	350,000,000	235,618,799	301,890,077	114,314,401	93,384,234	1.68	11.48	
Merit Mezzanine Fund IV, L.P.	75,000,000	70,178,571	139,120,463	4,821,429	787,345	1.99	11.58	2004
Merit Mezzanine Fund V, LP	75,000,000	71,902,041	85,750,024	3,097,959	27,628,909	1.58	9.28	2009
Merit Mezzanine Fund VI, L.P.	100,000,000	92,629,096	77,019,590	7,304,104	64,967,980	1.53	16.16	2016
Merit Mezzanine Fund VII, L.P.	100,000,000	909,091	0	99,090,909	0	0.00		2020
Oaktree Capital Management, LLC	650,000,000	311,040,920	48,825,156	345,500,000	350,494,545	1.28	13.33	
Oaktree Opportunities Fund X, L.P.	50,000,000	46,500,021	33,294,660	8,500,000	34,042,832	1.45	9.58	2015
Oaktree Opportunities Fund Xb, L.P.	100,000,000	65,000,000	0	35,000,000	94,290,300	1.45	15.32	2015
Oaktree Opportunities Fund XI, L.P.	300,000,000	150,000,000	1,447,206	150,000,000	173,161,604	1.16	16.34	2020
Oaktree Real Estate Debt III, L.P.	200,000,000	49,540,899	14,083,290	152,000,000	48,999,809	1.27	15.73	2020
PIMCO BRAVO	9,201,697	8,673,551	9,384,185	7,735,883	717,418	1.16	4.75	
PIMCO BRAVO Fund Onshore Feeder I*	3,958,027	3,958,027	4,016,443	2,385,880	6,492	1.02	1.60	2014
PIMCO Bravo Fund OnShore Feeder II*	5,243,670	4,715,524	5,367,742	5,350,003	710,926	1.29	5.28	2014
Prudential Global Investment Mgmt	600,000,000	492,598,611	549,229,177	158,186,739	142,307,789	1.40	10.39	
Prudential Capital Partners II, L.P.	100,000,000	97,930,132	145,671,152	11,049,052	492,778	1.49	9.02	2005
Prudential Capital Partners III, L.P.	100,000,000	102,848,928	174,817,309	13,609,083	2,911,175	1.73	14.14	2009
Prudential Capital Partners IV, L.P.	100,000,000	112,954,214	126,259,041	1,948,707	24,015,312	1.33	8.40	2012
Prudential Capital Partners V, L.P.	150,000,000	151,673,251	97,165,645	8,771,398	87,150,495	1.22	7.75	2016
PGIM Capital Partners VI, L.P.	150,000,000	27,192,086	5,316,029	122,808,500	27,738,028	1.22	46.79	2020
Summit Partners	95,000,000	100,002,497	136,040,168	22,177,023	3,137,688	1.39	9.07	
Summit Subordinated Debt Fund III, L.P.	45,000,000	44,088,494	62,804,226	2,250,000	795,707	1.44	8.66	2004
Summit Subordinated Debt Fund IV, L.P.	50,000,000	55,914,003	73,235,942	19,927,023	2,341,981	1.35	9.74	2008
TCW	200,000,000	174,519,135	141,229,309	65,284,484	77,923,032	1.26	9.06	
TCW Direct Lending LLC	100,000,000	83,599,652	88,204,406	25,329,409	20,423,214	1.30	8.71	2014
TCW Direct Lending VII	100,000,000	90,919,484	53,024,903	39,955,075	57,499,819	1.22	9.68	2018
TSSP	275,000,000	158,963,325	36,391,303	146,358,883	154,162,315	1.20	11.60	
Sixth Street TAO Partners (B), L.P.	50,000,000	44,875,278	19,122,544	24,247,266	38,809,129	1.29	11.27	2018
Sixth Street TAO Partners (D), L.P.	100,000,000	57,755,197	11,437,722	49,724,781	56,297,649	1.17	13.34	2018
TSSP Opportunities Partners IV (A), L.P.	50,000,000	40,045,949	5,821,838	13,673,737	43,522,312	1.23	12.01	2018
Sixth Street Opportunities Partners V	75,000,000	16,286,901	9,199	58,713,099	15,533,225	0.95	-4.87	2021

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Assets	**4,247,571,518**	**3,950,138,278**	**2,789,730,930**	**609,881,328**	**2,228,049,180**	**1.27**	**5.74**	
BlackRock	198,500,000	127,308,805	69,845,379	83,178,672	80,763,700	1.18	6.38	
BlackRock Global Renewable Power Fund II	98,500,000	98,312,626	67,224,489	10,625,197	54,335,669	1.24	6.91	2017
BlackRock Global Renewable Power Infrastructure III	100,000,000	28,996,179	2,620,889	72,553,475	26,428,031	1.00	0.17	2019
EIG Global Energy Partners	450,000,000	469,824,847	377,940,969	77,704,481	144,948,146	1.11	2.60	
EIG Energy Fund XIV	100,000,000	113,459,470	95,309,310	2,761,129	3,840,512	0.87	-4.97	2007
EIG Energy Fund XV	150,000,000	161,871,503	155,101,139	22,871,323	23,854,090	1.11	2.38	2010
EIG Energy Fund XVI	200,000,000	194,493,874	127,530,520	52,072,029	117,253,544	1.26	5.78	2013
Encap Energy	400,000,000	425,807,746	403,709,359	9,599,414	199,361,004	1.42	9.83	
EnCap Energy Capital Fund VII, L.P.	100,000,000	105,420,704	141,245,195	0	340,893	1.34	14.50	2007
EnCap Energy Capital Fund VIII, L.P.	100,000,000	103,335,766	61,441,166	470,044	44,723,548	1.03	0.54	2010
Encap Energy Fund IX, L.P.	100,000,000	113,725,245	116,232,152	3,890,055	46,201,192	1.43	10.34	2012
EnCap Energy Capital Fund X, L.P.	100,000,000	103,326,031	84,790,846	5,239,315	108,095,370	1.87	16.74	2015
Energy & Minerals Group	680,000,000	674,508,697	391,082,398	55,288,094	544,042,578	1.39	7.33	
NGP Midstream & Resources, L.P.	100,000,000	103,565,615	179,560,149	17,857	5,159,402	1.78	13.27	2007
The Energy & Minerals Group Fund II, L.P.	100,000,000	108,534,480	107,280,051	170,365	107,131,932	1.98	12.66	2011
The Energy & Minerals Group Fund III, L.P.	200,000,000	206,324,535	31,531,563	1,219,725	111,058,363	0.69	-5.65	2014
The Energy & Minerals Group Fund IV, LP	150,000,000	161,997,111	68,231,070	14,023,899	165,727,953	1.44	9.29	2015
The Energy & Minerals Group Fund V, L.P.	112,500,000	79,240,018	3,658,916	36,292,337	130,578,640	1.69	19.23	2019
The Energy & Minerals Group Fund V Accordion, L.P.	17,500,000	14,846,938	820,649	3,563,911	24,386,287	1.70	19.83	2019
Energy Capital Partners	450,000,000	431,289,179	423,031,175	111,761,226	193,126,878	1.43	10.97	
Energy Capital Partners II-A, L.P.	100,000,000	85,856,131	117,653,952	29,749,110	382,394	1.37	8.97	2010
Energy Capital Partners III, L.P.	200,000,000	233,928,871	269,236,271	30,058,269	73,297,401	1.46	10.84	2013
Energy Capital Partners IV-A, LP	150,000,000	111,504,177	36,140,952	51,953,847	119,447,083	1.40	17.07	2017
Enervest Management Partners	100,000,000	98,886,249	90,621,759	9,207,449	57,755,885	1.50	9.57	
EnerVest Energy Institutional Fund XIV-A, L.P.	100,000,000	98,886,249	90,621,759	9,207,449	57,755,885	1.50	9.57	2015
First Reserve	500,000,000	563,609,956	277,587,915	0	144,593,530	0.75	-7.03	
First Reserve Fund XI, L.P.	150,000,000	150,292,121	100,059,903	0	78,695	0.67	-8.76	2006
First Reserve Fund XII, L.P.	150,000,000	165,617,044	85,669,271	0	267,894	0.52	-17.84	2008
First Reserve Fund XIII, L.P.	200,000,000	247,700,791	91,858,741	0	144,246,941	0.95	-1.75	2013
Kohlberg, Kravis, Roberts & Co.	249,850,000	156,701,499	33,081,810	103,875,517	141,220,309	1.11	7.25	
KKR Global Infrastructure Investors III	149,850,000	130,608,003	32,723,340	29,610,543	115,199,353	1.13	7.36	2018
KKR Global Infrastructure Investors IV	100,000,000	26,093,496	358,470	74,264,974	26,020,956	1.01	1.56	2021

Minnesota State Board of Investment

Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Merit Energy Partners	519,721,518	384,644,480	174,023,812	94,599,899	404,963,919	1.51	6.74	
Merit Energy Partners F-II, L.P.	100,000,000	59,522,861	33,278,569	0	9,139,922	0.71	-4.62	2006
Merit Energy Partners H, L.P.	100,000,000	100,000,000	29,668,582	0	64,090,520	0.94	-0.93	2011
Merit Energy Partners I, L.P.	169,721,518	169,721,518	94,039,059	0	227,853,469	1.90	13.37	2014
Merit Energy Partners K, L.P.	150,000,000	55,400,101	17,037,602	94,599,899	103,880,008	2.18	41.92	2019
NGP	599,500,000	583,203,814	520,256,355	51,166,576	278,835,229	1.37	9.17	
Natural Gas Partners IX, L.P.	150,000,000	173,962,921	249,243,688	605,481	547,202	1.44	12.06	2007
NGP Natural Resources X, L.P.	150,000,000	148,935,849	126,358,808	1,064,151	22,173,919	1.00	-0.07	2011
NGP Natural Resources XI, L.P.	150,000,000	153,765,092	106,385,572	6,290,493	130,659,293	1.54	10.86	2014
NGP Natural Resources XII, L.P.	149,500,000	106,539,952	38,268,287	43,206,451	125,454,815	1.54	15.33	2017
Sheridan	100,000,000	34,353,005	28,550,000	13,500,000	38,438,003	1.95	16.39	
Sheridan Production Partners III-B, L.P.	100,000,000	34,353,005	28,550,000	13,500,000	38,438,003	1.95	16.39	2014

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Estate	**4,173,147,868**	**2,669,836,393**	**1,913,800,079**	**1,766,774,555**	**1,939,321,063**	**1.44**	**10.56**	
Angelo, Gordon & Co.	550,000,000	441,270,745	213,907,407	142,110,000	399,545,989	1.39	13.13	
AG Asia Realty Fund III, L.P.	50,000,000	47,587,261	47,125,000	6,196,250	18,917,254	1.39	12.01	2016
AG Asia Realty Fund IV, L.P.	100,000,000	74,470,736	22,250,000	36,727,500	78,687,010	1.36	18.26	2018
AG Europe Realty Fund II, L.P.	75,000,000	68,779,896	30,019,976	12,768,750	70,332,759	1.46	12.33	2018
AG Europe Realty Fund III, L.P.	75,000,000	36,687,885	0	36,937,500	41,460,073	1.13	9.66	2020
AG Realty Fund IX, L.P.	100,000,000	92,141,126	83,000,000	11,650,000	50,654,842	1.45	9.17	2014
AG Realty Fund X, L.P.	150,000,000	121,603,841	31,512,431	37,830,000	139,494,051	1.41	23.09	2018
Blackstone	1,124,500,000	873,254,152	883,946,123	410,557,733	574,056,397	1.67	13.87	
Blackstone Real Estate Partners Asia II	74,500,000	67,011,785	8,179,128	16,845,788	71,152,664	1.18	8.60	2017
Blackstone Real Estate Partners Asia III	100,000,000	10,395,941	0	89,604,059	10,395,941	1.00		2021
Blackstone Real Estate Partners V, L.P.	100,000,000	104,213,007	208,932,593	4,174,052	176,399	2.01	10.84	2006
Blackstone Real Estate Partners VI, L.P.	100,000,000	109,477,567	217,992,298	4,907,906	2,604,105	2.01	13.09	2007
Blackstone Real Estate Partners VII, LP	100,000,000	112,077,521	179,728,358	11,131,179	23,686,333	1.81	15.32	2011
Blackstone Real Estate VIII.TE.1 L.P.	150,000,000	172,415,817	175,271,994	21,918,437	122,802,294	1.73	17.53	2015
Blackstone Real Estate Partners IX, L.P.	300,000,000	297,662,514	93,841,752	61,976,312	343,238,661	1.47	34.67	2018
Blackstone Real Estate Partners X, L.P.	200,000,000	0	0	200,000,000	0	0.00		2022
Blackstone Strategic Partners	75,000,000	77,559,576	66,169,437	990,056	1,110,239	0.87	-2.07	
Strategic Partners III RE, L.P.	25,000,000	25,981,820	15,252,523	9,006	102,375	0.59	-6.44	2005
Strategic Partners IV RE, L.P.	50,000,000	51,577,756	50,916,914	981,050	1,007,864	1.01	0.11	2008
Brookfield Asset Management Inc.	300,000,000	47,855,710	0	252,144,290	49,325,120	1.03	3.07	
Brookfield Strategic Real Estate Partners IV	300,000,000	47,855,710	0	252,144,290	49,325,120	1.03	3.07	2021
Carlyle Group	450,000,000	109,319,068	83,493,461	397,442,484	88,569,826	1.57	32.77	
Carlyle Realty Partners VIII, L.P.	150,000,000	109,319,068	83,493,461	97,442,484	88,569,826	1.57	32.77	2017
Carlyle Realty Partners IX, L.P.	300,000,000	0	0	300,000,000	0	0.00		2021
Kohlberg, Kravis, Roberts & Co.	125,000,000	70,568,370	4,811,467	56,053,828	73,025,303	1.10	15.15	
KKR Real Estate Partners Americas III	125,000,000	70,568,370	4,811,467	56,053,828	73,025,303	1.10	15.15	2021
Landmark Partners	249,500,000	93,382,274	59,445,883	178,829,556	71,378,651	1.40	19.04	
Landmark Real Estate Partners VIII, L.P.	149,500,000	93,382,274	59,445,883	78,829,556	71,378,651	1.40	19.04	2016
Landmark Real Estate Partners IX, L.P.	100,000,000	0	0	100,000,000	0	0.00		2021
Lubert Adler	174,147,868	102,857,744	78,860,685	72,414,787	60,244,801	1.35	15.12	
Lubert-Adler Real Estate Fund VII-B, L.P.	74,147,868	67,585,213	78,860,685	7,414,787	22,228,641	1.50	15.54	2017
Lubert-Adler Recovery and Enhancement Capital Fund	100,000,000	35,272,530	0	65,000,000	38,016,160	1.08	10.56	2021

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Oaktree Capital Management, LLC	200,000,000	84,475,519	36,062,552	150,000,000	59,790,702	1.13	50.91	
Oaktree Real Estate Opportunities Fund VIII	200,000,000	84,475,519	36,062,552	150,000,000	59,790,702	1.13	50.91	2020
Rockpoint	200,000,000	174,169,960	69,882,159	45,669,129	156,700,379	1.30	10.56	
Rockpoint Real Estate Fund V, L.P.	100,000,000	99,329,459	58,755,434	17,327,032	72,319,068	1.32	8.15	2014
Rockpoint Real Estate Fund VI, L.P.	100,000,000	74,840,501	11,126,725	28,342,097	84,381,311	1.28	23.51	2019
Rockwood	200,000,000	151,114,069	60,396,117	53,066,634	131,544,638	1.27	9.40	
Rockwood Capital RE Partners X, L.P.	100,000,000	94,027,411	56,119,269	7,657,118	67,312,051	1.31	8.45	2015
Rockwood Capital RE Partners XI, L.P.	100,000,000	57,086,658	4,276,848	45,409,516	64,232,587	1.20	14.26	2019
Silverpeak Real Estate Partners	225,000,000	144,009,207	106,451,402	7,496,058	6,737,281	0.79	-3.81	
Silverpeak Legacy Pension Partners II, L.P.	75,000,000	73,069,012	92,033,940	7,496,058	429,689	1.27	4.18	2005
Silverpeak Legacy Pension Partners III, L.P.	150,000,000	70,940,195	14,417,463	0	6,307,592	0.29	-12.07	2008
TA Associates Realty	300,000,000	300,000,000	250,373,386	0	267,291,737	1.73	15.83	
Realty Associates Fund X	100,000,000	100,000,000	161,064,353	0	99,304	1.61	12.56	2012
Realty Associates Fund XI	100,000,000	100,000,000	81,342,630	0	110,741,077	1.92	15.78	2015
Realty Associates Fund XII	100,000,000	100,000,000	7,966,403	0	156,451,356	1.64	35.91	2018
Total	**37,214,646,925**	**28,082,457,488**	**21,833,141,046**	**12,053,819,353**	**20,151,371,083**	**1.50**	**11.82**	
Difference**					3,306,404			
Private Markets Total with Difference					**20,154,677,487**			

Private Markets Portfolio Status	Managers	Funds
PRIVATE EQUITY	61	193
PRIVATE CREDIT	18	43
REAL ASSETS	11	33
REAL ESTATE	13	34
Total	**103**	**303**

Notes

None of the data presented herein has been reviewed or approved by either the general partner or investment manager. The performance and valuation data presented herein is not a guarantee or prediction of future results and may slightly differ from final fiscal year end report. Ultimately, the actual performance and value of any investment is not known until final liquidation. Because there is no industry-standardized method for valuation or reporting comparisons of performance and valuation data among different investments is difficult. Data presented in this report is made public pursuant to Minn. Stat. Chs. 13 and 13D, and Minn. Stat. § 11A.24, subd. 6(c). Additional information on private markets investments may be classified as non-public and not subject to disclosure.

*Partnership interests transferred to the MSBI during 1Q2015. All data presented as of the transfer date.

** Difference is from an in-kind stock distribution liquidating account, cash transactions posted to next day and distributions received in foreign currency during the month.

Participant Directed Investment Program

September 30, 2022

Participant Directed Investment Program

The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. The objective of the Plan is to be competitive in the marketplace by providing quality investment options with low fees to its participants. Investment goals among the PDIP's many participants are varied.

- The Supplemental Investment Fund (SIF) is an investment platform that provides participants with the option to invest in many of the same pools as the Combined Funds in addition to a Stable Value Fund and a Money Market Fund. The Volunteer Firefighter Account is an option in the SIF for local firefighter entities that join the Statewide Voluntary Firefighter Plan administered by PERA. The investment vehicles are structured much like a family of mutual funds where participating entities buy or sell units in each fund. Participants may allocate their investments among one or more funds that are appropriate for their needs and are within statutory requirements and rules established by the participating organizations.
- The Mutual Fund Line-up is an investment platform that offers participants three sets of investment options. The first is a set of actively and passively managed mutual funds, a Stable Value Fund and a Money Market Fund. The second is a set of target date funds called Minnesota Target Retirement Funds. The third is a self-directed brokerage account window which offers thousands of mutual funds. The SBI has no direct management responsibilities for funds within the self-directed brokerage account window. Participants may allocate their investments among one or more accounts that are appropriate for their needs within the statutory requirements and rules established by the participating organizations.
- The SBI is responsible for the investment options provided in the two State Sponsored Savings Plans established under provisions of the Internal Revenue Code 529, the Minnesota College Savings Plan and Minnesota Achieving a Better Life Experience Plan (ABLE). The Minnesota College Savings Plan is an educational savings plan designed to help families save for qualified nationwide college costs. The SBI is responsible for the investments and the Minnesota Office of Higher Education (OHE) is responsible for the overall administration of the Plan. The SBI and OHE have contracted jointly with TIAA-CREF Tuition Financing, Inc. to provide administrative, marketing, communication, recordkeeping and investment management services. The ABLE Plan is a savings plan designed to help individuals save for qualified disability expenses without losing eligibility for certain assistance programs. The plan is administered by the Department of Human Services (DHS). The SBI and DHS have jointly contracted with Ascensus to provide recordkeeping, administrative, and investment management services for the plan.

The investment returns shown in this report are calculated using a time-weighted rate of return formula. These returns are net of investment management fees and transaction costs. They do not, however, reflect administrative expenses that may be deducted by the retirement systems or other agencies to defray administrative costs.

Supplemental Investment Fund Summary

The Minnesota Supplemental Investment Fund (SIF) is a multi-purpose investment platform that offers a range of investment options to state and local public employees. This investment platform provides some or all of the investment options to the Public Employees Retirement Association (PERA) Defined Contribution Plan, local pension plans and the Statewide Volunteer Firefighter plan.

A wide diversity of investment goals exists among the Fund's participants. In order to meet those needs, the Fund has been structured much like a "family of mutual funds." Participants may allocate their investments among one or more accounts that are appropriate for their needs, within the statutory requirements and rules established by the participating organizations. Participation in the Fund is accomplished through the purchase or sale of shares in each account. All returns are net of investment management fees.

Investment Option Descriptions

- Balanced Fund - a balanced portfolio utilizing both common stocks and bonds
- U.S. Equity Actively Managed Fund - an actively managed, U.S. common stock portfolio.
- U.S. Equity Index Fund - a passively managed, common stock portfolio designed to broadly track the performance of the U.S. stock market.
- Broad International Equity Fund - a portfolio of non-U.S. stocks that incorporates both active and passive management.
- Bond Fund - an actively managed, bond portfolio.
- Money Market Fund - a portfolio utilizing short-term, liquid debt securities.
- Stable Value Fund - a portfolio of stable value instruments, including security backed contracts and insurance company and bank investment contracts.
- Volunteer Firefighter Account - a balanced portfolio only used by the Statewide Volunteer Firefighter Plan.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year	Option Since
BALANCED FUND	$96,098,406	-4.3%	-16.2%	4.2%	5.7%	7.6%	01/1980
U.S. EQUITY ACTIVELY MANAGED FUND	68,232,597	-4.2	-20.6	8.3	9.1	11.7	07/1986
U.S. EQUITY INDEX FUND	335,636,970	-4.4	-17.6	8.0	8.8	11.5	07/1986
BROAD INTERNATIONAL EQUITY FUND	112,934,733	-7.2	-21.3	0.6	0.5	4.1	09/1994
BOND FUND	95,982,913	-4.7	-16.0	-2.8	0.1	1.4	07/1986
MONEY MARKET FUND	658,371,801	0.6	0.9	0.7	1.3	0.8	07/1986
STABLE VALUE FUND	1,745,228,425	0.5	1.9	2.2	2.3	2.2	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	124,619,957	-4.7	-16.6	2.0	3.6	5.5	01/2010

Note:
The Market Values for the Money Market Fund, the Stable Value Fund, and the Total Supplemental Investment Fund also include assets held through other plans.

Supplemental Investment Fund Performance

Balanced Fund

The primary investment objective of the Balanced Fund is to gain exposure to publicly traded U.S. equities, bond and cash in a diversified investment portfolio. The Fund seeks to maximize long-term real rates of return, while limiting short-run portfolio return volatility. The Balanced Fund is invested in a balanced portfolio of common stocks and bonds. Common stocks provide the potential for significant capital appreciation, while bonds act as a deflation hedge and provide portfolio diversification. The benchmark is a blend of 60% Russell 3000/35% Bloomberg U.S. Aggregate/5% 3 Month T-Bills.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
BALANCED FUND	**$96,098,406**	**-4.3%**	**-16.2%**	**4.2%**	**5.7%**	**7.6%**
SIF BALANCED FUND BENCHMARK		-4.2%	-15.4%	3.8%	5.4%	7.3%
Excess		-0.0%	-0.7%	0.4%	0.3%	0.3%

U.S. Equity Actively Managed Fund

The U.S. Equity Actively Managed Fund's investment objective is to generate above-average returns from capital appreciation on common stocks. The U.S. Stock Actively Managed Fund is invested primarily in the common stocks of U.S. companies. The managers in the account also hold varying levels of cash.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
U.S. EQUITY ACTIVELY MANAGED FUND	**68,232,597**	**-4.2**	**-20.6**	**8.3**	**9.1**	**11.7**
Russell 3000		-4.5	-17.6	7.7	8.6	11.4
Excess		0.3	-3.0	0.6	0.5	0.3

Supplemental Investment Fund Performance

U.S. Equity Index Fund

The investment objective of the U.S. Equity Index Fund is to generate returns that track those of the U.S. stock market as a whole. The Fund is designed to track the performance of the Russell 3000 Index, a broad-based equity market indicator. The Fund is invested 100% in common stock.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
U.S. EQUITY INDEX FUND	**$335,636,970**	**-4.4%**	**-17.6%**	**8.0%**	**8.8%**	**11.5%**
Russell 3000		-4.5%	-17.6%	7.7%	8.6%	11.4%
Excess		0.0%	0.0%	0.3%	0.2%	0.1%

Broad International Equity Fund

The investment objective of the Broad International Equity Fund is to earn a high rate of return by investing in the stock of companies outside the U.S. Portions of the Fund are passively managed and semi-passively managed. These portions of the Fund are designed to track and modestly outperform, respectively, the return of developed markets included in the MSCI World ex USA Index. A portion of the Fund is "actively managed" by several international managers and emerging markets specialists who buy and sell stocks in an attempt to maximize market value. The International Equity Benchmark is currently the MSCI ACWI ex USA (net).

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
BROAD INTERNATIONAL EQUITY FUND	**112,934,733**	**-7.2**	**-21.3**	**0.6**	**0.5**	**4.1**
International Equity Benchmark		-9.9	-25.2	-1.6	-0.8	3.0
Excess		2.7	3.9	2.2	1.3	1.1

Supplemental Investment Fund Performance

Bond Fund

The investment objective of the Bond Fund is to exceed the return of the broad domestic bond market by investing in fixed income securities. The Bond Fund invests primarily in high-quality, government and corporate bonds that have intermediate to long-term maturities, usually 3 to 20 years. The Bond Fund benchmark is the Bloomberg U.S. Aggregate.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
BOND FUND	**$95,982,913**	**-4.7%**	**-16.0%**	**-2.8%**	**0.1%**	**1.4%**
Bloomberg U.S. Aggregate		-4.8%	-14.6%	-3.3%	-0.3%	0.9%
Excess		0.1%	-1.4%	0.4%	0.4%	0.5%

Money Market Fund

The investment objective of the Money Market Fund is to protect principal by investing in short-term, liquid U.S. Government securities. The Fund is invested entirely in high-quality, short-term U.S. Treasury and Agency securities. The average maturity of the portfolios is less than 90 days. Please note that the Market Value for the Money Market Fund reflects assets held through the Deferred Compensation Plan as well.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
MONEY MARKET FUND	**658,371,801**	**0.6**	**0.9**	**0.7**	**1.3**	**0.8**
ICE BofA US 3-Month Treasury Bill		0.5	0.6	0.6	1.1	0.7
Excess		0.1	0.3	0.1	0.1	0.1

Supplemental Investment Fund Performance

Stable Value Fund

The investment objectives of the Stable Value Fund are to protect investors from loss of their original investment and to provide competitive interest rates using somewhat longer-term investments than typically found in a money market fund. The Fund is invested in a well-diversified portfolio of high-quality fixed income securities with strong credit ratings. The Fund also invests in contracts issued by highly rated insurance companies and banks which are structured to provide principal protection for the Fund's diversified bond portfolios, regardless of daily market changes. The Stable Value Fund Benchmark is the 3-year Constant Maturity Treasury Bill +45 basis points. Please note that the Market Value for the Stable Value Fund reflects assets held through the Deferred Compensation Plan as well.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
STABLE VALUE FUND	**$1,745,228,425**	**0.5%**	**1.9%**	**2.2%**	**2.3%**	**2.2%**
Fixed Interest Blended Benchmark		0.9%	2.6%	1.5%	2.0%	1.7%
Excess		-0.4%	-0.7%	0.7%	0.3%	0.5%

Volunteer Firefighter Account

The Volunteer Firefighter Account is different than other SIF program options. It is available only to the local entities that participate in the Statewide Volunteer Firefighter Plan (administered by PERA) and have all of their assets invested in the Volunteer Firefighter Account. There are other volunteer firefighter plans that are not eligible to be consolidated that may invest their assets through other SIF program options. The investment objective of the Volunteer Firefighter Account is to maximize long-term returns while limiting short-term portfolio return volatility. The account is invested in a balanced portfolio of domestic equity, international equity, fixed income and cash. The benchmark for this account is 35% Russell 3000, 15% MSCI ACWI ex USA (net), 45% Bloomberg U.S. Aggregate, 5% 3 Month T-Bills.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
VOLUNTEER FIREFIGHTER ACCOUNT	**124,619,957**	**-4.7**	**-16.6**	**2.0**	**3.6**	**5.5**
SIF Volunteer Firefighter Account BM		-5.1	-16.4	1.4	3.1	5.1
Excess		0.4	-0.2	0.7	0.4	0.4

Mutual Funds

The mutual fund investment line-up provides investment options to the Minnesota Deferred Compensation Plan (MNDCP), Unclassified Retirement Plan, Health Care Savings Plan, and the Hennepin County Retirement Plan. The MNDCP is a tax-sheltered retirement savings plan that is supplemental to public employees primary retirement plan. (In most cases, the primary plan is a defined benefit plan administered by TRA, PERA, or MSRS.) Participants can choose from active and passively managed stock and bond funds, a Stable Value Fund, a Money Market Fund, a set of 10 target date retirement fund options, and a brokerage window where participants can choose from hundreds of mutual funds.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year	Option Since
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	$582,376,038	-4.5%	-18.0%	7.7%			07/2019
VANGUARD INSTITUTIONAL INDEX PLUS	1,450,102,412	-4.9	-15.5	8.2	9.2%	11.7%	07/1999
VANGUARD DIVIDEND GROWTH	848,332,740	-5.5	-6.2	7.1	10.3		10/2016
VANGUARD MID CAP INDEX	616,513,864	-4.1	-19.5	5.5	6.7	10.5	01/2004
T. ROWE PRICE SMALL-CAP STOCK	780,878,559	-2.2	-23.9	4.9	7.6	11.0	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	262,769,989	-8.7	-30.6	-0.2	0.6	4.9	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	282,267,156	-10.5	-25.2	-1.1	-0.7	3.4	07/2011
VANGUARD BALANCED INDEX	1,192,586,444	-4.5	-16.4	3.5	5.3	7.3	12/2003
DODGE & COX INCOME	269,285,575	-4.0	-13.6	-1.7	0.7	1.9	07/1999
VANGUARD TOTAL BOND MARKET INDEX	308,094,207	-4.6	-14.6	-3.3	-0.3	0.9	12/2003
2025 FUND	203,549,967	-4.9	-13.6	2.2	3.3	5.2	07/2011
2030 FUND	179,423,766	-5.6	-16.5	2.6	3.8	6.0	07/2011
2035 FUND	138,223,172	-6.1	-19.2	2.4	3.8	6.3	07/2011
2040 FUND	109,729,584	-6.4	-20.3	2.6	3.9	6.6	07/2011
2045 FUND	102,521,425	-6.7	-20.9	2.8	4.0	6.9	07/2011
2050 FUND	86,216,160	-6.7	-21.5	3.1	4.2	7.1	07/2011
2055 FUND	55,891,568	-6.8	-22.0	3.1	4.2	7.1	07/2011
2060 FUND	43,633,012	-6.8	-22.0	3.1	4.2	7.1	07/2011
2065 FUND	5,079,679	-6.8	-22.0				04/2020
INCOME FUND	203,941,653	-4.5	-12.5	1.5	2.6	3.3	07/2011
TD Ameritrade SDB	72,947,704						
TD Ameritrade SDB Roth	2,588,781						

Mutual Funds

LARGE CAP EQUITY

Vanguard Total Stock Market Institutional Index Plus (passive)

A passive domestic stock portfolio of large and small companies that tracks the CRSP US Total Market Index.

Vanguard Index Institutional Plus (passive)

A passive domestic stock portfolio that tracks the S&P 500.

Vanguard Dividend Growth (active) (1)

A fund of large cap stocks which is expected to outperform the S&P U.S. Dividend Growers Index, over time.

MID CAP EQUITY

Vanguard Mid Cap Index (passive) (2)

A fund that passively invests in companies with medium market capitalizations that tracks the CRSP US Mid-Cap Index.

SMALL CAP EQUITY

T Rowe Price Small Cap (active)

A fund that invests primarily in companies with small market capitalizations and is expected to outperform the Russell 2000 Index.

INTERNATIONAL EQUITY

Fidelity Diversified International (active)

A fund that invests primarily in stocks of companies located outside of the United States and is expected to outperform the MSCI index of Europe, Australasia and the Far East (EAFE), over time.

Vanguard Total International Stock Index (passive) (3)

A fund that seeks to track the investment performance of the FTSE Global All Cap ex US Index, an index designed to measure equity market performance in developed and emerging markets, excluding the United States.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
Large Cap US Equity						
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	**$582,376,038**	**-4.5%**	**-18.0%**	**7.7%**		**07/2019**
CRSP US Total Market Index		-4.4	-18.0	7.6		07/2019
Excess		-0.0	-0.0	0.1		
VANGUARD INSTITUTIONAL INDEX PLUS	**1,450,102,412**	**-4.9**	**-15.5**	**8.2**	**9.2%**	**07/1999**
S&P 500		-4.9	-15.5	8.2	9.2	07/1999
Excess		-0.0	-0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	**848,332,740**	**-5.5**	**-6.2**	**7.1**	**10.3**	**10/2016**
VANGUARD DIVIDEND GROWTH INDEX		-5.3	-10.3	6.2	9.4	10/2016
Excess		-0.2	4.1	0.9	0.8	
Mid Cap US Equity						
VANGUARD MID CAP INDEX	**616,513,864**	**-4.1**	**-19.5**	**5.5**	**6.7**	**01/2004**
CRSP US Mid Cap Index		-4.1	-19.5	5.5	6.7	01/2004
Excess		0.0	-0.0	0.0	0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	**780,878,559**	**-2.2**	**-23.9**	**4.9**	**7.6**	**04/2000**
Russell 2000		-2.2	-23.5	4.3	3.6	04/2000
Excess		0.0	-0.4	0.6	4.0	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	**262,769,989**	**-8.7**	**-30.6**	**-0.2**	**0.6**	**07/1999**
MSCI EAFE FREE (NET)		-9.4	-25.1	-1.8	-0.8	07/1999
Excess		0.6	-5.4	1.7	1.5	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	**282,267,156**	**-10.5**	**-25.2**	**-1.1**	**-0.7**	**07/2011**
FTSE Global All Cap ex US Index Net		-9.7	-25.3	-1.1	-0.7	07/2011
Excess		-0.8	0.1	-0.1	-0.0	

Mutual Funds

BALANCED

Vanguard Balanced Index (passive) (4)

A fund that passively invests in a mix of domestic stocks and bonds. The fund is expected to track a weighted benchmark of 60% CRSP US Total Market Index/40% Bloomberg U.S. Aggregate.

FIXED INCOME

Dodge & Cox Income Fund (active)

A fund that invests primarily in investment grade securities in the U.S. bond market which is expected to outperform the Bloomberg U.S. Aggregate, over time.

Vanguard Total Bond Market Index (passive)

A fund that passively invests in a broad, market weighted bond index that is expected to track the Bloomberg U.S. Aggregate.

Money Market Fund (5)

A fund that invests in short-term debt instruments which is expected to outperform the return on 3 Month T-Bills.

STABLE VALUE

Stable Value Fund (5)

A portfolio composed of stable value instruments which are primarily investment contracts and security backed contracts. The fund is expected to outperform the return of the 3 year Constant Maturity Treasury +45 basis points, over time.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
Balanced Funds						
VANGUARD BALANCED INDEX	**$1,192,586,444**	**-4.5%**	**-16.4%**	**3.5%**	**5.3%**	**12/2003**
Vanguard Balanced Fund Benchmark		-4.5	-16.4	3.6	5.3	12/2003
Excess		-0.0	-0.0	-0.0	-0.0	
Fixed Income						
DODGE & COX INCOME	**269,285,575**	**-4.0**	**-13.6**	**-1.7**	**0.7**	**07/1999**
Bloomberg U.S. Aggregate		-4.8	-14.6	-3.3	-0.3	07/1999
Excess		0.8	1.0	1.5	0.9	
VANGUARD TOTAL BOND MARKET INDEX	**308,094,207**	**-4.6**	**-14.6**	**-3.3**	**-0.3**	**12/2003**
Bloomberg U.S. Aggregate		-4.8	-14.6	-3.3	-0.3	12/2003
Excess		0.1	-0.0	-0.0	0.0	
MONEY MARKET FUND	**658,371,801**	**0.6**	**0.9**	**0.7**	**1.3**	**07/1986**
ICE BofA US 3-Month Treasury Bill		0.5	0.6	0.6	1.1	07/1986
Excess		0.1	0.3	0.1	0.1	
Stable Value						
STABLE VALUE FUND	**1,745,228,425**	**0.5**	**1.9**	**2.2**	**2.3**	**11/1994**
Fixed Interest Blended Benchmark		0.9	2.6	1.5	2.0	11/1994
Excess		-0.4	-0.7	0.7	0.3	

(1) Prior to 09/20/2021 the benchmark was the NASDAQ US Dividend Achievers Select Index and S&P U.S. Dividend Growers Index thereafter.
(2) Prior to 02/01/2013 the benchmark was the MSCI US Mid-Cap 450 Index.
(3) Prior to 06/01/2013 the benchmark was MSCI ACWI ex USA IMI.
(4) Prior to 01/01/2013 the benchmark was 60% MSCI US Broad Market Index and 40% Bloomberg U.S. Aggregate.
(5) Money Market and Stable Value are Supplemental Investment Fund options which are also offered to eligible plans that invest through other plans.

Mutual Funds

MN TARGET RETIREMENT ACCOUNTS

Target retirement funds offer a mix of investments that are adjusted over time to reduce risk and become more conservative as the target retirement date approaches. A participant only needs to make one investment decison by investing their assets in the fund that is closest to their anticipated retirement date.

Target Date Retirement Funds

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
SSgA						
2025 FUND	**$203,549,967**	**-4.9%**	**-13.6%**	**2.2%**	**3.3%**	**07/2011**
2025 FUND BENCHMARK		-4.8%	-13.6%	2.2%	3.3%	07/2011
Excess		-0.1%	0.0%	-0.0%	-0.0%	
2030 FUND	**$179,423,766**	**-5.6%**	**-16.5%**	**2.6%**	**3.8%**	**07/2011**
2030 FUND BENCHMARK		-5.5%	-16.6%	2.6%	3.8%	07/2011
Excess		-0.1%	0.0%	-0.0%	-0.0%	
2035 FUND	**$138,223,172**	**-6.1%**	**-19.2%**	**2.4%**	**3.8%**	**07/2011**
2035 FUND BENCHMARK		-6.0%	-19.2%	2.5%	3.8%	07/2011
Excess		-0.1%	0.0%	-0.0%	-0.0%	
2040 FUND	**$109,729,584**	**-6.4%**	**-20.3%**	**2.6%**	**3.9%**	**07/2011**
2040 FUND BENCHMARK		-6.3%	-20.3%	2.6%	3.9%	07/2011
Excess		-0.2%	0.0%	-0.0%	-0.0%	
2045 FUND	**$102,521,425**	**-6.7%**	**-20.9%**	**2.8%**	**4.0%**	**07/2011**
2045 FUND BENCHMARK		-6.5%	-21.0%	2.9%	4.1%	07/2011
Excess		-0.2%	0.0%	-0.1%	-0.0%	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
2050 FUND	**$86,216,160**	**-6.7%**	**-21.5%**	**3.1%**	**4.2%**	**07/2011**
2050 FUND BENCHMARK		-6.6%	-21.5%	3.1%	4.2%	07/2011
Excess		-0.2%	0.0%	-0.1%	-0.0%	
2055 FUND	**$55,891,568**	**-6.8%**	**-22.0%**	**3.1%**	**4.2%**	**07/2011**
2055 FUND BENCHMARK		-6.6%	-22.0%	3.2%	4.2%	07/2011
Excess		-0.2%	0.0%	-0.1%	-0.0%	
2060 FUND	**$43,633,012**	**-6.8%**	**-22.0%**	**3.1%**	**4.2%**	**07/2011**
2060 FUND BENCHMARK		-6.6%	-22.0%	3.2%	4.2%	07/2011
Excess		-0.2%	0.0%	-0.1%	-0.0%	
2065 FUND	**$5,079,679**	**-6.8%**	**-22.0%**			**04/2020**
2065 FUND BENCHMARK		-6.6%	-22.0%			04/2020
Excess		-0.2%	0.0%			
INCOME FUND	**$203,941,653**	**-4.5%**	**-12.5%**	**1.5%**	**2.6%**	**07/2011**
INCOME FUND BENCHMARK		-4.5%	-12.5%	1.5%	2.6%	07/2011
Excess		-0.1%	0.0%	0.0%	0.0%	

Note: Each SSgA Fund benchmark is the aggregate of the returns of the Fund's underlying index funds weighted by the Fund's asset allocation

MN College Savings Plan Options

The Minnesota College Savings Plan is an education savings plan designed to help families set aside funds for future college costs. The SBI is responsible for the investments and the Minnesota Office of Higher Education (OHE) is responsible for the overall administration of the Plan.

The SBI and OHE contract jointly with TIAA to provide administrative, marketing, communication, recordkeeping and investment management services. Please see the next page for the performance as reported by TIAA.

ENROLLMENT-BASED MANAGED ALLOCATIONS - The Enrollment Year Investment Option is a set of single fund options representing the date your future student needs their college savings. The asset allocation adjusts automatically to a more conservative investment objective and level of risk as the enrollment year approaches. The managed allocation changed from Age-Based to Enrollment-Based on October 28, 2019.

RISK BASED ALLOCATIONS - The Risk Based Allocation Option offers three separate allocation investment options - Aggressive, Moderate and Conservative, each of which has a fixed risk level that does not change as the Beneficiary ages.

ASSET CLASS BASED ALLOCATIONS

U.S. LARGE CAP EQUITY INDEX - A passive domestic stock portfolio that tracks the S&P 500.

INTERNATIONAL EQUITY INDEX - A fund that passively invests in a mix of developed and emerging market equities. The fund is expected to track a weighted benchmark of 80% MSCI ACWI World ex USA and 20% MSCI Emerging Markets Free Index.

U.S. AND INTERNATIONAL EQUITY INDEX - A fund that invests in a mix of equities, both U.S. and international, across all capitalization ranges and real estate-related securities. The fund is expected to track a weighted benchmark of 60% Russell 3000, 24% International, 6% Emerging Markets, and 10% Real Estate Securities Fund.

PRINCIPAL PLUS INTEREST OPTION - A passive fund where contributions are invested in a Funding Agreement issued by TIAA-CREF Life. The funding agreement provides for a return of principal plus a guaranteed rate of interest which is made by the insurance company to the policyholder, not the account owners. The account is expected to outperform the return of the 3-month T-Bill.

EQUITY AND INTEREST ACCUMULATION - A fund that passively invests half of the portfolio in U.S. equities across all capitalization ranges and the other half in the same Funding Agreement issued by TIAA-CREF Life as described above. The fund is expected to track a weighted benchmark of 50% Russell 3000 and 50% 3-month T-Bill.

100% FIXED INCOME - A fund that passively invests in fixed income holdings that tracks the Bloomberg U.S. Aggregate and two active funds that invest in inflation-linked bonds and high yield securities. The fund is expected to track a weighted benchmark of 70% Bloomberg U.S. Aggregate, 20% inflation-linked bond, and 10% high yield.

MONEY MARKET - An active fund that invests in high-quality, short-term money market instruments of both domestic and foreign issuers that tracks the iMoneyNet Average All Taxable benchmark.

SOCIAL CHOICE EQUITY ALLOCATION – An actively managed fund that seeks to provide a favorable long-term total return that reflects the investment performance of the overall U.S. equity market while giving special consideration to companies whose activities are consistent with certain environmental, social and governance criteria.

MINNESOTA 529 COLLEGE SAVINGS PLAN

TIAA

MINNESOTA COLLEGE SAVINGS PLAN

Performance Statistics for the Period Ending: September 30, 2022

Total = $1,604 Million

Fund Name	Ending Market	3 Months	1 Year	Annualized 3 Years	5 Years	10 Years	Since Inception	Inception Date
2038/2039 Enrollment Option	$10,554,386	-6.20%	-17.81%				-14.37%	6/11/2021
2038-2039 Custom Benchmark		-6.08%	-18.24%				-14.58%	
2036/2037 Enrollment Option	$52,096,735	-6.15%	-17.77%				2.76%	10/28/2019
2036-2037 Custom Benchmark		-5.98%	-17.99%				2.49%	
2034/2035 Enrollment Option	$43,651,185	-6.03%	-17.42%				2.53%	10/28/2019
2034-2035 Custom Benchmark		-5.87%	-17.68%				2.28%	
2032/2033 Enrollment Option	$49,649,857	-5.79%	-17.01%				2.43%	10/28/2019
2032-2033 Custom Benchmark		-5.70%	-17.22%				2.18%	
2030/2031 Enrollment Option	$60,145,777	-5.41%	-16.05%				2.24%	10/28/2019
2030-2031 Custom Benchmark		-5.30%	-16.25%				1.99%	
2028/2029 Enrollment Option	$76,340,881	-4.86%	-14.63%				1.88%	10/28/2019
2028-2029 Custom Benchmark		-4.79%	-14.85%				1.55%	
2026/2027 Enrollment Option	$107,072,197	-4.29%	-13.02%				1.64%	10/28/2019
2026-2027 Custom Benchmark		-4.17%	-13.23%				1.32%	
2024/2025 Enrollment Option	$150,631,753	-3.21%	-10.21%				1.84%	10/28/2019
2024-2025 Custom Benchmark		-3.05%	-10.41%				1.42%	
2022/2023 Enrollment Option	$167,727,211	-2.24%	-7.09%				1.61%	10/28/2019
2022-2023 Custom Benchmark		-2.12%	-7.40%				1.04%	
In School Option	$229,844,651	-1.98%	-6.15%				1.25%	10/28/2019
In School Custom Benchmark		-1.89%	-6.48%				0.49%	

MINNESOTA COLLEGE SAVINGS PLAN

Performance Statistics for the Period Ending: September 30, 2022

Fund Name	Ending Market	3 Months	1 Year	Annualized 3 Years	5 Years	10 Years	Since Inception	Inception Date
U.S. and International Equity Option	$244,516,779	-6.88%	-19.72%	3.98%	5.35%	8.46%	6.57%	10/ 1/2001
BB: U.S. and International Equity Option		-6.55%	-19.71%	3.90%	5.22%	8.51%	7.25%	
Moderate Allocation Option	$79,749,441	-5.64%	-16.60%	2.06%	3.69%	5.62%	4.71%	8/ 2/2007
BB: Moderate Allocation Option		-5.41%	-16.59%	1.94%	3.63%	5.72%	5.19%	
100% Fixed-Income Option	$16,227,240	-3.86%	-12.25%	-2.00%	0.33%	0.81%	2.58%	8/16/2007
BB: 100% Fixed-Income Option		-3.86%	-12.29%	-1.79%	0.56%	1.15%	3.12%	
International Equity Index Option	$7,522,004	-10.43%	-24.94%	-1.67%	-0.93%		2.16%	6/18/2013
BB: International Equity Index Option		-9.76%	-25.68%	-1.78%	-0.95%		2.24%	
Money Market Option	$13,154,153	0.46%	0.56%	0.47%	0.95%	0.52%	0.52%	11/ 1/2007
BB: Money Market Option		0.42%	0.53%	0.38%	0.84%	0.46%	0.47%	
Principal Plus Interest Option	$123,193,575	0.25%	1.12%	1.52%	1.65%	1.50%	2.35%	10/10/2001
Citigroup 3-Month U.S. Treasury Bill		0.45%	0.63%	0.57%	1.13%	0.66%	1.23%	
Aggressive Allocation Option	$65,211,388	-6.26%	-18.10%	3.05%	4.54%		5.59%	8/12/2014
BB: Aggressive Allocation Option		-5.97%	-18.13%	2.97%	4.47%		5.53%	
Conservative Allocation Option	$15,398,673	-3.67%	-11.21%	0.97%	2.40%		2.88%	8/18/2014
BB: Conservative Allocation Option		-3.50%	-11.30%	0.84%	2.37%		2.89%	
Equity and Interest Accumulation Option	$7,512,664	-1.98%	-8.29%	4.97%	5.32%		5.44%	8/18/2014
BB: Equity and Interest Accumulation Option		-1.80%	-8.41%	4.64%	5.26%		5.34%	
U.S. Large Cap Equity Option	$81,469,686	-4.90%	-15.59%	8.01%	9.05%		9.76%	8/12/2014
BB: U.S. Large Cap Equity Option		-4.88%	-15.47%	8.16%	9.24%		9.87%	
Social Choice Equity Option	$727,194	-4.51%	-18.06%				-13.65%	6/11/2021
BB: Social Choice Equity Option		-4.46%	-17.63%				-13.15%	
Matching Grant	$1,382,084	0.25%	1.12%	1.52%	1.65%	1.50%	2.35%	3/22/2002
Citigroup 3-Month U.S. Treasury Bill		0.45%	0.63%	0.57%	1.13%	0.66%	1.23%	

MINNESOTABLEplan
A member of The National ABLE Alliance

Performance as of
09/30/22

Total Market Value: $ 28,229,835

Fund Name		Market Value	% of Plan	1 Month	3 Months	YTD	1 Year	3 Year	5 Year	10 Year	Inception	Inception Date
Aggressive Option	$	1,952,208	6.92%	(9.17)	(6.01)	(25.00)	(21.04)	2.87	4.14		5.68	12/15/16
ABLE Aggressive Custom Benchmark				(9.28)	(5.72)	(25.09)	(21.06)	3.12	4.44		6.07	
Variance				**0.11**	**(0.29)**	**0.09**	**0.02**	**(0.25)**	**(0.30)**		**(0.39)**	
Moderately Aggressive Option	$	2,228,226	7.89%	(8.15)	(5.47)	(22.40)	(18.95)	2.47	3.76		5.05	12/15/16
ABLE Moderately Aggressive Custom Benchmark				(8.27)	(5.28)	(22.52)	(19.00)	2.68	4.02		5.41	
Variance				**0.12**	**(0.19)**	**0.12**	**0.05**	**(0.21)**	**(0.26)**		**(0.36)**	
Growth Option	$	3,454,175	12.24%	(7.12)	(4.98)	(19.76)	(16.89)	1.98	3.29		4.34	12/15/16
ABLE Growth Custom Benchmark				(7.25)	(4.84)	(19.90)	(16.95)	2.16	3.54		4.68	
Variance				**0.13**	**(0.14)**	**0.14**	**0.06**	**(0.18)**	**(0.25)**		**(0.34)**	
Moderate Option	$	3,099,116	10.98%	(6.04)	(4.51)	(17.03)	(14.78)	1.42	2.75		3.61	12/15/16
ABLE Moderate Custom Benchmark				(6.24)	(4.43)	(17.25)	(14.90)	1.56	2.98		3.90	
Variance				**0.20**	**(0.08)**	**0.22**	**0.12**	**(0.14)**	**(0.23)**		**(0.29)**	
Moderately Conservative Option	$	3,093,618	10.96%	(4.32)	(3.22)	(12.20)	(10.59)	1.13	2.22		2.79	12/15/16
ABLE Moderately Conservative Custom Benchmark				(4.37)	(3.06)	(12.30)	(10.62)	1.23	2.43		3.04	
Variance				**0.05**	**(0.16)**	**0.10**	**0.03**	**(0.10)**	**(0.21)**		**(0.25)**	
Conservative Option	$	5,290,544	18.74%	(1.79)	(1.35)	(5.18)	(4.60)	0.65	1.43		1.63	12/15/16
ABLE Conservative Custom Benchmark				(1.82)	(1.24)	(5.25)	(4.60)	0.65	1.56		1.78	
Variance				**0.03**	**(0.11)**	**0.07**	**0.00**	**0.00**	**(0.13)**		**(0.15)**	
Checking Option	$	9,111,948	32.28%									03/30/17

MINNESOTA ACHIEVE A BETTER LIFE EXPERIENCE

The Minnesota Achieve a Better Life Experience Plan (ABLE).
The plan is administered by the Department of Human Services (DHS).

The SBI and DHS have jointly contracted with Ascensus to provide recordkeeping, administrative, and investment management services for the plan.

RISK BASED ALLOCATIONS

The plan offers seven different allocation investment options: Aggressive, Moderately Aggressive, Growth, Moderate, Moderately Conservative, Conservative, and Checking. Each allocation is based on a fixed risk level.

ascensus | college savings

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Quarterly Report

Non-Retirement

September 30, 2022

Non-Retirement Funds

The SBI manages funds for trusts and programs created by the Minnesota State Constitution and Legislature.

- The Minnesota Workers Compensation Assigned Risk Plan provides worker compensation insurance for companies unable to obtain coverage through private carriers.

- The Permanent School Fund is a trust established for the benefit of Minnesota public schools.

- The Environmental Trust Fund is a trust established for the protection and enhancement of Minnesota's environment. It is funded with a portion of the proceeds from the state's lottery.

- The Closed Landfill Investment Fund is a trust created by the Legislature to invest money to pay for the long-term costs of maintaining the integrity of landfills in Minnesota once they are closed.

- Other Post-Employment Benefits Accounts (OPEB) are the assets set aside by local units of government for the payment of retiree benefits trusteed by the Public Employees Retirement Association.

- Miscellaneous Trust Accounts are other small funds managed by the SBI for a variety of purposes.

All equity, fixed income, and cash assets for these accounts are managed externally by investment management firms retained by the SBI.

Non-Retirement

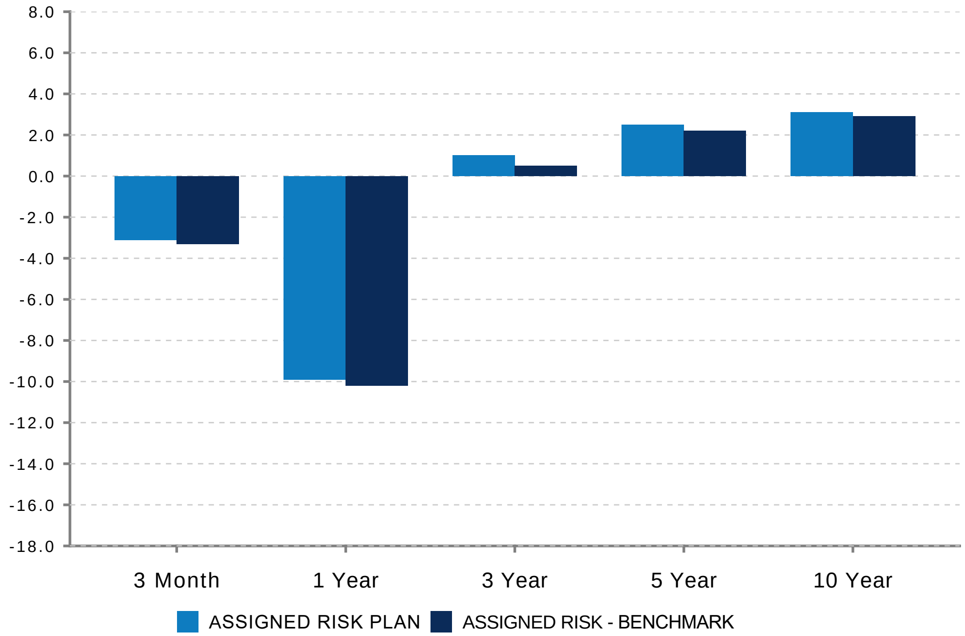
Assigned Risk Plan

The Assigned Risk plan has two investment objectives: to minimize the mismatch between assets and liabilities and to provide sufficient liquidity for the payment of ongoing claims and operating expenses.

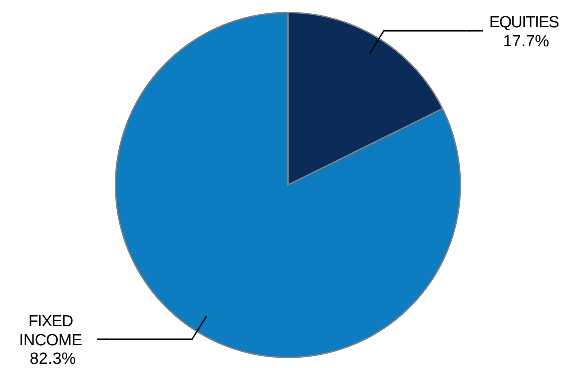
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

The equity segment is passively managed to track the performance of the S&P 500.

The fixed income benchmark is the Bloomberg U.S. Government Intermediate Index. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 80% fixed income and 20% equities. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
ASSIGNED RISK PLAN	$231,514,790	-3.1%	-9.9%	1.0%	2.5%	3.1%
EQUITIES	$40,954,372	-4.9%	-15.5%	8.2%	9.2%	11.4%
FIXED INCOME	$190,560,418	-3.0%	-9.1%	-1.5%	0.3%	0.7%
ASSIGNED RISK - BENCHMARK		-3.3%	-10.2%	0.5%	2.2%	2.9%
Excess		0.3%	0.3%	0.5%	0.3%	0.2%
S&P 500		-4.9%	-15.5%	8.2%	9.2%	11.7%
Bloomberg U.S. Government: Intermediate		-3.1%	-9.2%	-1.7%	0.2%	0.6%



Note: Since 12/1/2017 the Assigned Risk equity segment has been managed by Mellon. From 1/17/2017-11/30/2017 it was managed internally by SBI staff. Prior to 1/17/2017 the equity segment was managed by SSgA (formerly GE Investment Mgmt.). RBC manages the fixed income segment of the Fund.

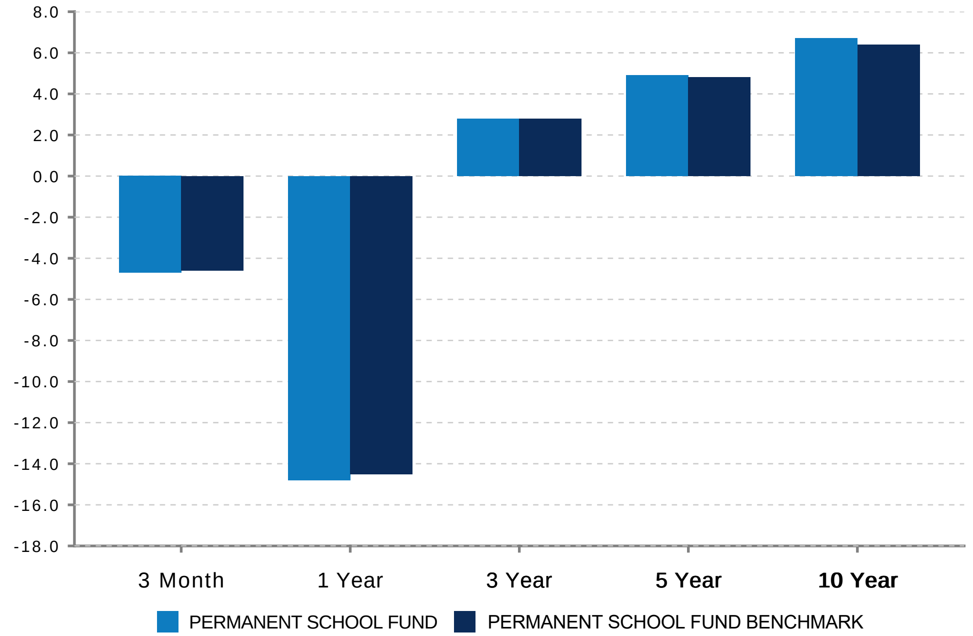
Non-Retirement

Permanent School Fund

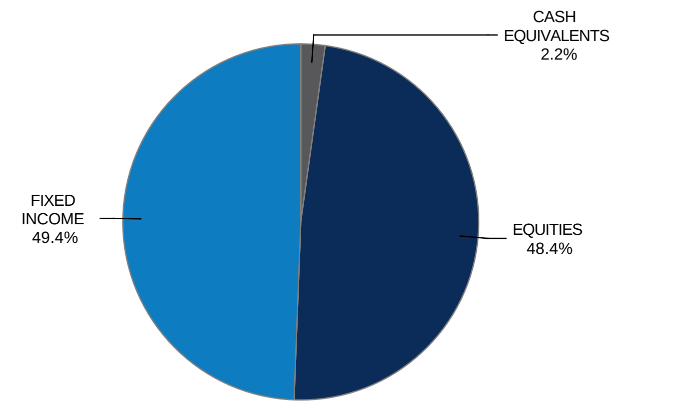
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

The Permanent School Fund is invested in a balanced portfolio of common stocks and bonds. Common stocks provide the potential for significant capital appreciation, while bonds provide portfolio diversification and a more stable stream of current income.

The stock segment is passively managed to track the performance of the S&P 500. The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 2% cash, 50% equity, and 48% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
PERMANENT SCHOOL FUND	$1,664,884,547	-4.7%	-14.8%	2.8%	4.9%	6.7%
CASH EQUIVALENTS	37,177,782	0.6	0.7	0.6	1.2	0.7
EQUITIES	806,020,163	-4.9	-15.5	8.2	9.2	11.7
FIXED INCOME	821,686,602	-4.7	-15.4	-3.2	-0.1	1.4
PERMANENT SCHOOL - BENCHMARK		-4.6	-14.5	2.8	4.8	6.4
Excess		-0.0	-0.3	-0.0	0.1	0.2
S&P 500		-4.9	-15.5	8.2	9.2	11.7
Bloomberg U.S. Aggregate		-4.8	-14.6	-3.3	-0.3	0.9



Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. Prior to 7/1/97 the Fund allocation was 100% fixed income.

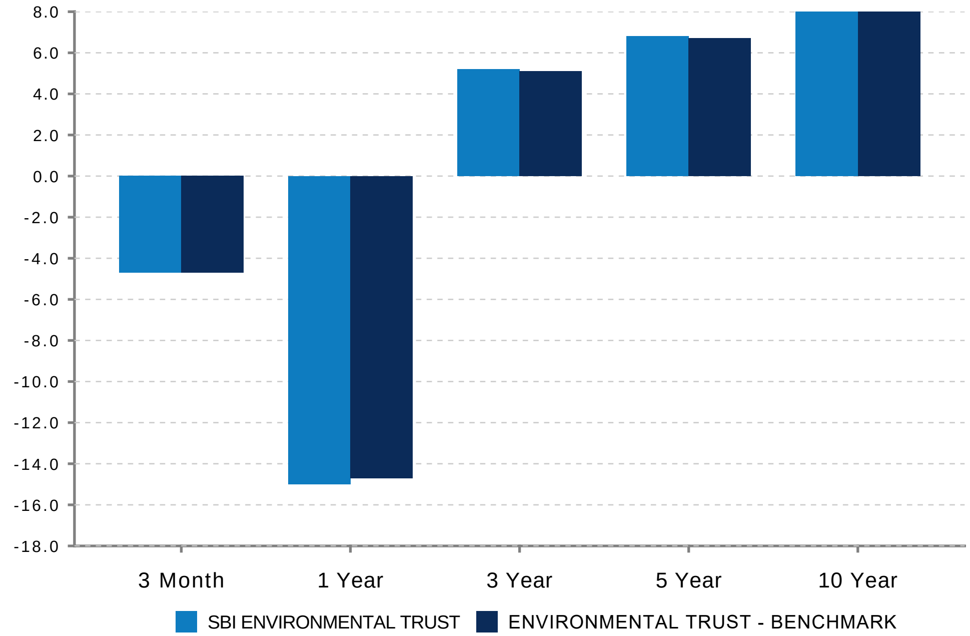
Non-Retirement

Environmental Trust Fund

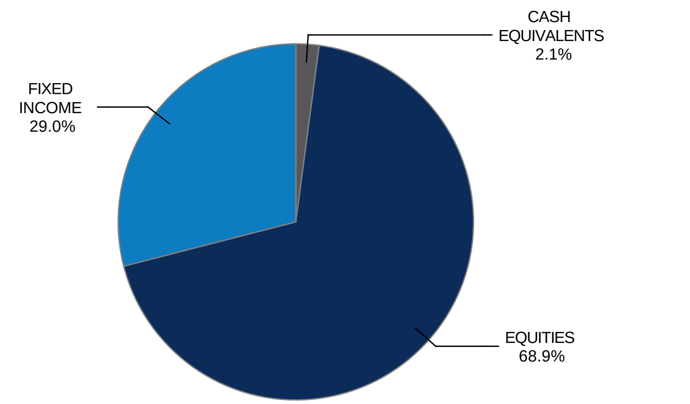
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

The Environmental Trust Fund is invested in a balanced portfolio of common stocks and bonds. Common stocks provide the potential for significant capital appreciation, while bonds act as a deflation hedge and provide portfolio diversification.

The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The stock segment is passively managed to track the performance of the S&P 500. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 2% cash, 70% equities, and 28% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
SBI ENVIRONMENTAL TRUST	$1,373,981,999	-4.7%	-15.0%	5.2%	6.8%	8.7%
CASH EQUIVALENTS	28,982,434	0.6	0.7	0.6	1.2	0.7
EQUITIES	946,522,290	-4.9	-15.5	8.2	9.2	11.7
FIXED INCOME	398,477,276	-4.7	-15.4	-3.2	-0.1	1.4
ENVIRONMENTAL TRUST - BENCHMARK		-4.7	-14.7	5.1	6.7	8.6
Excess		-0.0	-0.4	0.1	0.1	0.2
S&P 500		-4.9	-15.5	8.2	9.2	11.7
Bloomberg U.S. Aggregate		-4.8	-14.6	-3.3	-0.3	0.9



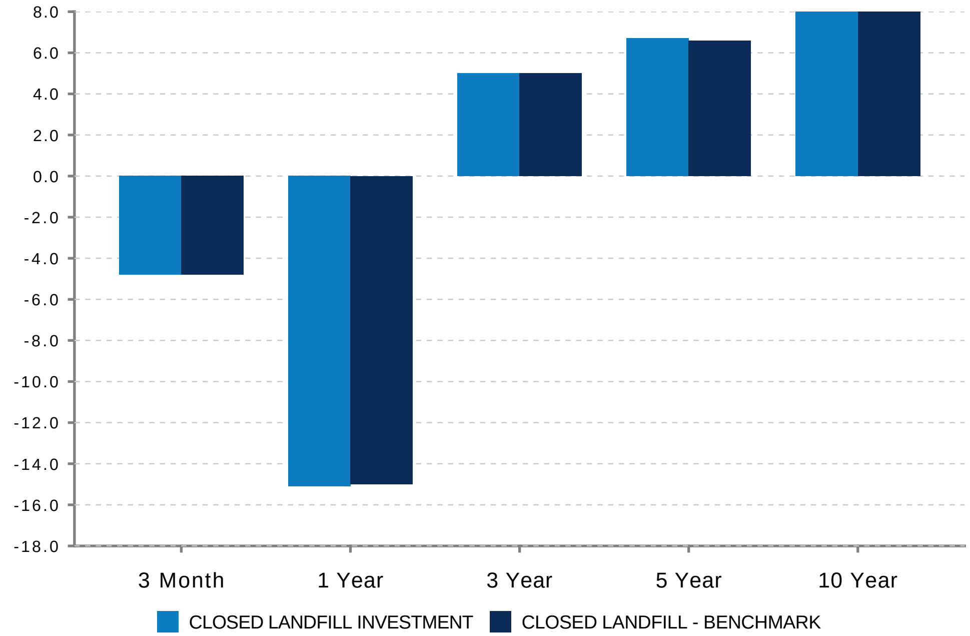
Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. From 7/1/94 to 7/1/99, the Fund's target allocation and benchmark was 50% fixed income and 50% stock. Prior to 7/1/94 the Fund was invested entirely in short-term instruments as part of the Invested Treasurer's Cash pool.

Non-Retirement

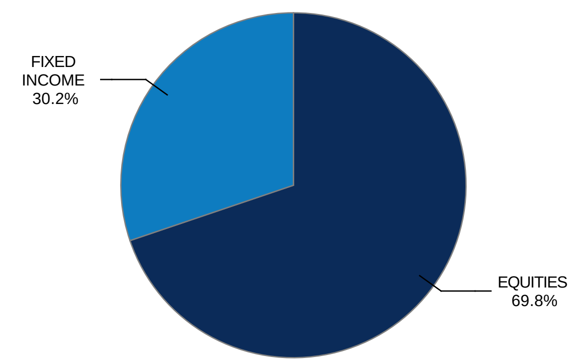
Closed Landfill Investment Fund

The investment objective of the Closed Landfill Investment Fund is to increase the market value of the Fund and to reduce volatility to meet future expenditures. By statute, the assets of the Fund were unavailable for expenditure until after the fiscal year 2020 to pay for long-term costs of maintaining the integrity of landfills in Minnesota once they are closed. In FY 2011, $48 million was transferred out of the general fund leaving a balance of $1 million in the account. Legislation was enacted in 2013 to replenish the principal and earnings back into the fund and in FY 2014 a repayment was made in the amount of $64.2 million. In 2015, legislation was passed which repealed any further repayments.

The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The stock segment is managed to passively track the performance of the S&P 500. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 70% equities and 30% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
CLOSED LANDFILL INVESTMENT	$108,800,490	-4.8%	-15.1%	5.0%	6.7%	9.7%
EQUITIES	75,980,632	-4.9	-15.5	8.2	9.2	11.7
FIXED INCOME	32,819,858	-4.7	-15.4	-3.2	-0.1	
CLOSED LANDFILL - BENCHMARK		-4.8	-15.0	5.0	6.6	9.7
Excess		0.0	-0.1	-0.0	0.0	0.0
S&P 500		-4.9	-15.5	8.2	9.2	11.7
Bloomberg U.S. Aggregate		-4.8	-14.6	-3.3	-0.3	0.9



Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. Prior to 9/10/14 the Fund's target allocation and benchmark was 100% domestic equity.

	Ending Market Value	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
NON RETIREMENT EQUITY INDEX - MELLON	**2,570,848,557**	**-4.9**	**-4.9**	**-15.5**	**8.2**	**9.2**	**11.7**	**9.5**	**07/1993**
S&P 500 INDEX (DAILY)		-4.9	-4.9	-15.5	8.2	9.2	11.7	9.5	07/1993
Excess		0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	**1,443,300,779**	**-4.7**	**-4.7**	**-15.4**	**-3.2**	**-0.1**	**1.4**	**5.0**	**07/1994**
Bloomberg U.S. Aggregate		-4.8	-4.8	-14.6	-3.3	-0.3	0.9	4.6	07/1994
Excess		0.1	0.1	-0.8	0.0	0.2	0.5	0.4	
RBC	**190,560,401**	**-3.0**	**-3.0**	**-9.1**	**-1.5**	**0.3**	**0.7**	**4.3**	**07/1991**
RBC Custom Benchmark		-3.1	-3.1	-9.2	-1.7	0.2	0.6	4.3	07/1991
Excess		0.0	0.0	0.1	0.2	0.1	0.1	-0.1	
MET COUNCIL OPEB BOND POOL	94,677,504	-2.5	-2.5	-7.1	-1.3				02/2009
NON RETIREMENT CASH ACCOUNT	**105,167,654**	**0.6**	**0.6**	**0.8**	**0.6**				**05/2009**
ICE BofA US 3-Month Treasury Bill		0.5	0.5	0.6	0.6				05/2009
Excess		0.1	0.1	0.2	0.0				

Note:

RBC is the manager for the fixed income portion of the Assigned Risk Account. RBC changed its name from Voyageur Asset Management on 1/1/2010. The current benchmark is the Bloomberg U.S. Government Intermediate Index. Prior to 7/1/11 the Voyageur Custom Index was 10% 90 day T-Bill, 25% Merrill 1-3 Government, 15% Merrill 3-5 Government, 25% Merrill 5-10 Government, 25% Merrill Mortgage Master.

Prior to 12/1/17 the Non Retirement Equity Index and Non Retirement Fixed Income accounts were managed internally by SBI staff.

In addition to the Non-Retirement Funds listed on the previous pages, the Non Retirement Equity Index and the Non Retirement Fixed Income accounts also include the assets of various smaller Miscellaneous Trust Accounts and Other Post Employment Benefits.

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State Cash

September 30, 2022

State Cash Accounts

Invested Treasurer's Cash

The Invested Treasurer's Cash Pool (ITC) represents the balances in more than 400 separate accounts that flow through the Minnesota State Treasury. These accounts vary greatly in size. The ITC contains the cash balances of certain State agencies and non-dedicated cash in the State Treasury.

The investment objectives of the ITC, in order of priority, are as follows:

- Safety of Principal. To preserve capital.
- Liquidity. To meet cash needs without the forced sale of securities at a loss.
- Competitive Rate of Return. To provide a level of current income consistent with the goal of preserving capital.

The SBI seeks to provide safety of principal by investing all cash accounts in high quality, liquid, short term investments. These include U.S. Treasury and Agency issues, repurchase agreements, bankers acceptances, commercial paper, and certificates of deposit.

Beginning in January 2003, the Treasurer's Cash Pool is measured against the iMoneyNet, All Taxable Money Fund Report Average.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Treasurer's Cash	23,583,991,358	0.3	-0.9	0.3	0.9	0.6
iMoneyNet Money Fund Average-All Taxable		0.4	0.5	0.4	0.9	0.5

Other State Cash Accounts

Due to differing investment objectives, strategies, and time horizons, some State agencies' accounts are invested seperately. These agencies direct the investments or provide the SBI with investment guidelines and the SBI executes on their behalf. Consequently, returns are shown for informational purposes only and there are no benchmarks for these accounts.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Debt Service	87,956,178	-3.0	-6.9	-0.7	0.9	
Housing Finance (1)	75,005,897					

(1) Housing Finance performance will be shown with first full quarter of performance.

Addendum

Benchmark Definitions

Active Domestic Equity Benchmark:

A weighted composite each of the individual active domestic equity managers' benchmarks. Effective 3/1/2017 the calculation uses the average weight of the manager relative to the total group of active managers during the month. Prior to 3/1/2017 the beginning of the month weight relative to the total group was used.

Benchmark DM:

Since 6/1/08 the developed markets managers' benchmark, "Benchmark DM," is the Standard (large + mid) MSCI World ex USA (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI World ex USA (net). From 10/1/03 to 9/30/07 the benchmark was the MSCI World ex USA (net). Prior to that date, it was the MSCI EAFE Free (net), including from 10/1/01 to 5/31/02 when it was the Provisional MSCI EAFE Free (net).

Benchmark EM:

Since 6/1/08 the emerging markets managers' benchmark, "Benchmark EM,"is the Standard (large + mid) MSCI Emerging Markets Free (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI Emerging Markets Free (net). From 1/1/01 to 9/30/07 the benchmark was the MSCI Emerging Markets Free (net), including from 10/1/01 to 5/31/02 when it was the Provisional MSCI Emerging Markets Free (net). Prior to 1/1/01, it was the MSCI Emerging Markets Free (gross).

Combined Funds Composite Index:

The Composite Index performance is calculated by multiplying the beginning of month Composite weights by the monthly returns of the asset class benchmarks. Asset class weights for Private Markets - Invested and Private Markets - Uninvested are reset at the start of each month. From 1/1/2018-2/28/2019 the Transitional Policy Target was used to reflect the addition of Treasuries to the Fixed Income portfolio. From 7/1/2016-12/31/2016 the composite weights were set to match actual allocation as the portfolio was brought into line with the new Strategic Asset Allocation Policy Target. 7/1/2016 to 12/1/2020 the uninvested portion of Private Markets allocated to Public Equity. Prior to 7/1/2016 the uninvested portion of the Private Markets was invested in Fixed Income and the Composite Index was adjusted accordingly. When the Strategic Asset Allocation Policy Target changes, so does the Composite Index.

Core Bonds Benchmark:

The Core Bonds Benchmark is the Bloomberg U.S. Aggregate. Prior to 2016 this index was called the Barclays Agg. Prior to 9/18/2008 this index was called the Lehman Brothers Aggregate Bond Index. From 7/1/84-6/30/94 the asset class benchmark was the Salomon Brothers Broad Investment Grade Index. The SBI name for this benchmark changed from Fixed Income to Core Bonds on March 31, 2020.

Credit Plus Benchmark:

40% Bloomberg US Corporate Bond Index, 30% Bloomberg US Mortgage Backed Index, 20% BofA ML US High Yield BB-B Cash Pay Constrained Index, and 10% JPM EMBI Global Diversified Index.

Addendum

Domestic Equity Benchmark:

Since 12/1/2020 the benchmark is the Russell 3000. From 1/1/2019-11/30/2020 the benchmark was 90% Russell 1000 and 10% Russell 2000. From 10/1/2003 to 12/31/2018 it was the Russell 3000. From 7/1/1999 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/1999, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.

Fixed Interest Blended Benchmark: Since 6/1/2002, equals 3 Year Constant Maturity Treasury Yield + 45 bps. Prior to this change it was the 3 Year Constant Maturity Treasury Yield + 30 bps.

International Equity Benchmark:

Since 12/1/2020 equals the MSCI ACWI ex-US(Net). From 1/1/2018 to 1/1/2019 it was 75% MSCI World ex USA Index (net) and 25% MSCI Emerging Markets Index (net). From 6/1/08 to 12/31/2018 the International Equity asset class target was the Standard (large + mid) MSCI ACWI ex U.S. (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI ACWI ex U.S. (net). From 10/1/03 to 9/30/07 the target was MSCI ACWI ex U.S. (net). From 1/1/01 to 9/30/03, the target was MSCI EAFE Free (net) plus Emerging Markets Free (net), and from 7/1/99 to 12/31/00 the target was MSCI EAFE Free (net) plus Emerging Markets Free (gross). From 7/1/99 to 9/30/03, the weighting of each index fluctuated with market capitalization. From 10/1/01 to 5/31/02 all international benchmarks being reported were the MSCI Provisional indices. From 12/31/96 to 6/30/99 the benchmark was fixed at 87% EAFE Free (net)/13% Emerging Markets Free (gross). On 5/1/96, the portfolio began transitioning from 100% EAFE Free (net) to the 12/31/96 fixed weights. Prior to 5/1/96 it was 100% the EAFE Free (net).

Multi-Asset Credit Benchmark:

33.33% ICE BofA High Yield, 33.33% S&P LSTA Leveraged Loan, and 33.33% JPM EMBI Global Diversified Index.

Passive Domestic Equity Benchmark:

A weighted average of the Russell 1000, Russell 2000 and Russell 3000 effective 11/1/2018. From 10/1/2016 to 11/1/2018 it was a weighted average of the Russell 1000 and Russell 3000. From 10/1/2003 to 10/1/2016 it was equal to the Russell 3000. From 7/1/2000 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/2000, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.

Passive Manager Benchmark:

Russell 3000 effective 10/1/2003. From 7/1/2000 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/2000, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.

Addendum

Public Equity Benchmark:

Since 12/1/2020 it is 67% Russell 3000 and 33% MSCI ACWI ex-US(net). From 1/1/2019 to 12/1/2020 it was 60.3% Russell 1000, 6.7% Russell 2000, 24.75% MSCI World Ex US (net), and 8.25% MSCI EM (net). From 7/1/2017 thru 12/31/2018 it was 67% Russell 3000 and 33% MSCI ACWI ex USA. Prior to 6/30/16 the returns of Domestic and International Equity were not reported as a total Public Equity return. From 6/30/16-6/30/17 the Public Equity benchmark adjusted by 2% each quarter from 75% Russell 3000 and 25% MSCI ACWI ex USA until it reached 67% and 33%.

Return Seeking BM:

A weighted composite of each individual return seeking fixed income managers' benchmarks. The calculation uses the average weight of the manager relative to the total group of active managers during the month.

Semi-Passive Domestic Equity Benchmark: Russell 1000 index effective 1/1/2004. Prior to 1/1/2004 it was the Completeness Fund benchmark.

Total Fixed Income Benchmark:

Since 7/1/2020 the Total Fixed Income benchmark is 40% Bloomberg U.S. Aggregate Index/ 40% Bloomberg Treasury 5+ Years Index/ 20% ICE BofA US 3-Month Treasury Bill. From 4/1/2019-6/30/2020 it was 50% Bloomberg Aggregate and 50% Bloomberg Treasury 5+ Years Index. From 2/1/2018-3/31/19 the weighting of this benchmark reflected the relative weights of the Core Bonds and Treasuries allocations in the Combined Funds Composite.

Zevenbergen Benchmark: Russell 3000 Growth index effective 1/1/2021. Prior to 1/1/2021 it was the Russell 1000 Growth Index.

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