

California State Teachers' Retirement System Investment Reports

December 31, 2017

Introduction

The California State Teachers' Retirement System (CalSTRS) is required to report to the Legislature on specific areas regarding the Teachers' Retirement Fund's investments and CalSTRS actions as they relate to specific investments and holdings. This report is submitted in compliance with the direction of the following statutes:

- Chapter 442, Statutes of 2006 (AB 2941-Koretz) - Sudan.
- Chapter 671, Statutes of 2007 (AB 221-Anderson) - Iran.
- Chapter 441, Statutes of 2011 (AB 1151-Feurer) - Iran.
- Chapter 605, Statutes of 2015 (SB 185-de León) - Thermal Coal.
- Chapter 341, Statutes of 1999 (SB 105-Burton) - Northern Ireland.

Background on CalSTRS

With over 100 years of experience and over \$220.3 billion of assets under management, CalSTRS is the oldest and largest educator only pension system in the world. CalSTRS members include California public school employees, pre-kindergarten through community college, who teach, are involved in the selection and preparation of instructional materials, or are supervising persons engaged in those activities. CalSTRS members are employed by approximately 1,400 school districts, community college districts, county offices of education and regional occupational programs. CalSTRS is administered by a 12-member Teachers' Retirement Board (board). The board sets the policies and is responsible for ensuring benefits are paid by the system in accordance with the law. The board is comprised of:

- Three member-elected positions representing current educators;
- A retired CalSTRS member appointed by the Governor and confirmed by the Senate;
- Three public representatives appointed by the Governor and confirmed by the Senate;
- A school board representative appointed by the Governor and confirmed by the Senate;
- and
- Four board members who serve in an ex-officio capacity by virtue of their office.

One of the board's key core values is to ensure the strength of the retirement system by proactively addressing the risks of investing. This value permeates the investment portfolio, where the board has adopted the Investment Policy for Mitigating Environmental, Social, and Governance Risks (ESG). The policy requires managers to consider 21 separate risk factors when investing for CalSTRS. A copy of the policy is included as [Attachment A](#).

Teachers' Retirement Fund

The Teachers' Retirement Fund (fund), from which CalSTRS benefit payments are made, is valued at over \$220.3 billion as of November 30, 2017. Historically, investment returns have contributed roughly two-thirds of the costs of the educators' defined benefit retirement plan. The board's investment actions reflect a policy of investing on a long-term basis. This is done in a comprehensive, measured manner. In November 2015, the board reviewed and revised the long-term asset allocation targets based on the final results of the fiscal year 2015-16 Asset/Liability study. The funds resulted in an investment asset allocation of:

Global Equity	47 percent
Real Estate	13 percent
Private Equity	13 percent
Fixed Income	12 percent
Risk Mitigating Strategies	9 percent
Inflation Sensitive	4 percent
Cash	2 percent

In July 2017, the board reviewed and updated its 10-year financial plan. Although future events may arise that would require adjustment to the plan, having a plan ensures easier management of unexpected shifts. The development of a long-term plan is relatively new ground for public pension plans; most of CalSTRS' peers only plan year-to-year through the traditional budget process. The specific components of the plan will be incorporated as needed into the discussion within this paper, and the plan in its entirety is included as [Attachment B](#).

Strategic Response: Policy Review

CalSTRS contracts with MSCI to provide data on thermal coal companies. CalSTRS contracts with two external service providers, MSCI and IW Financial, to be our providers of information relating to Iran and Sudan. In past years, CalSTRS has contracted with MSCI for research on companies with operations in Northern Ireland. Due to the high cost of the research, CalSTRS now performs this research internally.

In addition to the service providers, CalSTRS also receives information from governmental and non-governmental organizations (NGOs), such as the Conflict Risk Network, Amnesty International, Human Rights Watch, the American Israel Public Affairs Committee (AIPAC), United Against Nuclear Iran (UANI), 350.org, the Government Accountability Office (GAO), the United States Department of the Treasury Office of Foreign Asset Control (OFAC), the California Department of General Services (DGS), and other public pension plans. The information from these sources is compiled, vetted and compared to the CalSTRS portfolio. After reviewing the information, staff determines which companies potentially meet the criteria of the statutes.

The companies identified are presented to the 21 Risk Factor Review Committee. The 21 Risk Factor Review Committee consists of 13 senior staff members: the Chief Investment Officer, the Deputy Chief Investment Officer, the Chief Operating Investment Officer, two senior staff

members from Global Equity, two senior staff members from Fixed Income, two senior staff members from Corporate Governance, one senior staff member from Private Equity, one senior staff member from Real Estate, one senior staff member from Operations, and one senior staff member from the Innovation and Risk Group. In 2014, the committee adopted a charter governing its operation and scope of duties (Attachment C).

The committee reviews the companies identified to determine if they meet the requirements of the laws. Companies that are determined to meet the requirements of the law that require divestment are placed on restricted or related securities lists as noted in this report. After placing the companies on the respective lists, the list of restricted securities is sent out to all of CalSTRS' managers and Index providers.

Furthermore, CalSTRS engages with all of the companies on the Sudan and Iran related securities lists in which it has holdings. When a company is identified as potentially meeting the requirements of an applicable law, they receive a letter requesting information on their ties to the respective restricted area (Attachments D & E). In addition to the letter requesting information, CalSTRS makes every attempt to have senior investment staff meet with senior executives of the company. All the companies are sent a letter requesting an update of the company's operations in those restricted areas specified in statute (Attachments F & G).

In addition to the companies in its portfolio, CalSTRS continually monitors its portfolio for the companies it does not hold that have been designated as possibly problematic. If securities of these companies enter the portfolio, the 21 Risk Factor Review Committee is notified, and the engagement process is started. Furthermore, the Private Equity and Real Estate groups are updated with the lists of restricted securities and review their portfolios to monitor for possible related securities.

Lastly, CalSTRS continues to work with groups such as the Conflict Risk Network, Principles for Responsible Investment (PRI), and Global Compact to improve transparency and encourage corporations to act responsibly when dealing with conflict prone areas.

Planned Actions

CalSTRS intends to maintain its relationships with independent research providers and to continue to review publicly available information regarding investments with ties to the restricted areas. CalSTRS also plans to continue the research and engagement process indefinitely. If there are investments in the portfolio that fall within the terms of the statutes and the board finds that it is consistent with its fiduciary duty, those investments will be eliminated.

CalSTRS Response to Sudan Risk

Process

CalSTRS identified a list of 24 companies with some level of business operations in Sudan prior to the enactment of Chapter 442, Statutes of 2006 (AB 2941-Koretz), the Sudan Divestment law. The legislation defined "active business operations" to mean a company engaged in business

operations that provide revenue to the government of Sudan or a company engaged in oil-related operations. Those distinctions provided an assessment framework and supported the qualitative aspect of CalSTRS' process. The initial list was divided into four sections of various levels of involvement and holding levels. The list is fluid, and at any time, there will be companies that are in the "Being Reviewed" or second tier, and companies in the "Being Monitored" or third tier. The initial list was based on the list contained in the April 2006 Investment Committee agenda item published by the University of California Regents. The initial list has been updated based on data provided by CalSTRS' independent research contractors, NGOs and engagement work.

On October 12, 2017, the United States formally removed most sanctions on Sudan. While most sanctions have been lifted, the country remains on the U.S. list of State Sponsors of Terrorism. The restrictions on military equipment and the sanctions related to the Darfur and South Sudan programs remain in place. However, these sanctions represent a small portion of the overall sanctioned entities.

As Sudan remains on the U.S. list of State Sponsors of Terrorism, CalSTRS does not believe the actions fulfill the requirements to sunset AB 2941. However, CalSTRS is closely monitoring the situation and evaluating the impact on how the changes relate to the implementation of AB 2941 in relation to the Federal Sudan Accountability and Divestment Act of 2007 (SADA) and the fund's fiduciary duties.

Tactical Response: Investments Identified

At the June 2006 Teachers' Retirement Board meeting, staff presented a list of 24 investments that could have ties to Sudan. Companies were placed on the Sudan related securities list in one of four sections: Restricted Companies, Companies Being Monitored, Companies Being Reviewed, or Non-Holdings That Possibly Meet the Divestment Criteria. The list critically focused on 10 companies that fell within the definition of the statute. Since that time, three companies have been removed from the list and two companies have been added. Currently, 10 companies are subject to the most severe restrictions under the law. As of October 4, 2008, the CalSTRS portfolio has been free of PetroChina, Petronas, Sinopec (Kunlun Energy, formerly CNPC Hong Kong), and MISC Bhd, all of which were restricted under the Sudan Divestment law. Additionally, the CalSTRS portfolio has restricted and has no holdings in Bharat Heavy Electricals, Dongfeng Motor Group, Oil and Natural Gas Company of India, PECD Berhad, and Sudan Telecom. In 2016, CalSTRS added AviChina to the list of restricted companies and divested all related securities. The portfolio has been free of AviChina since March 9, 2016.

In addition to the 10 restricted companies, CalSTRS has 11 companies in the second tier or "Under Review" category (determining if criteria for divestment is met). Lastly, CalSTRS has identified nine companies in its portfolio that have ties to Sudan but do not meet the requirements for divestment. CalSTRS maintains these companies on its list in the "Being Monitored" category (third tier) and continues to engage them to confirm they keep with their commitments and their status does not change.

Over the past year, CalSTRS has removed 17 companies that were in either the “Under Review” or “Being Monitored” categories for ties to Sudan, including companies that were both identified and removed within the year. While these companies have been removed, they continue to be monitored by our third party vendors and will be subject to the law if new information comes forward. Moreover, CalSTRS continues to monitor the portfolio for both investments with new ties or companies with existing ties entering the portfolio. [Attachment H](#) lists the companies in all four categories.

All asset classes were reviewed for any investments that could have ties to Sudan. Only the Global Equity asset class was found to have investments potentially affected by the law.

Actions Taken

CalSTRS continues to monitor and engage with the companies on the Sudan related securities list. CalSTRS is monitoring and evaluating changes to federal policy and sanctions relating to Sudan and their impact on CalSTRS efforts.

CalSTRS Response to Iran Risk

Process

As directed by law, CalSTRS identified and created a list of companies noted as having some level of or possible business ties to Iran, such as operations in the oil, nuclear or defense industries. These distinctions provided the assessment framework and supported the qualitative aspect of CalSTRS’ process. The initial CalSTRS list was divided into three sections of various levels of involvement and holding levels. This list provided the basis for the CalSTRS Iran Divestment list. The list was based on the information provided by independent research providers, NGOs and engagement work.

The list is continuously updated, and currently, companies that are determined to meet the requirements of the law are placed on the Iran Restricted list. It should be noted that on November 21, 2011, President Obama signed Executive Order 13590 and on August 10, 2012, signed H.R. 1905, the Iran Threat Reduction and Syrian Human Rights Act of 2012, which strengthened and expanded sanctions against Iran beyond those specified in the California statute. In applying the CalSTRS Investment Policy for Mitigating Environmental, Social and Governance Risks, CalSTRS expanded our research to comply with federal sanctions, which has increased the number of companies being reviewed and, in some cases, the reevaluation of previously reviewed companies.

On July 14, 2015, P5+1 (the five permanent members of the United Nations Security Council plus Germany), the European Union and Iran reached a Joint Comprehensive Plan of Action (JCPOA) designed to ensure Iran’s nuclear program would be exclusively peaceful. The JCPOA became effective on October 18, 2015 (“Adoption Day”), and participants began preparations for implementations. On January 16, 2016, the JCPOA was implemented after the International Atomic Energy Agency (IAEA) verified that Iran had implemented key nuclear-related measures

described in the JCPOA. While the JCPOA does offer sanction relief, it will only remove the sanctions imposed after the adoption of AB 221. Accordingly, at this point, it appears that implementation does not affect the status of any of the companies CalSTRS has currently divested or restricted.

On October 13, 2017, President Trump formally decertified the JCPOA. While not ending the deal, the decertification sends the deal back to congress for a 60-day review period to reapply sanctions.

In accordance with implementation of the JCPOA, OFAC has issued general waivers for business in Iran. The issuance of the waivers has led to news reports and speculation that several of the largest European companies are considering doing business in or with Iran. Additionally, sanctions relief makes it possible for independent foreign subsidiaries of U.S. companies to do business with Iran. CalSTRS is concerned that these companies, which are not currently divested or restricted, may take advantage of OFAC waivers without fully evaluating the risks.

CalSTRS staff continues to engage with many of the largest European multinationals with potential interest in doing business with Iran and discuss companies' need to fully consider the risks, in particular the risks around the "snapback provisions" being invoked. Currently very few companies have made efforts to establish or re-establish business with Iran, citing low energy prices, financing difficulty as payments could not be in U.S. dollars or touch any U.S. financial institution, and the political risk of reinstated sanctions. Additionally, companies were concerned regarding the potential for differing sanction regimes if snapback provisions were implemented. European Union-based companies are concerned that the U.S. could reinstate sanctions for "political reasons," not obvious violations. If the U.S. were to apply snapback provisions for "political reasons," the European Union may not follow suit and continue to allow European companies to do business with the country.

Currently, the Iran related securities list is maintained in three sections: Restricted Companies (Iran Restricted list), Companies Being Monitored, or Companies Being Reviewed.

Tactical Response: Investments Identified

The initial list comprised the names of 23 companies identified as having some level of business ties to Iran. The list was presented to the board in June 2008 and included three companies that were already restricted under the Sudan Divestment law, 18 companies that were under review, and two companies that were being monitored but were not CalSTRS holdings.

At this time, CalSTRS has identified 62 companies with ties or possible ties to Iran. Currently, 12 companies are subject to the most severe restrictions under the law. As of October 4, 2008, CalSTRS' portfolio was free of PetroChina, Petronas, Sinopec (Kunlun Energy, formerly CNPC Hong Kong), and MISC Bhd, all of which were restricted under Chapter 442, Statutes of 2006 (AB 2941-Koretz), the Sudan Divestment law. Additionally, the CalSTRS portfolio has restricted and has no holding in Oil and Natural Gas Company of India and Daelim Industrial Co. In October 2012, the 21 Risk Factor Review Committee added CNOOC (Chinese National Offshore Oil Company) to the list of restricted securities. In June 2013, CalSTRS added China Blue Chemical Ltd. to the restricted list and divested holdings of the company. In December

2014, CalSTRS added China Oilfield Services to the restricted list and divested holdings in the company. In January 2015, the 21 Risk Factor Review Committee added Indian Oil and Oil India to the list of restricted securities. In November 2015, the 21 Risk Factor Review Committee determined to divest and restrict holdings of Doosan Corp as well as Doosan Infracore and Doosan Heavy Industries related companies.

In addition to the 12 “Restricted” companies, there are 34 companies in the “Under Review” category or second tier (determining if criteria for divestment are met). Staff continues to engage with these companies to determine if they fall within the terms of the statute to divest, if the board determines it would be consistent with its fiduciary responsibility. After the review is complete, these companies will either be classified as “Restricted” or “Being Monitored” or removed from the list.

Lastly, CalSTRS is monitoring 16 companies in its portfolio that have ties to Iran or concerns regarding Iran under our Investment Policy for Mitigating Environmental, Social, and Governance Risks but do not meet the requirements of the law. CalSTRS maintains these companies as “Being Monitored” (third tier) and continues to engage them to confirm they keep with their commitments and their status does not change.

Over the past year, CalSTRS has removed 23 companies that were in either the “Under Review” or “Being Monitored” categories for ties to Iran, including companies that were both identified and removed within the year. While these companies have been removed, they continue to be monitored by our third party vendors and will be subject to the law if new information is discovered. Moreover, CalSTRS continues to monitor the portfolio for both investments with new ties or companies with existing ties entering the portfolio. Attachment I lists the companies in all four categories.

All asset classes were reviewed for any investments that could have ties to Iran. Only the Global Equities and Fixed Income asset classes were found to have investments potentially affected by the law.

Actions Taken

CalSTRS continues to monitor the situation with regards to Iran and engage companies identified as having ties to the country. Additionally, staff has met with the U.S. Treasury OFAC and the U.S. State Department to better understand the state of sanctions and U.S. foreign policy on Iran.

CalSTRS Report on Thermal Coal Related Securities

Process

At the April 3, 2015, Investment Committee meeting, the board directed staff to evaluate the risk of investments in certain thermal coal companies under the CalSTRS 21 Risk Factors and CalSTRS Divestment Policy. Subsequently, on October 8, 2015, Governor Edmund G. Brown, Jr. signed SB 185, which, subject to their fiduciary duties, requires CalPERS and CalSTRS to divest of certain thermal coal companies.

SB 185 requires CalSTRS to evaluate and engage with thermal coal companies and, if consistent with the Investment Committee's fiduciary duty, liquidate investments in thermal coal companies that are not transitioning their business models to adapt to clean energy generation, such as through a decrease in reliance on thermal coal as a revenue source, by July 1, 2017, and file a report with the Legislature by January 1, 2018. Similarly, the CalSTRS Divestment Policy requires direct engagement before divestment can take place. This allows CalSTRS to hear all sides of the issue and to utilize our clout and asset size to bring about change. Specifically, the CalSTRS Divestment Policy states:

Consistent with its fiduciary responsibility and the concepts of diversification and passive index management, the Investment Committee does not and will not systemically exclude or include any investments in companies, industries, countries or geographic areas, except in cases where: one of the CalSTRS 21 Risk Factors is violated over a sustained time frame to the extent that it becomes an economic risk to the Fund, a potential for material loss of revenue exists, and where it weakens the trust of a significant portion of members to the System.

Tactical Response: Investments Identified

The legislation defines thermal coal companies as companies that receive 50 percent or more of their revenue from the mining of thermal coal and is consistent with the divestment evaluation requested by the Investment Committee in April 2015.

Due to the cost of engagement as well as differences in energy demand, public opinion, and governmental and regulatory policies between the United States and other countries, CalSTRS divided the issue between U.S. ("domestic") and non-U.S. ("foreign") markets. MSCI, CalSTRS research provider, identified six U.S. and 20 non-U.S. companies that meet the definition of thermal coal companies.

Of the six U.S. companies identified by MSCI, CalSTRS held securities in four. Over the course of several months, CalSTRS engaged the identified thermal coal companies. CalSTRS staff held a conference call with executives of Westmoreland Coal and met in person with senior executives of Hallador Energy, Peabody Energy and Cloud Peak Energy. In addition to the meeting with Cloud Peak Energy, CalSTRS staff also took a tour of the Cordero Rojo Mine, an open pit mine in the Powder River Basin in Wyoming. All the companies approached were forthcoming and open to discuss their business and the coal industry.

Of the 20 non-U.S. thermal coal companies identified, CalSTRS held securities in seven over the previous year. However, through normal portfolio activity, currently, CalSTRS holds positions in four. Since thermal coal is more of a multifaceted social issue relating to the energy need and economic development of these countries, CalSTRS' analysis is focused on emerging market countries rather than specific companies. In particular, staff focused on India and China as the two largest consumers of thermal coal. CalSTRS' research included a due diligence trip to India; meetings with government officials, Coal India, environmental groups and industry experts; and a tour of a mine in Durgapur. As a group, all were forthcoming and open to discuss their business, societal needs and the coal industry.

Actions Taken

At its February 3, 2016, meeting the board voted to divest of U.S. thermal coal companies as they had become de minimis to the portfolio. Accordingly, CalSTRS divested, removed from the index and restricted Alpha Natural Resources, Arch Coal, Cloud Peak Energy, Hallador Energy, Peabody Energy and Westmoreland Coal. Additionally, CalSTRS restricted from purchase any other U.S. companies that are identified as coal companies that derive more than 50 percent of their revenue from thermal coal. The CalSTRS portfolio has been free of U.S. thermal coal holdings since May 9, 2016, and the CalSTRS Custom benchmarks have reflected the ex-U.S. thermal coal status since April 1, 2016.

At its June 7, 2017, meeting, the board voted to divest of non-U.S. thermal coal companies as they had become de minimis to the portfolio. Accordingly, CalSTRS divested, removed from the index and restricted Coal India Limited, Exxaro Resources Limited, PT Adaro Energy and Whitehaven Coal Limited. Additionally, staff restricted from purchase Banpu Public Company Limited, Bukit Asam (Persero) Tbk PT, China Coal Energy Company Limited, DaTong Coal Industry Co. Ltd., Golden Eagle Energy Tbk PT, Guizhou Panjiang Refined Coal Co. Ltd., Gujarat Mineral Development Corporation, Hargreaves Services PLC, Indo Tambangraya Megah Tbk PT, Inner Mongolia Yitai Coal Co. Ltd., Lubelski Wegiel Bogdanka SA, PT Bumi Resources Tbk, PT Harum Energy, Tbk, SDIC Xinji Energy Co. Ltd., Shanxi Lu'an Environmental Energy Develop Co. Ltd., Yang Quan Coal Industry (Group) Co. Ltd., and any other non-U.S. companies that are identified as coal companies that derive more than 50 percent of their revenue from thermal coal. The portfolio has been free of all thermal coal holdings as of June 12, 2017, and the CalSTRS custom benchmarks have reflected the ex-non U.S. thermal coal status since July 1, 2017.

CalSTRS continues to maintain a contract with MSCI for thermal coal-related research and monitor the portfolio for thermal coal companies' securities and will divest and restrict identified companies consistent with instruction from the board and SB 185.

CalSTRS Report on Northern Ireland Related Securities

Process

CalSTRS staff has compiled information from Northern Ireland's Equality Commission and Irish National Caucus to identify companies with operations in Northern Ireland. Furthermore, staff has attempted to confirm that the identified companies have made efforts towards inclusiveness in Northern Ireland.

Companies with Exposure to Northern Ireland

The following list is comprised of companies that have been identified as having ties to Northern Ireland. CalSTRS determined that it holds \$6,498,354,837 worth of equity with exposure to Northern Ireland, which represents 5.30 percent of CalSTRS' equity holdings. Additionally, CalSTRS holds \$824,012,512 worth of bonds with exposure to Northern Ireland, which

represents 2.82 percent of its fixed income portfolio. In total, CalSTRS holds \$7,322,367,349 worth of securities with exposure to Northern Ireland, which represents 3.32 percent of the total fund.

CalSTRS identified 10 holdings representing nine companies it believes have not made substantial action toward the goals of inclusiveness in Northern Ireland. CalSTRS sent a letter to each of the companies requesting they take actions toward inclusiveness in Northern Ireland (Attachment J).

Company Name	Security Type	Shares / Face Value	Market Value 11/30/17
CANON INC.	ADR	55,095	\$2,113,995
CANON INC.	Stock	3,056,788	\$117,403,823
GENTING SINGAPORE	Stock	40,447,465	\$39,936,992
KUEHNE + NAGEL INTERNATIONAL AG	Stock	63,000	\$11,086,512
LEGAL & GENERAL GROUP PLC	Stock	7,689,341	\$27,811,998
LOOKERS PLC	Stock	553,350	\$732,189
PANDORA A/S	Stock	188,815	\$18,951,984
SUPERGROUP PLC	Stock	71,128	\$1,898,690
TERUMO CORPORATION	Stock	577,665	\$27,772,108
VEOLIA ENVIRONNEMENT S.A.	Stock	614,925	\$15,584,288
	ADR		\$2,113,995
	Stock		\$261,178,584
			<u>\$263,292,580</u>

CalSTRS identified 171 holdings representing 136 companies that have exposure to Northern Ireland but have taken substantial action by adopting the MacBride principles or have global human rights policy that substantially contains the principle of MacBride.

Company Name	Security Type	Shares / Face Value	Market Value 11/30/17
3M	Bonds	6,000,000	\$6,008,220
3M	Stock	1,249,935	\$303,909,196
ADECCO GROUP AG	Stock	648,027	\$49,099,454
AGF MANAGEMENT LTD CLASS B	Stock	126,562	\$807,529
ALLERGAN PLC	Bonds	40,126,000	\$42,400,380
ALLERGAN PLC	Stock	668,264	\$116,164,331
ALLIANZ SE	Stock	972,638	\$229,799,470
AON PLC	Bonds	3,000,000	\$3,136,050
AON PLC	Stock	875,476	\$122,759,245
ARAMARK	Bonds	2,884,000	\$2,953,612
ARAMARK	Stock	540,665	\$23,032,329
ASSOCIATED BRITISH FOODS PLC	Stock	640,192	\$25,547,261

ASTRAZENECA PLC	Bonds	11,000,000	\$11,017,931
ASTRAZENECA PLC	Stock	1,713,098	\$110,775,590
ATOS SE	Stock	443,369	\$65,684,884
AVIVA PLC	Stock	7,126,349	\$49,294,062
AXA S.A.	Stock	4,035,398	\$121,974,221
AXA S.A.	Bonds	4,795,000	\$6,105,186
BABCOCK INTERNATIONAL GROUP PLC	Stock	287,393	\$2,711,537
BANCO SANTANDER, S.A.	Bonds	43,400,000	\$44,501,909
BANCO SANTANDER, S.A.	Stock	24,319,640	\$163,633,005
BARCLAYS PLC	Bonds	203,940,000	\$205,906,048
BARCLAYS PLC	Stock	48,481,183	\$126,987,449
BOMBARDIER INC.	Bonds	6,608,000	\$6,936,185
BOMBARDIER INC.	Stock	3,300,100	\$7,684,778
BOOKER GROUP PLC	Stock	5,841,712	\$17,317,727
BOUYGUES S.A.	Stock	1,333,116	\$69,081,439
BRENNTAG AG	Stock	174,313	\$10,870,141
BRITVIC PLC	Stock	349,055	\$3,803,613
BRUNSWICK CORP	Stock	234,080	\$12,956,328
BT GROUP PLC	Bonds	11,250,000	\$14,633,857
BT GROUP PLC	Stock	22,729,110	\$80,241,057
BUNZL PLC	Stock	718,170	\$20,561,001
C & C GROUP PLC	Stock	457,709	\$1,558,978
CAPITA PLC	Stock	804,817	\$5,082,243
CK HUTCHINSON HOLDINGS LIMITED	Stock	6,887,277	\$86,683,994
CLOSE BROTHERS GROUP PLC	Stock	338,844	\$6,526,966
COCA-COLA HBC AG	Stock	933,898	\$29,948,228
COMPAGNIE DE SAINT-GOBAIN S.A.	Stock	1,408,935	\$80,410,495
COMPAGNIE GENERALE DES ETABLISSEMENTS MICHELIN S.C.A.	Stock	904,971	\$131,481,276
CRH PLC	Bonds	3,000,000	\$3,332,248
CRH PLC	Stock	1,732,323	\$55,888,172
DANSKE BANK A/S	Bonds	50,100,000	\$50,220,205
DANSKE BANK A/S	Stock	1,568,442	\$58,700,042
DART GROUP PLC	Stock	153,417	\$1,456,826
DCC PLC	Stock	166,158	\$16,093,019
DEBENHAMS PLC	Stock	1,604,145	\$852,295
DEUTSCHE POST AG	Stock	2,796,533	\$133,011,043
DEUTSCHE TELEKOM AG	Bonds	34,394,000	\$37,176,072
DEUTSCHE TELEKOM AG	Stock	6,536,219	\$116,979,834
DFDS A/S	Stock	49,671	\$2,685,801
DIAGEO PLC	Bonds	21,570,000	\$27,595,948
DIAGEO PLC	Stock	5,992,906	\$208,364,466

DIXONS CARPHONE PLC	Stock	1,939,800	\$4,172,415
DSV A/S	Stock	1,010,319	\$77,889,918
ELECTROLUX AB SER B	Stock	496,625	\$16,566,184
ESSILOR INTERNATIONAL S.A.	Stock	270,973	\$34,910,374
FERGUSON PLC	Stock	2,213,449	\$159,699,424
FERROVIAL SA	Stock	574,206	\$12,662,684
FUJITSU LIMITED	Stock	8,990,773	\$67,078,293
G4S PLC	Stock	10,600,043	\$36,818,908
GENPACT LIMITED	Stock	264,105	\$8,514,745
GENTING SINGAPORE PLC	Stock	40,447,465	\$39,936,992
GLANBIA PLC	Stock	569,449	\$10,613,057
GLAXOSMITHKLINE PLC	ADR	224,200	\$7,860,452
GLAXOSMITHKLINE PLC	Bonds	27,740,000	\$28,188,704
GLAXOSMITHKLINE PLC	Stock	9,751,978	\$168,903,879
HENNES & MAURITZ AB	Stock	1,087,674	\$25,723,762
HALFORDS GROUP PLC	Stock	249,036	\$1,157,628
HARVEY NORMAN HOLDINGS LTD	Stock	1,293,300	\$3,937,052
HAYS PLC	Stock	5,204,424	\$12,976,839
HCL TECHNOLOGIES LIMITED	Stock	4,548,168	\$59,814,616
HEINEKEN HOLDING N.V.	Stock	182,513	\$17,620,639
HEINEKEN N.V.	Stock	546,842	\$55,806,991
HSBC HOLDINGS PLC	Bonds	105,868,000	\$110,863,585
HSBC HOLDINGS PLC	Stock	28,741,259	\$285,567,296
HUHTAMAKI OYJ	Stock	137,576	\$6,069,433
INDUSTRIA DE DISENO TEXTIL SA	Stock	1,635,849	\$58,008,000
INTERNATIONAL CONSOLIDATED AIRLINES GROUP SA	Bonds	2,552,828	\$2,734,504
INTERNATIONAL CONSOLIDATED AIRLINES GROUP SA	Stock	2,792,910	\$23,143,387
ISS A/S	Stock	890,840	\$33,739,939
J D WETHERSPOON PLC	Stock	140,336	\$2,321,384
J SAINSBURY PLC	Stock	7,328,758	\$23,045,504
JOHN MENZIES PLC	Stock	138,753	\$1,258,415
JUST GROUP PLC	Stock	1,038,071	\$2,276,401
KAO CORPORATION	Stock	1,550,834	\$103,079,427
KERRY GROUP PLC	Stock	180,330	\$18,921,448
KINGFISHER PLC	Stock	12,070,519	\$54,573,151
KINGSPAN GROUP PLC	Stock	752,784	\$30,753,767
KLOECKNER & CO SE	Stock	125,627	\$1,482,335
KONE Oyj	Stock	563,757	\$29,065,737
KONINKLIJKE PHILIPS N.V.	ADR	183,466	\$7,107,473
KONINKLIJKE PHILIPS N.V.	Stock	3,377,275	\$131,377,399
KYOCERA CORPORATION	Stock	631,842	\$44,610,908
LADBROKES PLC	Stock	2,068,237	\$3,751,559

LAFARGEHOLCIM LTD	Bonds	2,400,000	\$2,428,984
LAFARGEHOLCIM LTD	Stock	719,103	\$39,398,891
LAGARDERE SCA	Stock	208,623	\$6,849,376
LARSEN AND TOUBRO LIMITED	GDR	33,189	\$595,743
LARSEN AND TOUBRO LIMITED	Stock	841,377	\$15,874,336
LIBERTY GLOBAL PLC	Bonds	75,074,786	\$79,038,817
LIBERTY GLOBAL PLC	Stock	44,501	\$1,404,648
LINDE AG	Tender	212,852	\$49,781,704
LINDE AG	Stock	124,794	\$27,438,372
LLOYDS BANKING GROUP PLC	Bonds	69,750,000	\$70,358,425
LLOYDS BANKING GROUP PLC	Stock	172,782,994	\$154,365,965
L'OREAL S.A.	Bonds	1,000	\$221,000
L'OREAL S.A.	Stock	419,846	\$93,012,099
MARKS AND SPENCER GROUP PLC	Stock	2,415,003	\$10,238,729
METSO OYJ	Stock	140,571	\$4,969,631
MICHAEL KORS HOLDINGS LIMITED	Stock	279,341	\$16,324,688
MITCHELLS & BUTLERS PLC	Stock	271,051	\$980,012
MITIE GROUP PLC	Stock	496,056	\$1,320,814
NEXT PLC	Stock	583,941	\$35,388,543
NORTHGATE PLC	Stock	176,173	\$1,000,410
ORANGE SA	Bonds	8,100,000	\$8,842,029
ORANGE SA	Stock	2,875,858	\$49,652,339
OXFORD INSTRUMENTS PLC	Stock	88,015	\$1,052,020
PEARSON PLC	Stock	1,429,052	\$13,695,816
PENSKE AUTOMOTIVE GROUP, INC.	Bonds	317,000	\$324,729
PENSKE AUTOMOTIVE GROUP, INC.	Stock	203,331	\$9,833,087
PREMIER FOODS PLC	Stock	949,862	\$552,886
PROVIDENT FINANCIAL PLC	Stock	206,615	\$2,447,240
R P S GROUP PLC	Stock	357,330	\$1,314,455
RANDSTAD HOLDING NV	Stock	345,519	\$21,315,821
RENTOKIL INITIAL PLC	Stock	4,159,375	\$17,910,115
REXEL S.A.	Bonds	395,000	\$483,680
REXEL S.A.	Stock	1,283,249	\$23,708,617
ROLLS-ROYCE HOLDINGS PLC	Stock	3,572,759	\$41,446,815
RSA INSURANCE GROUP PLC	Stock	1,422,892	\$11,720,311
RYOBI LIMITED	Stock	48,878	\$1,269,286
SANDVIK AKTIEBOLAG	Stock	2,010,988	\$34,674,911
SEAGATE TECHNOLOGY PLC	Bonds	9,000,000	\$8,789,273
SEAGATE TECHNOLOGY PLC	Stock	18,886	\$728,244
SENSATA TECHNOLOGIES HOLDING N.V.	Bonds	3,040,000	\$3,259,810
SENSATA TECHNOLOGIES HOLDING N.V.	Stock	1,242,024	\$62,039,099
SERCO GROUP PLC	Stock	1,535,959	\$1,976,234

SGS SA	Stock	6,052	\$14,989,016
SHISEIDO COMPANY LTD	Stock	789,152	\$38,588,443
SIEMENS AG	Bonds	10,000,000	\$10,296,078
SIEMENS AG	Stock	1,490,340	\$202,934,168
SIGNET JEWELERS LIMITED	Stock	118,425	\$6,192,443
SKY PLC	Stock	1,379,488	\$17,487,685
SMURFIT KAPPA GROUP PLC	Stock	416,273	\$13,301,680
SODEXO S.A.	Stock	153,433	\$20,078,304
SPORTS DIRECT INTERNATIONAL PLC	Stock	1,488,843	\$7,628,188
SSE PLC	Stock	1,546,158	\$28,652,594
STEINHOFF INTERNATIONAL HOLDINGS N.V.	Stock	916,501	\$3,775,148
TATA STEEL LIMITED	Stock	2,106,308	\$22,675,150
TELEFONICA SA	Bonds	27,535,000	\$30,787,636
TELEFONICA SA	Stock	8,562,223	\$87,849,870
TELEPERFORMANCE SE	Stock	88,652	\$13,144,318
TESCO PLC	Stock	31,925,968	\$83,861,831
THALES S.A.	Stock	388,243	\$39,311,293
THE RESTAURANT GROUP PLC	Stock	304,963	\$1,183,536
THE ROYAL BANK OF SCOTLAND GROUP PLC	Stock	10,722,953	\$40,148,858
THOMAS COOK GROUP PLC	Stock	2,634,172	\$4,225,412
THYSSENKRUPP AG	Bonds	125,000	\$149,759
THYSSENKRUPP AG	Stock	497,212	\$13,629,637
TRAVIS PERKINS PLC	Stock	1,690,811	\$36,826,270
TRIGANO S.A.	Stock	12,965	\$2,053,704
TUI AG	Stock	998,410	\$18,423,564
UDG HEALTHCARE PLC	Stock	393,167	\$4,470,571
VODAFONE GROUP PLC	Bonds	5,000,000	\$5,300,000
VODAFONE GROUP PLC	Stock	45,555,911	\$138,318,615
WH SMITH PLC	Stock	199,848	\$5,659,370
WILLIAM HILL PLC	Stock	1,632,466	\$6,381,870
WILLIS TOWERS WATSON PLC	Stock	293,499	\$47,194,639
WPP PLC	Bonds	20,000	\$21,650
WPP PLC	Stock	4,888,131	\$86,481,865
ZURICH INSURANCE GROUP AG	Stock	403,339	\$122,075,819

ADR	\$14,967,925
Bonds	\$824,012,512
GDR	\$595,743
Stock	\$6,169,716,886
Tender	\$49,781,704
Total	\$7,059,074,770

Shareholder Proposals Relating to Northern Ireland

In 2017, there were no shareholder proposals requesting implementation of the MacBride principles. In accordance with the law and CalSTRS fiduciary duty, CalSTRS generally votes for such proposals when placed on the ballot. CalSTRS will continue to support shareholder proposals related to operations in Northern Ireland when they are in line with CalSTRS fiduciary duties.

Conclusion

As noted in this report, CalSTRS will continue to invest its funds in a responsible and prudent manner. CalSTRS will continue to adhere to the California statutes referenced in this report and to the board's Investment Policy for Mitigating Environmental, Social, and Governance Risks.

CalSTRS continues to secure a strong retirement fund for the teachers of California while remaining consistent with its ethical responsibilities and fiduciary obligations. Thus, the philosophy of identifying and addressing risks is interwoven in the business goals of CalSTRS. CalSTRS' investment goals are to:

- a) Achieve a rate of return on the total assets of the fund that in the long run exceeds the actuarial discount rate used to value the liabilities of the State Teachers' Retirement Plan for funding purposes, so as to ensure that sufficient assets are available to meet the liabilities on an on-going basis.
- b) Maximize the long-term investment return on assets at a level of risk that is acceptable to the board.
- c) Maintain a certain level of stability in pension contributions, so as not to adversely impact the long-term viability of CalSTRS and its ability to continue to meet pension obligations.
- d) Manage the investments of the fund in a prudent manner, so as to maintain the confidence of members as well as the general public in CalSTRS.

Attachment A: Investment Policy for Mitigating Environmental, Social, and Governance Risks (ESG)

PRINCIPLES

The fiduciary responsibility of the Board, as described in detail within the overall Investment Policy and Management Plan, is to discharge its responsibility in the sole and exclusive interest of the participants and beneficiaries in a manner that will assure the prompt delivery of benefits and related services.

CalSTRS invests a multi-billion dollar fund in a unique and complex social-economic milieu and recognizes it can neither operate nor invest in a vacuum. The System's investment activities impact other facets of the economy and the globe. As a significant investor with a very long-term investment horizon and expected life, the success of CalSTRS is linked to global economic growth and prosperity. Actions and activities that detract from the likelihood and potential of global growth are not in the long-term interests of the Fund. Therefore, consideration of environmental, social, and governance issues (ESG), as outlined by the CalSTRS 21 Risk Factors, are consistent with the Board fiduciary duties.

Consistent with its fiduciary responsibilities to our members, the Board has a social and ethical obligation to require that the corporations and entities in which securities are held meet a high standard of conduct and strive for sustainability in their operations. As an active owner, CalSTRS incorporates ESG into its ownership policies and practices.

Since CalSTRS is a long-term investor and may hold an investment in a corporation or entity for decade after decade, short-term gains at the expense of long-term gains are not in the best interest of the Fund. Sustainable returns over long periods are in the economic interest of the Fund. Conversely, unsustainable practices that hurt long-term profits are risks to the System's investment.

Since CalSTRS must invest huge sums of moneys for long periods of time to pay for future benefits promised to California Teachers, our actions to invest in securities of a corporation predominately reflects a judgment that the ownership will produce a sustainable rate of return which will make it an attractive investment and help CalSTRS meet its long-term obligations. It is important to note that CalSTRS ownership of a security in a company does not signify that CalSTRS approves of all of the company's practices or its products or that CalSTRS believes a particular company is an attractive investment since the security may be owned due to its membership in a particular index or for risk mitigation purposes.

Attachment A

Since 1978, CalSTRS has used a written policy, the Statement of Investment Responsibility, SIR, to navigate the complex landscape of ESG issues. The long history of this document is testimony to the national leadership of CalSTRS among pension funds in addressing ESG matters through a written policy. The SIR will continue its longevity as guidance on proxy voting; however this Policy now replaces the SIR as CalSTRS's preeminent policy on ESG matters.

POLICY

Governance Risks and Social Risks: To help manage the risk of investing a global portfolio in a complex governance environment, CalSTRS has developed a series of procedures to follow when faced with any major governance and social issue as identified by the 21 risk factors. It is important to note that fiduciary standards do not allow CalSTRS to select or reject investments based solely on social criteria.

When faced with a corporate decision that potentially violates CalSTRS Policies; the Investment Staff, CIO and Investment Committee will undertake the following actions:

- A. The CIO will assess the gravity of the situation both as an ESG risk and as to the System. The extent of the responsibility of the System to devote resources to address these issues will be determined by: 1) the number of shares held in the corporation, and 2) the gravity of the violation of CalSTRS Policies.
- B. At the CIO's direction, the Investment Staff will directly engage corporate management to seek information and understanding of the corporate decision and its ramifications on ESG issues.
- C. The CIO and investment staff will provide a report to the Investment Committee of the findings and recommend any further action of engagement or need to commit further System resources. The Investment Committee can marshal further resources given the gravity of the situation.

To assist CalSTRS Staff and external investment managers in their investment analysis and decision-making, CalSTRS has developed a list of 21 risk factors that should be included within the financial analysis of any investment decision. This list is not exhaustive and does not attempt to identify all forms of risk that are appropriate to consider in a given investment transaction; however they do provide a framework of other factors that might be overlooked. These risk factors should be reviewed for an investment in any asset class whether within the U.S. or across the globe.

CalSTRS expects all investment managers, both internal and external to assess the risk of each of the following factors when making an investment. The manager needs to balance the rate of return with all the risks including consideration of the specific investments exposure to each factor in each country in which that investment or company operates.

CALSTRS 21 RISK FACTORS

Monetary Transparency

The long-term profitability by whether or not a country or company has free and open monetary and financial data, and its observance of applicable laws.

Data Dissemination

The long-term profitability by whether or not a country is a member of the IMF (or similar organization) and satisfies the conditions for access, integrity, and quality for most data categories.

Accounting

The long-term profitability by whether or not the accounting standards are formulated in accordance with International Accounting Standards or the U.S. Generally Accepted Accounting Principles.

Payment System: Central Bank

The long-term profitability by whether the activities of a country's central bank encompass implementing and ensuring compliance with principles and standards which are established to promote safe, sound, and efficient payment and settlement systems.

Securities Regulation

The long-term profitability by exposure to operations in countries that have not complied with IOSCO objectives, which provide investor protection against manipulation and fraudulent practices.

Auditing

The investment's long-term profitability by whether or not the country uses International Standards on Auditing in setting national standards.

Fiscal Transparency

The investment's long-term profitability by its exposure or business operations in countries that do not have not some level of fiscal transparency such as publication of financial statistics, sound standards for budgeting, accounting, and reporting.

Corporate Governance

The investment's long-term profitability by whether or not the government recognizes and supports good corporate governance practices and whether it generally adheres to OECD principles.

Banking Supervision

The investment's long-term profitability from its exposure to countries that have not endorsed/complied with the Basel Core Principles. An endorsement includes an agreement to review supervisory arrangements against the principles and bring legislation in line with the principles where necessary.

<p>Payment System: Principles</p> <p>The investment’s long-term profitability by whether a country complies with the 10 Core Principles for Systemically Important Payment Systems, which includes operational reliability, efficiency, real time settlement, final settlement in central bank money; and whether rules and procedures are clear and permit participants to understand the financial risks resulting from participation in the system.</p>
<p>Insolvency Framework</p> <p>The investment’s long-term profitability from its business operations and activities in specific countries with regard to bankruptcy reform or insolvency legislation.</p>
<p>Money Laundering</p> <p>The investment’s long-term profitability from exposure and whether or not a country has implemented an anti-money laundering regime in line with international standards; consideration should be given to compliance with the 40 recommendations in the Financial Action Task Force, FATF, on Money Laundering; and whether it is a member of FATF.</p>
<p>Insurance Supervision</p> <p>Whether or not a country has a regulatory framework in line with International Association of Insurance Supervisors, IAIS, Principles.</p>
<p>Respect for Human Rights</p> <p>The investment’s long-term profitability from its business operations and activities in countries that lack or have a weak judicial System. Assess the risk to an investment’s long-term profitability from its business operations and activities in a country that engages in or facilitates the following: arbitrary or unlawful deprivation of life, disappearance, torture and other cruel, inhuman, or degrading treatment or punishment, arbitrary arrest, detention, or exile, arbitrary interference with privacy, family, home, or correspondence, use of excessive force and violations of humanitarian law in internal conflicts. Consideration should be given to governmental attitude regarding international and non-governmental investigation of alleged</p>
<p>Respect for Civil Liberties</p> <p>The investment’s long-term profitability from operations, activities, and business practices in countries or regions that do not allow freedom of speech and press, freedom of peaceful assembly and association, freedom of religion, freedom of movement within the country, allowance for foreign travel, emigration, and repatriation.</p>
<p>Respect for Political Rights</p> <p>The investment’s long-term profitability from business practices and activities in countries that do not allow their citizens the right to advocate for change to their government.</p>
<p>Discrimination Based on Race, Sex, Disability, Language, or Social Status</p> <p>The investment’s long-term profitability from business practices and activities on discrimination, such as discrimination against women, children, and persons with disabilities, national/racial/ethnic minorities, or indigenous people.</p>

Worker Rights

The investment's long-term profitability from management and practices globally in the area of worker's rights; specifically the right of association, the right to organize and bargain collectively, prohibition of forced or bonded labor, status of child labor practices and minimum age for employment, acceptable work conditions, or human trafficking.

Environmental

The investment's long-term profitability from activities and exposure to environmental matters such as; depleting or reducing air quality, water quality, land protection and usage, without regard for remediation. Consideration should be given to how a company is dealing with the impact of climate change, including whether the government is taking steps to reduce its impact, exacerbating the problem, or oblivious to the risk.

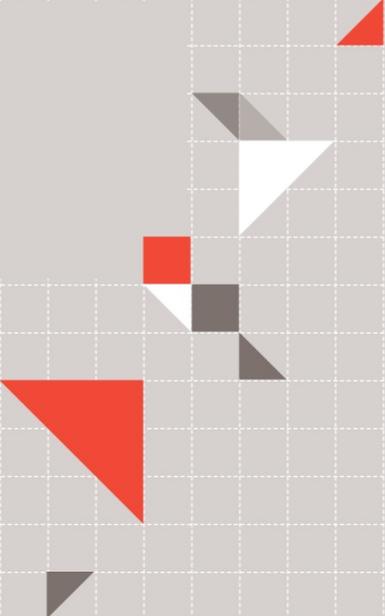
War/Conflicts/Acts of Terrorism

The investment's long-term profitability from business exposure to a country or region that has an internal or external conflict, war, acts of terrorism or involvement in acts of terrorism, and whether the country is a party to international conventions and

Human Health

The risk to an investment's long-term profitability from business exposure to an industry or company that makes a product which is highly detrimental to human health so that it draws significant product liability lawsuits, government regulation, United Nations sanctions and focus, and avoidance by other institutional investors.

GLOBAL EQUITY



GLOBAL EQUITY

FAST FACTS

Assets: \$113.5 billion as of 3/31/2017

Asset Class Objective: Maximize the risk-adjusted returns to meet CalSTRS obligation to pay benefits

FY 2017-18 Goal:

Absolute Objective: 9.2%

Forecast return: 6%

Active Relative Objective: 60 bps – medium probability

Passive Relative Objective: 8 bps – high probability

Benchmark: Russell 3000 Custom Index and MSCI All Country World ex-US Custom Index.

Likelihood of Achievement by 2020:

With the U.S. equity market entering the ninth year of a bull market along with its extended valuation, and given that the U.S. is the largest portion of the Global Equity portfolio, the probability of exceeding the absolute return objective is low.

Investment Team (15)

Director: June Kim

Portfolio Managers: David Murphy, Candace Ronan, Raymond Venner

Associate Portfolio Managers: Jason Crawford, Wilson Yee, Wayne Yim

Investment Officers: Shivi Bansal, Tim Baumert, Adriana Gutierrez, Sharon Jou, Tiffany Lau, Helena Posner, Edgar Ramirez

Support Staff: Marie China

PROGRAM DESCRIPTION

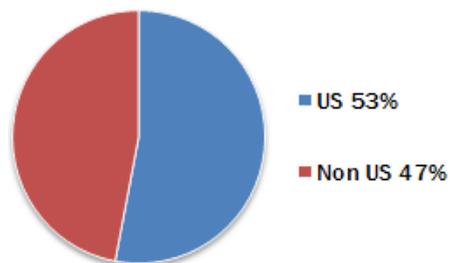


The Global Equity portfolio is invested in passive and active strategies across the U.S., developed non-U.S., and emerging markets. The Global Equity team is also responsible for other programs including oversight and

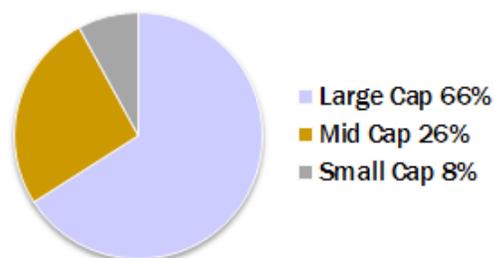
management of the Developing Manager Program, Cash Equitization Program, and Stock Distribution Program.

PROGRAM STRUCTURE AND SUB ASSET CLASSES

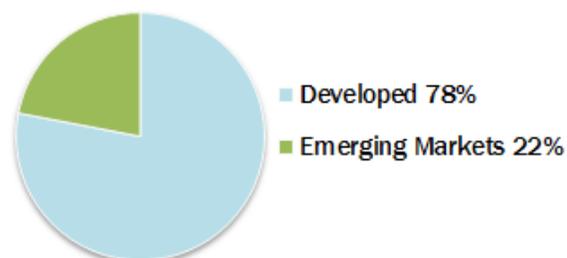
MSCI ACWI IMI Weights as of 4/30/17



CalSTRS U.S. Equity Market Cap Exposure



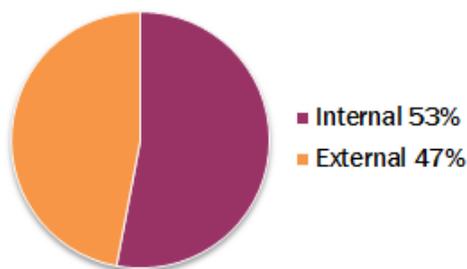
CalSTRS Non-U.S. Equity by Region



PORTFOLIO ALLOCATION BY INTERNAL/EXTERNAL MANAGEMENT

The Global Equity portfolio is managed both internally by CalSTRS staff and externally by investment managers.

CalSTRS Internal vs External Management



Number of External Managers: 33

INTERNAL MANAGEMENT

Strengths

- Long investment horizon
- Experienced staff
- Low cost relative to peers
- An established culture of accountability and high performance
- Each incremental dollar internally managed will reduce the already low cost of internal management

Weaknesses

- Attracting and retaining qualified and high-performing investment professionals
- Performing investment management within the confines of a government structure
- Low or negative equity market returns
- Internal management brings more control and lower costs but adds operational and reputational risks
- Increasingly complex regulatory environment

EXTERNAL MANAGEMENT

Strengths

- Long investment horizon
- Experienced staff
- Low cost relative to peers
- Rigorous process for evaluating investment managers
- Large portfolio size enables investment with top-tier investment managers at reasonable fees

Weaknesses

- Low or negative equity market returns
- Competitive forces and technology may result in fewer available institutional investment managers
- CalSTRS decisions to divest certain assets may decrease the number of available managers due to limits placed on the investable universe
- Active strategies underperform causing global equity to underperform its benchmark

FUTURE IDEAS

Expand Internal Management

Emerging Markets

- Opportunities: Managing an enhanced emerging markets portfolio would lower the cost of gaining exposure to an expensive segment of the investment universe.
- Challenges: Direct investment in emerging markets introduces operational and trading risks that may be more complex than those in developed markets.

Expand Internal Management

- Explore more cost efficient implementation methods for relatively expensive investment structures.

Global Equity Policy

Review merits of setting policy target allocations based on Global Equity active risk (tracking error).

- Opportunities: Improved flexibility in managing the asset class as new strategies are added.
- Challenges: Achieving concurrence that using active risk targets is an effective risk management tool.

FIXED INCOME



FIXED INCOME

FAST FACTS

Assets: \$30.3 billion as of 3/31/2017

Asset Class Objective: Maximize risk-adjusted total return within a multi-asset class portfolio.

FY 2017-18 Goal:

Absolute objective: 3.3%(Investment Grade Debt) and 6.2%(High Yield) - difficult

Active Relative Objective: 35 bps - achievable

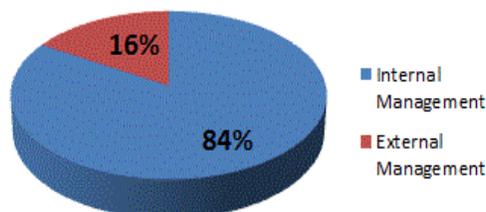
Passive Relative Objective: 10 bps - achievable

Benchmark: 95% Bloomberg Barclays U.S. Aggregate Custom + 5% Bloomberg Barclays High Yield 2% Issuer Capped Custom

Internal Management: \$25.4 billion (84%)

Number of External Portfolios: 7

External Management: \$4.9 billion (16%)



Other Portfolios

Assets: \$60.8 billion

Objective: Provide protection against inflation, rising interest rates and strengthening U.S. dollar.

Internal Management: \$47.4 billion (78%)

Number of External Managers: 4

External Management: \$13.4 billion (22%)

Investment team (22)

Director: Glenn Hosokawa

Portfolio Managers: Deborah Contini, David Gold, Rosie Lucchesini-Jack, Ian McCarty, John Perez

Associate Portfolio Managers: Geetha Arani, Roy Clothier, Dan Depner

Investment Officers: Nick Clyde, Sunny Dhillon, Cathy DiSalvo, Melanie Guzman, Anthony Kennedy, Debra Ng, Kimmie Nicolas, Stacey Reichenberg, Matt Schott, Kate Wallen, Darin Yi

Support Staff: Marcella Gonzales, Laurie Masters

Transparency and Reporting

[Semi-Annual Report 12/31/2016](#)

[2016 Ancillary Investment Program Annual Report \(Securities Lending\)](#)

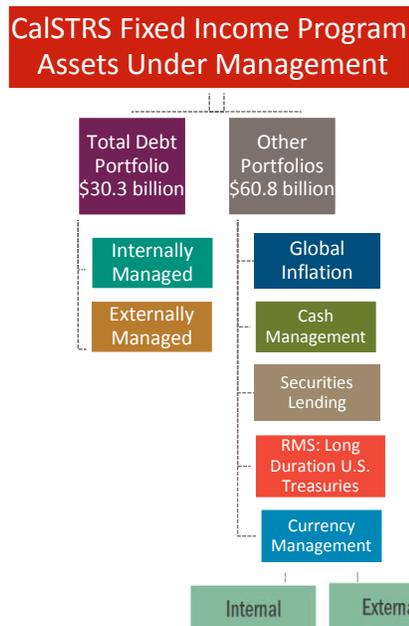
[Portfolio Holdings by Asset Category, 6/30/2016](#)

[Comprehensive Annual Financial Report, 6/30/2016](#)



Link to the *CalSTRS Investments Branch*

PROGRAM DESCRIPTION



The Fixed Income portfolio is managed both internally and externally using enhanced and active strategies. Fixed Income seeks to provide value through innovative/active asset allocation and bond selection taking advantage of internally and externally managed strategies. In addition, Fixed Income is responsible for several other portfolios and programs including Global Inflation, Cash Management, Securities Lending, Risk Mitigating Long Duration U.S. Treasuries, and Currency Management.

Attachment B

INTERNAL MANAGEMENT

Strengths

- Low cost effective structure
- Cohesive and experienced Fixed Income team
- Timely access to market liquidity allows for efficient asset allocation
- Partnerships with external managers allows for knowledge sharing
- Robust compliance and risk management system that continues to evolve and get stronger
- Full transparency

Weaknesses

- Limited human capital
- Non-investment related projects shift focus from portfolio management
- Additional operational resources and research is required to implement new investment mandates

EXTERNAL MANAGEMENT

Strengths

- Depth of external management team
- Staff can leverage-off of external management experience
- Ability to execute in less liquid or more labor intensive strategies

Weaknesses

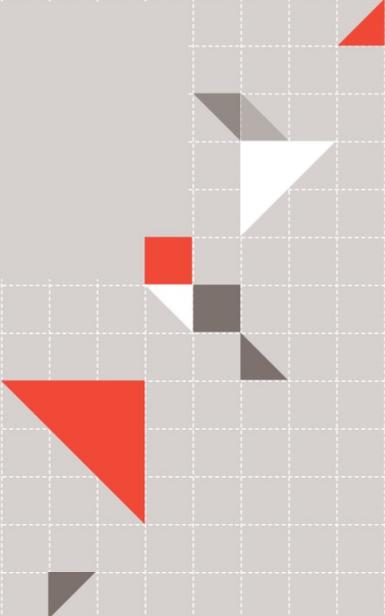
- Higher cost, less effective structure
- Liquidity lead time can impact asset allocation efficiency
- Additional layer of management requires more oversight and work for staff
- Limited transparency

FUTURE IDEAS

The overarching benefit and opportunity afforded from the strategies below would be lower cost for the internally managed portfolios and additional income. The threats of each are unique to the strategy in question and noted below:

- **Emerging Markets-Internal and/or External**
 - Country and Currency Risk
 - Volatility Risk
 - ESG Risks
 - Liquidity Risk
- **Increase Internal High Yield Mandate**
 - Diversification of strategy decreases and volatility of returns increases
 - Group think, less sharing of knowledge
- **Direct Lending of US Treasuries**
 - Counterparty risk
 - Appropriate staffing levels
- **Internal Core Plus Mandate**
 - Credit risk
 - Portfolio structure within Fixed Income and management of assets along with performance attribution
 - Emerging Market knowledge
 - Appropriate staffing levels
- **Internal Bank Loan Mandate**
 - Operationally intensive
 - Internal legal expertise
 - Liquidity Risk
 - Expertise in the bank loan industry

REAL ESTATE



REAL ESTATE

FAST FACTS

Assets: \$25 billion as of 3/31/2017

Asset Class Objective: Provide improved diversification to the overall CalSTRS Investment Portfolio; generate an enhanced yield to the actuarial earnings rate assumption and provide stable cash flows; and provide a hedge against inflation.

FY 2017-18 Goal:

Absolute objective: Core Real Estate is 7.7% and 9% for Non-Core Real Estate.

Relative objective: the relative objective is the ODCE open end fund index plus 70 basis points.

Likelihood of Achievement by 2020: U.S. real estate returns have been strong for seven years driven by a recovering economy, limited construction and declining interest rates. We believe our portfolio will continue to produce moderate income returns of 3-5%. Capital appreciation, which has been 5%-8%, is projected to slow to 1%-3% due to increasing supply and potentially rising interest rates. We believe it will be a challenge to attain an 8% overall return especially if the US economy slows down. Beating our benchmark will also be a challenge as we are overweighting lower risk strategies.

Internal Management (Control Positions): \$18.1B, (73%) (Control of purchase/sale/leverage – joint ventures, separate accounts and open end funds)

External Management (Non-Control Positions): \$6.8B, (27%) (Closed end funds and co-investments)

Board Consultant: The Townsend Group

Investment team (19)

Director: Mike DiRé

Portfolio Managers: Mike Thompson, Hank Thomas, Greg Nyland, Don Palmieri

Associate Portfolio Managers: Daniel Clark, Bruce Deutsch

Investment Officers: Michael Yager, Tiffany Vispetto, Josh Kawaii-Bogue, Kari Salazar-Maynard, Orintheo Swanigan, Collin Clark, Greg Arendt, Vandy Tep, Mauricio Smith

Analysts: Jessica Peterson, Gina Tavaréz

Support Staff: Susan Daniel

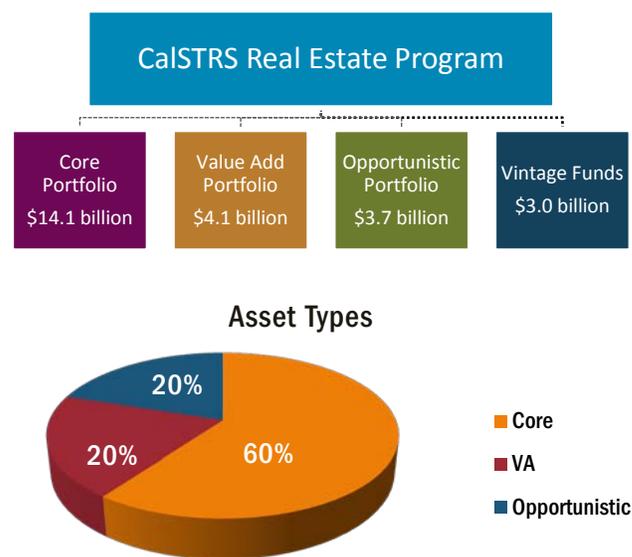
Transparency and Reporting

[Real Estate Semi-Annual Performance Report, 12/31//2016](#)
[Comprehensive Annual Financial Report, 6/30/2016](#)



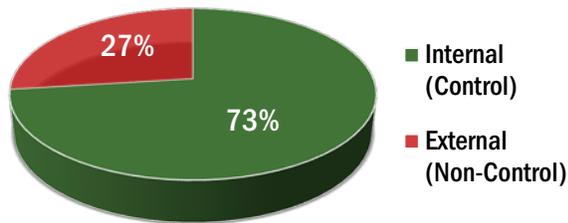
Link to the *CalSTRS Investments Branch*

PROGRAM DESCRIPTION



The CalSTRS RE program invests across the risk spectrum and through a number of different structures and vehicles that have varying levels of control. From a risk perspective, the portfolio is roughly in line with its policy goal of 60% Core, 20% Value Add and 20% Opportunistic. The public market definition of internal and external management does not equally apply to RE. However, we can categorize our portfolio by our staff's level of control over major decisions. Staff utilizes numerous structures including open and closed end funds, joint ventures and separate accounts. We strive to attain control of the purchase, sale, capital and leverage decisions to minimize risk maximize flexibility.

PORTFOLIO ALLOCATION BY INTERNAL/EXTERNAL MANAGEMENT



INTERNAL MANAGEMENT (CONTROL)

Strengths

- Flexibility to access partners in multiple structural formats. Access to best in class managers. Significantly more control over capital allocations.
- Control over sale and leverage decisions increase flexibility and liquidity.
- Fee level savings versus typical RE funds are significant.
- Alignment of interest with the manager is increased.

Weaknesses

- Control structures increase staff time for initial negotiation and ongoing oversight.
- Legal costs are also increased.

EXTERNAL MANAGEMENT (NON-CONTROL)

Strengths

- Closed End Funds that pursue large scale and/or global strategies have economies of scale and ability to attain and evaluate deal flow. These higher risk strategies are well suited for CalSTRS to invest in through external managers.
- Co-Investments can add flexibility for capital flows and lower fee load.

Weaknesses

- Timing our investment with the market opportunity is a challenge.

- Fees are higher than Separate Account or Joint Venture structures.
- Timing of capital investment solely rests with the General Partner.
- Liquidity is limited and likely at a discount to NAV.

FUTURE IDEAS

- Staff has reasonable coverage of the U.S. in the four major asset types. It is an ongoing challenge to expand these investment structures to debt investments and specialty product types like senior housing.
- We have a handful of positions where we own real estate operating companies. We are studying the pros and cons of increasing or expanding those strategies. It will require more staff time to do so. Using similar structures overseas will be challenging if and when we decide to expand international allocations
- Research best-in-class ESG programs to seek out improvements.
- Implement new Responsible Contractor Bidding program.

PRIVATE EQUITY



PRIVATE EQUITY

FAST FACTS

Assets: \$16.6 billion as of 3/31/2017

FY 2017-18 Goal:

Absolute Objective: The absolute objective for the Private Equity Industry is a long term return of 12.3%

Relative Objective: The relative objective for Private Equity is exceeding 70 basis points over the State Street Private Equity Index (GXPEI).

Likelihood of Achievement by 2020: Private equity returns are somewhat correlated to public markets. An absolute return of 12.3% per year for three years is ambitious, especially if the current extended public market rally experiences a correction or flattening. Staff expects the relative performance of the private equity portfolio to track the GXPEI fairly closely. Significant outperformance relative to the GXPEI is difficult given the size of the portfolio.

Investment Team (22)

Director: Margot Wirth

Portfolio Managers: Tom Baker, Solange Brooks, Seth Hall, Robert Ross, Deanna Winter

Associate Portfolio Manager: Geetika Misra, Delfina Palomo

Investment Officers: Kristian Altier, Nick Chladek, Henry Ha, Jean Kushida-Uda, Christopher Moore, Vanessa Morris, Tyler Rico, Christopher Singh, Lisa Tagao, Kathleen Williams

Support Staff: Cindy Connitt, Debora Green
Nicole Weirich, Cora Worley

PROGRAM DESCRIPTION

Private Equity Sub-Assets (Tot \$16.6B)



The Private Equity Program was established in 1998 and invests globally in partnerships, separate accounts, general partner interests, secondary interests and co-investments. Partnerships account for 86 percent of the program's exposure. Investments are further broken down into the following categories: Buyouts, Venture Capital, Debt Related, Core PE and Special Mandates. Approximately 70 percent of the program's exposure is based in North America and 17 percent in Europe. Remaining exposure is concentrated in Asia but also includes various (other) emerging markets.

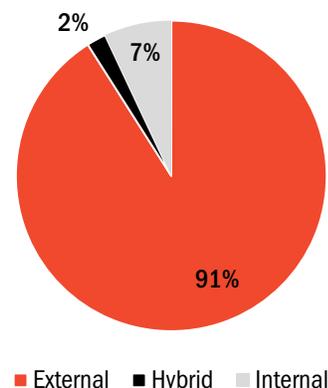
Private Equity by Invest. Vehicle (Tot \$16.6B)



PORTFOLIO ALLOCATION BY INTERNAL/EXTERNAL MANAGEMENT

In the chart below, Partnerships and Funds of Funds are classified as External Management. Separate Managed Accounts are classified as Hybrid. Co-Investments are classified Internal Management.

Private Equity Portfolio by Degree of Control



Attachment B

INTERNAL MANAGEMENT

Strengths

- CalSTRS Private Equity defines Separately Managed Accounts (SMAs) and Co-investments as internal management. Internal management is enhanced by partnership relationships, especially those of a strategic nature.
- Although co-investments are 7% of the portfolio, CalSTRS has been co-investing for over a decade. Since inception, investments exceed \$2.4B with \$2.5B in cash and stock realized and over \$1.0B remains in current market value.
- SMAs represent approximately 2% of the portfolio, but are increasingly important to the program. SMAs are typically with existing partnership relationships and provide greater customized relationships, often with lower overall fees and carried interest.

Weaknesses

- CalSTRS does not have a dedicated co-investment team and the Private Equity Investment Policy currently limits CalSTRS' ability to be a value-added source of capital to GPs.
- Capital is abundant in today's economic environment and top GPs are raising larger co-mingled funds rather than SMAs with lower fees.

EXTERNAL MANAGEMENT

Strengths

- Large size and significant scale - Staff has an information advantage relative to smaller private equity programs, which can be attributed to its network of advisors, ability to participate in industry events and associations, and knowledge base given the senior staff's domain expertise.
- Experience, reputation and relationships - CalSTRS was an early public pension plan investor in this asset class. CalSTRS maintains an excellent reputation in the industry for integrity, professionalism and performance.

- Cohesive world-class investment team - A mix of professionals with long-tenure plus outside hires with extensive global capital markets and private equity experience.
- Strong teamwork-oriented culture - Emphasizes process driven due diligence and rigorous peer review.
- Core relationships lead to co-invests and other opportunities for high return, lower fee internal management.

Weaknesses

- Like other public pension plans, disclosure and regulatory requirements make CalSTRS less attractive to certain private equity segments (e.g. elite venture capital and middle market buyout).
- Single office structure requires staff to be more reliant on consultants and advisors for distant geographic opportunities and information flow.

FUTURE IDEAS

- Staff is continuously improving the sourcing and diligence process for primary funds, but is expanding its reach into secondary funds, SMAs, and co-investments.
- Leveraging the strengths of CalSTRS, size and duration, Staff has formed strategic relationships with managers to focus on elite venture, secondaries, and special mandates.
- New initiatives include expansion of the co-investment program with a strategic partnership, expanding into the emerging class of Core Private Equity, and formalizing relationships with global private equity providers by utilizing our scale to reduce fees and carried interest.

CORPORATE
GOVERNANCE



CORPORATE GOVERNANCE

FAST FACTS

Assets: \$3.9 billion as of 3/31/2017

Asset Class Objective: Create alpha and reduce risk in the CalSTRS portfolio by pursuing good corporate governance and sustainability.

FY 2017-18 Goal:

Active Relative Objective: 60 bps – achievable

Benchmark: For Activist Managers: Russell 3000 CalSTRS Custom Index (U.S. Equity) and MSCI ACWI CalSTRS Custom Index (non-U.S. equity). For Sustainability Managers: MSCI World CalSTRS Custom Index.

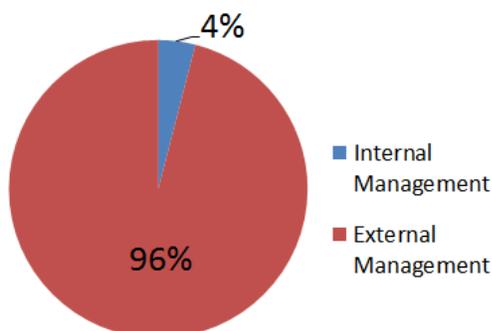
Internal Management: \$143 million (4%)

(Multiple Co-investments)

Number of External Managers: 10

(8 Activist Managers and 2 Sustainability Managers)

External Assets: \$3.77 billion (96%)



Investment team (10)

Director: Anne Sheehan

Portfolio Managers: Brian Rice, Aisha Mastagni

Associate Portfolio Manager: Philip Larrieu

Investment Officers: Ly Van, Eric Kwong, Travis Antoniono, Mary Morris, Doug Chen, Daniel Bain

Support Staff: Laurie Winston, Kathleen Hawkins

Transparency and Reporting

[CalSTRS Principles for Executive Compensation](#)

[Summary of Fiscal Year 2014-2015 Proxy Votes](#)

[CalSTRS efforts on board diversity](#)

[Green Initiative Task Force 2015 Annual Report](#)

[Corporate Governance 2015 Annual Report](#)



Link to the *CalSTRS Investments Branch*

PROGRAM DESCRIPTION



ACHIEVEMENT BY 2020:

- Activist Manager Portfolio – Good probability that the portfolio will exceed the benchmark. The portfolio is better positioned to outperform with the removal of underperforming managers and increased commitments to high conviction managers. Volatility in the markets allows activist managers to take advantage of depressed price levels, but performance must be measured over a long time period in order to achieve the manager’s objectives.
- Sustainability Manager Portfolio – High probability that the portfolio will exceed the relative benchmark. The portfolio is currently beating the benchmark by a significant amount and with the expected addition of new managers the portfolio will be well-positioned for continued outperformance.
- CalSTRS continues its reputation as a global leader on Corporate Governance, focusing on executive compensation, majority vote, proxy access and diversity.
- CalSTRS continues to be a leader in sustainability awareness through engagement of financial market participants on environmental issues including climate change, water and other topics.

INTERNAL MANAGEMENT

Strengths

- Co-investments continue to outperform the respective benchmarks.
- CalSTRS generally does not pay management fees on co-investments.
- Staff's ability to research, analyze and make investments has improved with the growth of our co-investment portfolio.
- CalSTRS utilize and capitalize on our reputation by working with managers on select investments.

INTERNAL MANAGEMENT

Weaknesses

- Current policy requires co-investments to be part of a current activist manager's portfolio.
- The current approval process, including the outside consultant's approval, can cause missed opportunities.
- \$75 million limit on co-investments hampers staff ability to commit to certain investments.

EXTERNAL MANAGEMENT

Strengths

- CalSTRS is a partner of choice because of our ability to make large allocations and work with managers on investments.
- Staff continues to optimize the portfolio by partnering with managers that have experience, good reputations and innovative thinking.
- The addition of Sustainability managers provides lower fees, less volatility, and a more balanced geographical exposure for the total CG portfolio.
- Activist managers can act as a catalyst to affect change to unlock value. This provides value to the CG portfolio and securities held in the CalSTRS Index portfolios.

- Both the activist and sustainability managers can be used as resources for other parts of the Corporate Governance Unit.
- The managers can be used as advocates for many of the Corporate Governance engagement initiatives.

EXTERNAL MANAGEMENT

Weaknesses

- The CG portfolio is heavily weighted with activist managers, which are primarily US focused.
- Activist portfolio is heavily weighted to mid-caps stocks because of difficulty finding large cap or making commitments to small cap managers.
- Both the activist and sustainability managers have high volatility compared to traditional managers.
- Traditional indexes are not always appropriate benchmarks in order to measure performance of the sustainability or activist managers.
- The structure of the activist funds sometimes requires long lock up periods, which makes the portfolio less nimble.

FUTURE IDEAS

- Evaluate potential new good governance themed indexes as a way to both reduce costs and volatility.
- ESG Smart Beta – Over/Under weight companies in a traditional market cap weighted index based on internal ESG analysis.
- Develop an internal activist/engagement strategy.
- Co-investments with external managers where CalSTRS is not currently an investor in their fund.

Generate and implement co-investment ideas by internal staff.

INFLATION SENSITIVE



INFLATION SENSITIVE

FAST FACTS

Assets: \$2.3 billion as of 3/31/2017

Asset Class Objective: Improve diversification to the overall CalSTRS Investment Portfolio by lowering the macroeconomic risks that pervade other major asset classes. Generate enhanced yield and stable cash flows.

FY 2017-18 Goal:

Absolute Objective: 5.0% - achievable

Relative Objective: Weighted Barclays Inflation Linked Global – Series L Index, Alerian Index and CPI +4% - achievable.

Likelihood of Achievement by 2020: we expect to exceed both the absolute and relative benchmark by between 25 and 75 basis points.

Benchmark: Weighted Barclays Inflation Linked Global – Series L Index, Alerian Index and CPI + 4%

Internal Management: \$562.1 million (24%)

Number of External Managers: 10

External Management: \$1.75 billion (76%)

Board Consultants: Pension Consulting Alliance, Meketa

Investment team (6)

Director: Paul Shantic

Portfolio Manager: Charles Fitzpatrick

Associate Portfolio Manager: Vacant

Investment Officers: Michael Warmerdam, Christopher Ellis, John-Charles Gish, and Selina Muasya

Support Staff Analyst: Richard Novoa

Transparency and Reporting

[Inflation Sensitive Semi-annual Report, 12/31/2016](#)

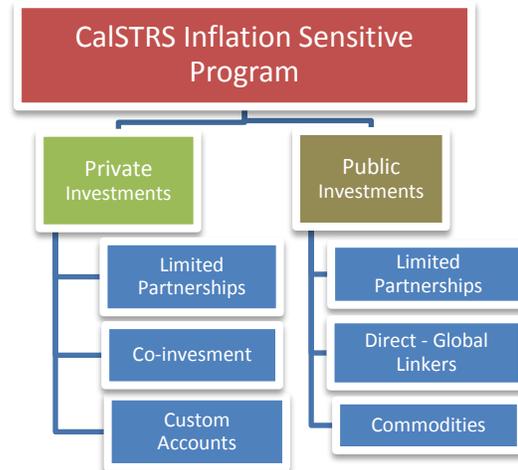
[Portfolio Holdings by Asset Category, 6/30/2016](#)

[Comprehensive Annual Financial Report, 6/30/2016](#)



Link to the *CalSTRS Investments Branch*

PROGRAM DESCRIPTION

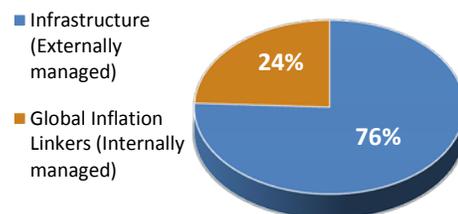


The Inflation Sensitive Portfolio currently consists of: (1) The Global Inflation Linkers Portfolio, and; (2) The Infrastructure Portfolio.

- Inflation linked securities are issued by developed market countries in North America, Europe, and Asia. These securities are linked to national inflation rates.
- Infrastructure's policy objective is to invest in assets that have unique characteristics such as assets that have a long-term life, are monopolistic in nature, provide essential services, and have a form of inflation linkage in the revenue stream.

PORTFOLIO ALLOCATION BY INTERNAL/EXTERNAL MANAGEMENT

Inflation Sensitive Allocation as of March 31, 2017



Attachment B

INTERNAL MANAGEMENT

Strengths

- Utilization of Fixed Income's capabilities to manage internal portfolios.
- Transition of Global Linker Portfolio to a U.S. TIPS portfolio in mid-2017.
- Greater control over strategy, implementation, and market timing.
- Ability to evaluate derivative, private, and public market securities.
- Speed of implementation when working with an investment thesis with which CalSTRS has internal capabilities.

Weaknesses

- Small generalist staff for the Inflation Sensitive unit.
- RFP process and procurement system for investment manager recruitment.
- Lack of internal expertise in the management of active strategies.

EXTERNAL MANAGEMENT

Strengths

- Proven ability to evaluate and work with managers to transact in the Infrastructure market.
- Proven ability to work cooperatively with like-minded investors in separately managed accounts.
- Proven ability to negotiate better financial terms from fund managers or separate account managers.
- Viewed as a leader in the Infrastructure market among peers and managers.

Weaknesses

- Reliance on managers for expertise, market contacts, due diligence, and ability to execute on real asset transactions.
- Continued search for more transparency from managers in terms of their investment process, underwriting capabilities, and execution.
- The lack of a transparent and efficient benchmark for real assets (e.g., infrastructure, agriculture and timber).

FUTURE IDEAS

- Continue to move away from commingled fund structures and toward separately managed accounts or joint ventures with managers and other like-minded investors.
- Develop closer ties with a handful of investors that share our views on private Inflation Sensitive assets and partner with them while also hiring managers to pursue custom strategies.
- Buy and fund a specialist manager in infrastructure, agriculture or timber.

INNOVATION & RISK



INNOVATIVE STRATEGIES & RISK

FAST FACTS

Assets: \$1.45 billion as of 3/31/2017

Asset Class Objective: Maximize the risk- adjusted returns to meet CalSTRS obligation to pay benefits.

FY 2017-18 Goal:

Absolute Return Objective: Incubate strategies new to CalSTRS that could improve the overall risk and return characteristics of the total fund with a minimum long-term return goal of 7 percent – achievable

Relative Return Objective: Outperform the Innovative Strategies benchmark by 40 bps over a rolling three-year period - difficult

Benchmark: Custom benchmark based on the weighted-average performance of underlying strategy benchmarks

Likelihood of Achievement by 2020: The challenge in achieving a 40 bps alpha target over the next three years is primarily dependant on strong manager selection. Several factors outside of staff's control could potentially limit the ability to generate alpha. These factors are as follows:

- Strategy allocations are not an active decision. Allocations are either equal weighted or sized to get separate accounts and provide the best terms (all within a policy limit of 50 bps to the Total Plan)
- Benchmark is dynamic (weights adjust monthly to the amount invested) which limits our ability to generate alpha from asset allocation decisions
- Staff will invest in only 2 or 3 managers to “test” the strategies which mitigates the benefit of manager diversification
- Staff invests in alternative strategies where identifying an appropriate benchmark is challenging resulting in high tracking error

Investment team (7)

Director: Steven Tong

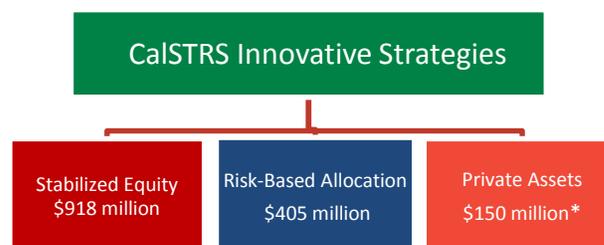
Portfolio Managers: Glen Blacet

Associate Portfolio Manager: Josh Diedesch (Risk)

Investment Officers: Matt Lisonbee, Matthew Toepel (Risk), Angela Tran (Risk)

Support Staff: Nancy Flora

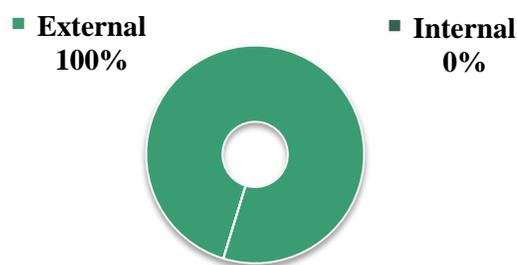
PROGRAM DESCRIPTION



*Committed capital

Innovative Strategies (formerly Innovation) was established in 2009. The primary goal of the Innovative Strategies team is to identify, research, and incubate strategies that diversify the CalSTRS Total Plan. The Risk Management team strives to measure and understand risks that span the entire Investments portfolio to inform short- and long-term asset allocation decisions.

PORTFOLIO ALLOCATION BY INTERNAL/EXTERNAL MANAGEMENT



INTERNAL MANAGEMENT

The challenge for staff to be able to internally manage a portion of the Innovative Strategies Portfolio is in the uniqueness and temporary nature of these investments. Staff does not believe it is possible to gain the expertise in new strategies and create the infrastructure necessary to internally manage these incubation strategies prior to reaching the 3-year milestone and potential graduation to a new or existing asset class.

EXTERNAL MANAGEMENT

Strengths

- Access to best-in-class external managers with different styles and proven expertise in complex new strategies
- Large organizations with robust infrastructure and resources can provide superior risk management capabilities for complex new strategies

Weaknesses

- Potentially higher fees and less transparency
- Organizational risk – potential for key personnel turnover and headline risk
- Strategy due diligence is more resource intensive because of the limited history and complexity of many of these strategies
- Performance evaluation for some of these strategies can be more difficult due to the absence of appropriate benchmarks
- Determining where successful incubation strategies will be graduated to within the 3-year incubation period is a challenge
- Agency problems - misalignment of interests

FUTURE IDEAS

- Develop a robust pipeline of new investment ideas
- Build a private debt portfolio focused on middle market direct lending
- Continue to work with global equities to fund non-US low volatility managers for inclusion in the incubation of “Other Beta”
- Work with CalSTRS’ Global Equities to determine if additional strategies should be included within the “Other Beta” incubation portfolio and issue an RFP/ASP if necessary
- Continue to research efficacy as well as potential alternative uses for the risk-based allocation strategies currently being incubated

- Hire an IO I for fiscal year 2017-18 to assist with some of the supporting tasks
- Continue to push for separately managed accounts and invest in the size necessary to receive the best terms and full transparency
- Leverage risk team’s extensive experience with Blackrock Aladdin to develop internal risk metrics for manager oversight and due diligence
- Work with risk team to develop a framework for assisting in the long-term analysis of incubation strategies (e.g., risk-based allocation and private debt)

RISK MANAGEMENT UNIT

Risk Management		
Long-Term: Strategic Allocation & Total Risk	Short-Term: Tactical Allocation & Rebalancing	Counterparty Leverage Performance Attribution

Unit Objective: Incorporate risks within the investment decision making process including market, counterparty and liquidity.

The team seeks to measure and manage Investment risks in three areas:

- The long-term risk of the investment portfolio meetings its obligations, primarily through the strategic asset allocation study.
- Short-term risks & exposures of the portfolio versus the long-term strategic policy. The risk management team provides risk and performance metrics of the portfolio versus its benchmark, conducts scenario analyses with the portfolio management teams, and participates in the tactical asset allocation process.
- Additional sources of investment risk and total fund performance. The team regularly conducts a performance attribution of the total fund to provide

Attachment B

feedback on sources of return in the total portfolio. Through participation on the internal Counterparty Risk Committee, the risk team provides regular updates on the exposure to, and credit quality of, trading counterparties. The team also aggregates and reports various forms of leverage across the investment portfolio.

Strengths

- The team has a cross-asset focus on the total portfolio. Through technology and organizational culture, the team seeks to better understand the common sources of risk across asset classes.
- Through its participation in the Risk Allocation Committee (RAC) and the Tactical Asset Allocation Committee (TAAC), the team has an active role in the investment decision-making process.

Weaknesses

- Despite improvements in models and technology, the integration of public & private market risk in a systematic and structured way remains a challenge.
- The high level of complexity in data, systems, and portfolios require trade-offs in resources, precision, and objectives. Reducing complexity and the chance for error can mean less information, while increasing information can raise complexity and the risk of error.

FUTURE IDEAS

- The risk team is working with Actuarial Services to develop an integrated Asset-Liability Management approach, with the goal of better integrating the asset allocation process with liability modeling.
 - The team is focused on improving risk information and data quality coming from the risk system as the implementation of Risk Mitigating Strategies continues. The longer-term goal for the team is to provide comprehensive risk and exposure of the RMS portfolio and its effect on the total plan.

RISK MITIGATING STRATEGIES



RISK MITIGATING STRATEGIES (RMS)

FAST FACTS

Assets: \$6.5 billion as of 3/31/2017

Asset Class Objective: The primary goal is to construct a portfolio that will invest in strategies that provide protection during equity market downturns. The program is expected to grow to nine percent of the total plan by the end of the 2017/18 fiscal year.

FY 2017-18 Goal:

Absolute Return Objective: To preserve total plan capital by diversifying the global equity exposure of the total plan through investments in strategies that primarily provide protection against equity market downturns – achievable

Relative Return Objective: To outperform the RMS benchmark by 20 bps over a rolling three-year period – difficult but achievable

Likelihood of Achievement by 2020: One of the key features of RMS is its diversification across four strategies. All of the strategies have the ability to contribute to returns during an equity drawdown.

RMS seeks to deliver long-term capital appreciation as well as outperform its benchmark.

The long duration U.S. Treasuries (UST) invests in bonds that are a part of the Barclays U.S. Treasury 20+ Year Total Return Index and is managed to closely match the performance of this index.

The trend following component is structured with a relative higher level of volatility versus its benchmark. While this structure contributes to a higher active risk, the trend following volatility can lead to more significant offset to an equity drawdown. Due to their low correlation to equities, the Total Fund overall volatility is reduced by the addition of trend following.

Also contributing to a higher active risk, trend following does not invest with all managers in the index.

Global macro (GM) and systematic risk premia (SRP), with smaller allocations within RMS (15 percent collectively), are marginal contributors to overall risk.

Benchmark: The custom benchmark is based on the respective target weight of each RMS component: 40 percent UST, 45 percent trend following, 10 percent

global macro and 5 percent SRP. The benchmark is being dynamically weighted during the RMS ramp-up phase.

Investment team (7)

Director: Steven Tong

Portfolio Managers: Carrie Lo

Investment Officers: JP Blardony, Jeffrey Jaro, Michel Paniagua, Parry Wang

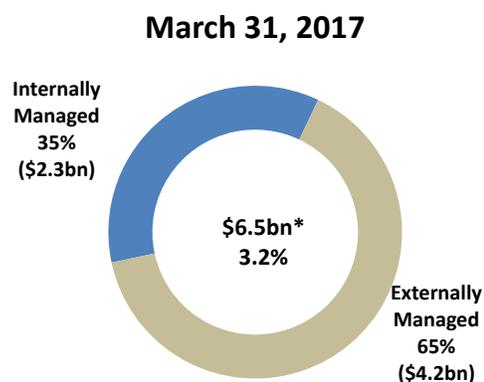
Support Staff: Nancy Flora

PROGRAM DESCRIPTION



The Risk Mitigating Strategies asset class was established in 2015 and is currently comprised of four strategies: long duration U.S. Treasuries, trend following, global macro and systematic risk premia.

PORTFOLIO ALLOCATION BY INTERNAL/EXTERNAL MANAGEMENT



INTERNAL MANAGEMENT

Strengths

- Continual cost savings if sufficient asset size is internalized
- No competing interests that face external managers
- Gain in knowledge and analytical talent base
- Gain in skills and tools for more precise performance evaluation of external managers
- Total control over risk parameters and assets under management

Weaknesses

- Explicit cost of data, risk model and systems
- Needed on-going allocation of resources
- Potential turnover in personnel
- Required competitive incentives to maintain key internal investment staff

INTERNAL MANAGEMENT

Strengths

- Access to managers with expertise investing in a variety of sophisticated strategies that help diversify and improve the risk and return profile of the total plan
- Insights for tactical asset allocation decisions from numerous managers across a variety of strategies

Weaknesses

- Higher management fees and potential fee transparency issues
- Potential turnover in key personnel
- Potential headline risks for CalSTRS
- Lack of full control of the investment strategies being managed externally

FUTURE IDEAS

- Explore the benefits of expanding the UST component to incorporate alternative long duration strategies outside of 20+ year U.S. Treasuries
- Explore the potential benefit of internalizing a portion of the trend following strategy
- Continue to engage with existing managers to negotiate better management and performance fees
- Review and evaluate new strategies that could significantly contribute to the overall program's objectives of diversifying the total plan and protecting the plan assets against equity market downturns

OPERATIONS



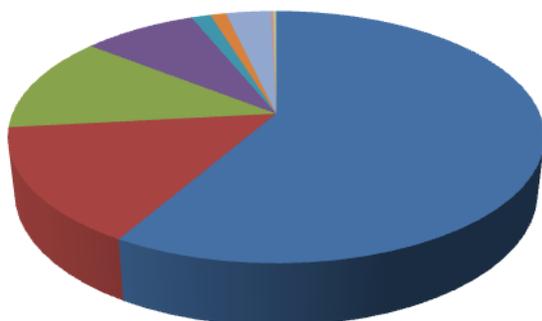
INVESTMENT OPERATIONS

FAST FACTS

Assets: \$202,857 billion as of 3/31/2017

Investment Summary:

Asset Mix	In Millions	%
Global Equity	\$118,354	58.3
Fixed Income	30,260	14.9
Real Estate	25,117	12.4
Private Equity	16,651	8.2
Risk Mitigating Strategies	6,537	3.2
Cash	2,835	1.4
Inflation Sensitive	2,315	1.2
Innovative Strategies	400	0.2
Strategic Overlay	388	0.2
Total	\$202,857	100%



- Global Equity
- Real Estate
- Cash
- Risk Mitigating Strategies
- Strategic Overlay
- Fixed Income
- Private Equity
- Inflation Sensitive
- Innovative Strategies

Transparency and Reporting

[Current Investment Portfolio](#)

[Portfolio Holdings by Asset Category as of June 30, 2016](#)

[Semi-Annual Performance Report as of December 2016](#)

[Comprehensive Annual Financial Report as of June 30, 2016](#)

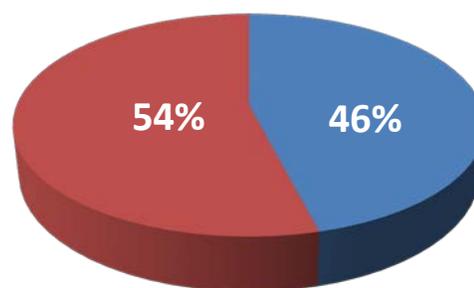


Link to the *CalSTRS Investments Branch*

Total Fund:

Internal Management: \$92.6 billion (46%)

External Management: \$110.3 billion (54%)



■ Internal ■ External

Investment Team (20)

Director: April Wilcox

Associate Portfolio Manager: Kelly Criss; Vacant

Investment Officers: Matthew Schroeder, Haytham Sharief, Mami Wong, Pedro Ferrer De Morais, Diego Sanchez, Daniel Thai, Ron Leu, Ralph Smith, Huy Ngo, Michael Lawrence, Denny Young, Carlos Maciel, Mylene Dalpig, Rona Johnson, Lilit Arakelyan, Justin Bosley

Support Staff Analyst: Vacant

PROGRAM DESCRIPTION



Attachment B

Investment Operations' primary objective is to serve as a control by providing middle-office support for internal and external portfolio activities across the Investment Branch. This is accomplished by performing pre-settlement and post trade management, portfolio reconciliations, portfolio trading system data integrity, cash flow analysis and forecasts, and reporting. We partner with the asset classes in conjunction with our global master custodian to align operational services for successful implementation of the Investment Policy and Management Plan.

INTERNAL MANAGEMENT SUPPORT

Strengths

- Implementing new strategies faster and with more transparency by providing operational due diligence and support of internal management portfolios.
- Reducing third party fees by bringing operational functions in-house and negotiating services.
- Strong internal control environment and oversight for internal investment activities across all asset classes.

Weaknesses

- Increased complexity of the global investment portfolio requires continuous education, knowledge transfer, and specialized expertise.
- Avoiding key person risk by retaining a breadth of expertise in Investment Operations to maintain sufficient operational knowledge in order to support our complex global investment portfolio.

EXTERNAL MANAGEMENT SUPPORT

Strengths

- Providing operational support and oversight on new portfolios setups, foreign markets, asset transfers and account reconciliations for external managers helps provide better control and mitigates operational risks.
- Calculating and verifying the external manager fees for separate accounts across the total fund provides for segregation of duties and additional controls.
- Providing security setup support for the Risk Management team for externally managed securities.

Weaknesses

- An evolving financial and regulatory environment requires continuous research and reporting that is critical to mitigate risk.
- Limited information on externally managed securities and the need for additional automation of our portfolio management system creates challenges for integration into our risk management system.

FUTURE IDEAS

- Additional extensive research, staffing resources, training and expertise, and internal control framework required to support emerging market equity and debt strategies, core plus fixed income and bank loan strategies, and risk mitigating strategies' trend following for internal management capabilities.
- Technological enhancements and automation needed to reduce operational risk and increase efficiencies in order to support new complex strategies.
- Research operational processes across peers to potentially enhance services and staff hours for a more global portfolio (i.e.: follow-the-sun approach).
- Consolidate private asset operational oversight integration across the branch.

Charter of the CalSTRS 21 Risk Factor Review Committee

Purpose

The 21 Risk Factor Review Committee (“the Committee”) is established by the Chief Investment Officer of California State Teachers’ Retirement System (“CalSTRS” or “the fund”) CalSTRS to discuss geopolitical and Environmental Social and Governance (“ESG”) risks to the fund and to take actions to address ESG risks faced by the fund.

Membership and Structure

Membership

The 21 Risk Factor Review Committee shall consist of at least the Chief Investment Officer, Deputy Chief Investment Officer and Director of Corporate Governance as well as one representative of each asset class determined by each asset class’ director. From time to time, the committee may seek input from other CalSTRS Departments and groups such as the Green Team, Legal, or Legislative Affairs.

Meetings

Committee meetings will be open to all members of the Investment Office.

Meetings are led by the Chair, which shall be determined by Chief Investment Officer.

The Committee will meet at least quarterly and on ad hoc basis as circumstances dictate. Occasionally the committee may act through written consent to act on pressing issues and with a more in depth review of the issue at the next scheduled meeting.

Reporting

The Chair of the Committee or Chief Investment Officer shall report on the Committee’s activities of the CalSTRS board as circumstances demand.

The Chair of the committee shall draft an annual report to the CalSTRS board and legislatively required reports to the Legislature for approval of the Chief Investment Officer and CalSTRS Board.

Responsibilities

The responsibilities of the 21 Risk Factor Review Committee are:

- Evaluate ESG issues to determine if they violate 21 Risk Factors Policy
- Carry out CalSTRS Board’s directives relating to the 21 Risk Factors and Divestment policies

Attachment C

- Assist the investment office in addressing ESG Issues
- Assist asset classes on engagement of ESG issues
- Insure all asset classes are aware of ESG issues affecting the fund
- Determine if such issues should be elevated to the full board. Refer issues to the Teachers' Retirement Board for review.
- Prepare annual reports to the board and legislature on ESG issues related to investments

Appendix A – CalSTRS 21 Risk Factor Policy

Attachment A:

Investment Policy for Mitigating Environmental, Social, and Governance Risks (ESG)

PRINCIPLES

The fiduciary responsibility of the Board, as described in detail within the overall Investment Policy and Management Plan, is to discharge its responsibility in the sole and exclusive interest of the participants and beneficiaries in a manner that will assure the prompt delivery of benefits and related services.

CalSTRS invests a multi-billion dollar fund in a unique and complex social-economic milieu and recognizes it can neither operate nor invest in a vacuum. The System's investment activities impact other facets of the economy and the globe. As a significant investor with a very long-term investment horizon and expected life, the success of CalSTRS is linked to global economic growth and prosperity. Actions and activities that detract from the likelihood and potential of global growth are not in the long-term interests of the Fund. Therefore, consideration of environmental, social, and governance issues (ESG), as outlined by the CalSTRS 21 Risk Factors, are consistent with the Board fiduciary duties.

Consistent with its fiduciary responsibilities to our members, the Board has a social and ethical obligation to require that the corporations and entities in which securities are held meet a high standard of conduct and strive for sustainability in their operations. As an active owner, CalSTRS incorporates ESG into its ownership policies and practices.

Since CalSTRS is a long-term investor and may hold an investment in a corporation or entity for decade after decade, short-term gains at the expense of long-term gains are not in the best interest of the Fund. Sustainable returns over long periods are in the economic interest of the Fund. Conversely, unsustainable practices that hurt long-term profits are risks to the System's investment

Since CalSTRS must invest huge sums of moneys for long periods of time to pay for future benefits promised to California Teachers, our actions to invest in securities of a corporation predominately reflects a judgment that the ownership will produce a sustainable rate of return which will make it an attractive investment and help CalSTRS meet its long-term obligations. It is important to note that CalSTRS ownership of a security in a company does

Attachment C

not signify that CalSTRS approves of all of the company's practices or its products or that CalSTRS believes a particular company is an attractive investment since the security may be owned due to its membership in a particular index or for risk mitigation purposes. Since 1978, CalSTRS has used a written policy, the Statement of Investment Responsibility, SIR, to navigate the complex landscape of ESG issues. The long history of this document is testimony to the national leadership of CalSTRS among pension funds in addressing ESG matters through a written policy. The SIR will continue its longevity as guidance on proxy voting; however this Policy now replaces the SIR as CalSTRS's preeminent policy on ESG matters.

POLICY

Governance Risks and Social Risks: To help manage the risk of investing a global portfolio in a complex governance environment, CalSTRS has developed a series of procedures to follow when faced with any major governance and social issue as identified by the 21 risk factors. It is important to note that fiduciary standards do not allow CalSTRS to select or reject investments based solely on social criteria.

When faced with a corporate decision that potentially violates CalSTRS Policies; the Investment Staff, CIO and Investment Committee will undertake the following actions:

A. The CIO will assess the gravity of the situation both as an ESG risk and as to the System. The extent of the responsibility of the System to devote resources to address these issues will be determined by: 1) the number of shares held in the corporation, and 2) the gravity of the violation of CalSTRS Policies.

B. At the CIO's direction, the Investment Staff will directly engage corporate management to seek information and understanding of the corporate decision and its ramifications on ESG issues.

C. The CIO and investment staff will provide a report to the Investment Committee of the findings and recommend any further action of engagement or need to commit further System resources. The Investment Committee can marshal further resources given the gravity of the situation.

To assist CalSTRS Staff and external investment managers in their investment analysis and decision-making, CalSTRS has developed a list of 21 risk factors that should be included within the financial analysis of any investment decision. This list is not exhaustive and does not attempt to identify all forms of risk that are appropriate to consider in a given investment transaction; however they do provide a framework of other factors that might be overlooked. These risk factors should be reviewed for an investment in any asset class whether within the U.S. or across the globe.

CalSTRS expects all investment managers, both internal and external to assess the risk of each of the following factors when making an investment. The manager needs to balance the rate of return with all the risks including consideration of the specific investments exposure to each factor in each country in which that investment or company operates.

CALSTRS 21 RISK FACTORS

Monetary Transparency

The long-term profitability by whether or not a country or company has free and open monetary and financial data, and its observance of applicable laws.

Data Dissemination

The long-term profitability by whether or not a country is a member of the IMF (or similar organization) and satisfies the conditions for access, integrity, and quality for most data categories.

Accounting

The long-term profitability by whether or not the accounting standards are formulated in accordance with International Accounting Standards or the U.S. Generally Accepted Accounting Principles.

Payment System: Central Bank

The long-term profitability by whether the activities of a country's central bank encompass implementing and ensuring compliance with principles and standards which are established to promote safe, sound, and efficient payment and settlement systems.

Securities Regulation

The long-term profitability by exposure to operations in countries that have not complied with IOSCO objectives, which provide investor protection against manipulation and fraudulent practices.

Auditing

The investment's long-term profitability by whether or not the country uses International Standards on Auditing in setting national standards.

Fiscal Transparency

The investment's long-term profitability by its exposure or business operations in countries that do not have not some level of fiscal transparency such as publication of financial statistics, sound standards for budgeting, accounting, and reporting.

Corporate Governance

The investment's long-term profitability by whether or not the government recognizes and supports good corporate governance practices and whether it generally adheres to OECD principles.

Banking Supervision

The investment's long-term profitability from its exposure to countries that have not endorsed/complied with the Basel Core Principles. An endorsement includes an agreement to review supervisory arrangements against the principles and bring legislation in line with the principles where necessary.

Payment System: Principles

The investment's long-term profitability by whether a country complies with the 10 Core Principles for Systemically Important Payment Systems, which includes operational reliability, efficiency, real time settlement, final settlement in central bank money; and whether rules and procedures are clear and permit participants to understand the financial risks resulting from participation in the system.

Insolvency Framework

The investment's long-term profitability from its business operations and activities in specific countries with regard to bankruptcy reform or insolvency legislation.

Money Laundering

The investment's long-term profitability from exposure and whether or not a country has implemented an anti-money laundering regime in line with international standards; consideration should be given to compliance with the 40 recommendations in the Financial Action Task Force, FATF, on Money Laundering; and whether it is a member of FATF.

Insurance Supervision

Whether or not a country has a regulatory framework in line with International Association of Insurance Supervisors, IAIS, Principles.

Respect for Human Rights

The investment's long-term profitability from its business operations and activities in countries that lack or have a weak judicial System. Assess the risk to an investment's long-term profitability from its business operations and activities in a country that engages in or facilitates the following: arbitrary or unlawful deprivation of life, disappearance, torture and other cruel, inhuman, or degrading treatment or punishment, arbitrary arrest, detention, or exile, arbitrary interference with privacy, family, home, or correspondence, use of excessive force and violations of humanitarian law in internal conflicts. Consideration should be given to governmental attitude regarding international and non-governmental investigation of alleged

Respect for Civil Liberties

The investment's long-term profitability from operations, activities, and business practices in countries or regions that do not allow freedom of speech and press, freedom of peaceful assembly and association, freedom of religion, freedom of movement within the country, allowance for foreign travel, emigration, and repatriation.

Respect for Political Rights

The investment's long-term profitability from business practices and activities in countries that do not allow their citizens the right to advocate for change to their government.

Discrimination Based on Race, Sex, Disability, Language, or Social Status

The investment's long-term profitability from business practices and activities on discrimination, such as discrimination against women, children, and persons with disabilities, national/racial/ethnic minorities, or indigenous people.

Worker Rights

The investment's long-term profitability from management and practices globally in the area of worker's rights; specifically the right of association, the right to organize and bargain collectively, prohibition of forced or bonded labor, status of child labor practices and minimum age for employment, acceptable work conditions, or human trafficking.

Environmental

The investment's long-term profitability from activities and exposure to environmental matters such as; depleting or reducing air quality, water quality, land protection and usage, without regard for remediation. Consideration should be given to how a company is dealing with the impact of climate change, including whether the government is taking steps to reduce its impact, exacerbating the problem, or oblivious to the risk.

War/Conflicts/Acts of Terrorism

The investment's long-term profitability from business exposure to a country or region that has an internal or external conflict, war, acts of terrorism or involvement in acts of terrorism, and whether the country is a party to international conventions and

Human Health

The risk to an investment's long-term profitability from business exposure to an industry or company that makes a product which is highly detrimental to human health so that it draws significant product liability lawsuits, government regulation, United Nations sanctions and focus, and avoidance by other institutional investors.

Appendix B – CalSTRS Divestment Policy

DIVESTMENT POLICY

As set forth in the California Constitution, Article 16, Section 17, and the California Education Code, Section 22250, the CalSTRS Retirement Board, its Investment Committee, and staff have fiduciary duties with respect to the system and the plan. These duties include duties of loyalty and prudence to invest “with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.” (Ed. Code, sec. 22250(b).)

This policy sets forth CalSTRS’ policy for responding to external or internal initiatives to divest of individual or groups of securities for purposes of achieving certain goals that do not appear to be primarily investment related. The Investment Committee opposes any divestment effort that would either implicitly or explicitly attempt to direct or influence the Investment Committee to engage in investment activities that violate and breach the Trustees’ fiduciary responsibility. Consistent with its fiduciary responsibility and the concepts of diversification and passive index management, the Investment Committee does not and will not systemically exclude or include any investments in companies, industries, countries or geographic areas, except in cases where: one of the CalSTRS 21 Risk Factors is violated over a sustained time frame to the extent that it becomes an economic risk to the Fund, a potential for material loss of revenue exists, and where it weakens the trust of a significant portion of members to the System.

When pressured to divest, CalSTRS firmly believes that active and direct engagement is the best way to resolve issues. Face to face meetings with shareowners and senior management, or the Board of Directors, are essential to bringing about change in a corporation. No further action will be taken until all efforts at engagement have been fully exhausted; efforts at engagement include, but are not limited to: shareholder resolutions, media campaigns, and other efforts at engagement.

CalSTRS’ commitment to engagement with companies rather than divestment is based on several considerations: (i) divestment would eliminate our standing and rights as a shareowner and foreclose further engagement; (ii) divestment would be likely to have negligible impact on portfolio companies or the market; (iii) divestment could result in increased costs and short-term losses; and (iv) divestment could compromise CalSTRS’ investment strategies and negatively affect investment performance.

If engagement fails to resolve the risk factor sufficiently, the CIO will bring the issue before the Investment Committee for consideration of divestment from the applicable securities. The Investment Committee will receive input from the following, but not limited to: investment managers, investment consultants, investment staff, fiduciary counsel, academics, and experts in the particular field or issue. If the Investment Committee determines that the making of an

investment or continuing to hold a security is imprudent and inconsistent with the fiduciary duty, the Investment Committee will instruct investment staff to remove the security from the portfolio.

Divestment does not apply to segments of the portfolio that track market indices, as CalSTRS policies require those segments to invest in all companies included in an index. Additionally, the policy does not apply to investments in a Limited Partnership due to CalSTRS position of limited liability as a Limited rather than General Partner.

CalSTRS will exclude or eliminate investments that fall within the terms of a State or Federal law regarding divestment, if the Investment Committee finds that divestment is consistent with its fiduciary duties and divestment is determined not to be imprudent.

REPORTING

On at least a quarterly basis, the Chief Investment Officer will prepare a comprehensive report that shows the performance difference between any divestment taken under this Policy and the un modified CalSTRS benchmark of the respective asset class.

Any divestment decision should be reviewed at least annually by the CIO to ensure the key factors and risks continue to warrant divestment. The Investment Committee, at any time, can request a divestment decision be revisited.

Approved: March 5, 2009

Appendix C – CalSTRS Responsible Contractor Policy

I. Responsible Contractor Policy

The California State Teachers' Retirement System has a deep interest in the condition of workers employed by the CalSTRS and its advisors. CalSTRS, through the CalSTRS Responsible Contractor Policy supports and encourages fair wages and fair benefits for workers employed by its contractors and subcontractors, subject to fiduciary principles concerning duties of loyalty and prudence, both of which further require competitive returns on the CalSTRS real estate investments. The CalSTRS endorses small business development, market competition, and control of operating costs. The CalSTRS believes that an adequately compensated and trained worker delivers a higher-quality product and service. CalSTRS requires its real estate managers to abide by the Responsible Contractor policy on all applicable investments.



California State Teachers'
Retirement System
Investments
100 Waterfront Place, MS-04
West Sacramento, CA 95605
(916) 414-7400 FAX (916) 414-7533

December 11, 2017

Toshiaki Higashihara
President & CEO
Hitachi Ltd
6-6, Marunouchi
1-chome
Chiyoda-ku, Tokyo
Japan

Dear Mr. Higashihara,

This letter is sent to you on behalf of the California State Teachers' Retirement System (CalSTRS). As you may be aware, CalSTRS is a public pension fund established for the benefit of California's public school teachers over 100 years ago. CalSTRS serves the investment and retirement interests of over 915,000 plan participants and their families. The CalSTRS portfolio is currently valued at approximately \$214 billion invested across both domestic and international markets. Currently, CalSTRS owns 15,279,738 shares of Hitachi Ltd.

The long-term nature of CalSTRS' liabilities, and its responsibilities as a fiduciary to its members, makes the fund keenly interested in governance and geopolitical issues. As a long-term investor, we are concerned with risks posed by companies in our portfolio that are operating in sensitive areas such as Sudan. To address these risks from an investor prospective the CalSTRS Board has adopted a 21-point Geopolitical Risk policy, which is available in the board policy manual at our website www.calstrs.com.

Our independent research providers have identified Hitachi Ltd as having business in, or with Sudan. Sudan is not only designated as a terrorist sponsoring country by the United States government, but is also embroiled in domestic conflicts in which the Sudanese government has been charged with arming militia that have engaged in genocide which has been documented by the United Nations Commission of Inquiry on Darfur. As shareowners, we are concerned that companies that do business in Sudan may be perceived as furthering or condoning the egregious human rights violations currently occurring there. We believe that any association with the atrocities taking place in Sudan by your company poses a serious risk to your ability to create sustainable and responsible long-term value creation.

In several states, legislation has been enacted or is being publicly discussed to address investments in companies doing business in or with Sudan. In California, Chapter 442 of the 2006 Statutes require the California Public Employees' Retirement System and the California

Attachment D

Toshiaki Higashihara

12/11/2017

Page 2

State Teachers' Retirement System to encourage companies in which they invest in to act responsibly and not take actions that promote or otherwise enable human rights violations in the Sudan. Additionally, the legislation requires that we periodically follow up with identified companies to ensure they are acting responsibly with regards to Sudan.

CalSTRS would like to engage in an open dialogue with you regarding your company's ties to Sudan. We are requesting full disclosure of your direct or indirect business activities with Sudan including purchases from and sales to Sudan as well as any risk controls Hitachi Ltd has undertaken to prevent US sanctions. Our goal is to have a complete and accurate understanding of your involvement with Sudan so that we, as fiduciaries, can accurately assess the risk associated with your activities there and make informed investment decisions.

Furthermore, to better understand your exposure to Sudan and your company's actions around the issue we would like to meet with you or representatives of your company in person. We believe a meeting in person will help us better understand and be more comfortable with your involvement with Sudan. If you are planning to have the appropriate people in the United States in the near future, we would appreciate the opportunity to meet with them. We can easily arrange to meet in anywhere in the United States, however, Sacramento, San Francisco, Los Angeles, New York, Chicago, or Washington D.C. are the most convenient for us.

If there are no plans for the appropriate people to be in the United States we often have staff travel abroad to London, Zurich, or Tokyo are the most convenient for us. Lastly, if necessary, we can arrange to have staff meet at your headquarters in Tokyo.

If you have any questions, please feel free to contact Philip Larrieu of the Corporate Governance staff at:

Philip Larrieu
Investments – Corporate Governance
100 Waterfront Place, MS-4
West Sacramento, CA 95605-2807
(916)414-7417
plarrieu@calstrs.com

Sincerely,



Christopher Ailman, Chief Investment Officer
California State Teachers' Retirement System



California State Teachers'
Retirement System
Investments
100 Waterfront Place, MS-04
West Sacramento, CA 95605
(916) 414-7400 FAX (916) 414-7533

December 11, 2017

Carl K Arnet
BW Offshore
BW Offshore
Drammensveien 149
0277 Oslo
Norway

Dear Mr. Arnet,

This letter is sent to you on behalf of the California State Teachers' Retirement System (CalSTRS). As you may be aware, CalSTRS is a public pension fund established for the benefit of California's public school teachers over 100 years ago. CalSTRS serves the investment and retirement interests of over 915,000 plan participants and their families. The CalSTRS portfolio is currently valued at approximately \$214 billion invested across both domestic and international markets. Currently, CalSTRS owns 292,728 shares of BW Offshore.

The long-term nature of CalSTRS' liabilities, and its responsibilities as a fiduciary to its members, makes the fund keenly interested in governance and geopolitical issues. As a long-term investor, we are concerned with risks posed by companies in our portfolio that are operating in sensitive areas such as Iran. To address these risks from an investor perspective the CalSTRS Board has adopted a 21-point Geopolitical Risk policy, which is available in the board policy manual at our website www.calstrs.com.

In several states, legislation has been enacted or is being publicly discussed to address investments in companies doing business in or with Iran. In California, Chapter 441 of the 2011 Statutes require the California Public Employees' Retirement System and the California State Teachers' Retirement System to encourage companies in which they invest in to act responsibly and to not take actions that promote terrorism or that otherwise enable the Iranian pursuit of nuclear weapons. Additionally, the legislation requires that we periodically follow up with identified companies to ensure they are acting responsibly with regards to Iran.

Our independent research providers have identified BW Offshore as having business in, or with Iran. CalSTRS would like to engage in an open dialogue with you regarding your company's ties to Iran. We are requesting full disclosure of your direct or indirect business activities with Iran including purchases from and sales to Iran as well as any risk controls BW Offshore has undertaken to prevent US sanctions. Our goal is to have a complete and

accurate understanding of your involvement with Iran so that we, as fiduciaries, can accurately assess the risk associated with your activities there and make informed investment decisions.

Furthermore, to better understand your exposure to Iran and your company's actions around the issue we would like to meet with you or representatives of your company in person. We believe a meeting in person will help us better understand and be more comfortable with your involvement with Iran. If you are planning to have the appropriate people in the United States in the near future, we would appreciate the opportunity to meet with them. We can easily arrange to meet in anywhere in the United States, however, Sacramento, San Francisco, Los Angeles, New York, Chicago, or Washington D.C. are the most convenient for us.

If there are no plans for the appropriate people to be in the United States we often have staff travel abroad and London, Zurich, or Tokyo are the most convenient for us. Lastly, if necessary, we can arrange to have staff meet at your headquarters in Oslo.

If you have any questions, please feel free to contact Philip Larrieu of the Corporate Governance staff at:

Philip Larrieu
Investments – Corporate Governance
100 Waterfront Place, MS-4
West Sacramento, CA 95605-2807
(916)414-7417

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Ailman', written in a cursive style.

Christopher Ailman, Chief Investment Officer
California State Teachers' Retirement System



California State Teachers'
Retirement System
Investments
100 Waterfront Place, MS-04
West Sacramento, CA 95605
(916) 414-7400 FAX (916) 414-7533

November 22, 2017

Rong Fu
Co-Secretary & Director-Secretariat Office
Shanghai Electric Group Co., Ltd.
No. 212, Qinjiang Road
Shanghai, Shanghai 200233
China

Dear Rong Fu,

This letter is sent to you on behalf of the California State Teachers' Retirement System (CalSTRS). As you may be aware, CalSTRS is a public pension fund established for the benefit of California's public school teachers over 100 years ago. CalSTRS serves the investment and retirement interests of nearly 915,000 plan participants and their families. The CalSTRS portfolio is currently valued at approximately \$214 billion invested across both domestic and international markets. Currently, CalSTRS owns 1,405,715 shares of Shanghai Electric Group Co., Ltd..

The long-term nature of CalSTRS' liabilities, and its responsibilities as a fiduciary to its members, makes the fund keenly interested in governance and geopolitical issues. As a long-term investor, we are concerned with risks posed by companies in our portfolio that are operating in sensitive areas such as Sudan. To address these risks from an investor prospective the CalSTRS Board has adopted a 21-point Geopolitical Risk policy, which is available in the board policy manual at our website www.calstrs.com.

In several states, legislation has been enacted or is being publicly discussed to address investments in companies doing business in or with Sudan. In California, Chapter 442 of the 2006 Statutes require the California Public Employees' Retirement System and the California State Teachers' Retirement System to encourage companies in which they invest in to act responsibly and to not take actions that promote or otherwise enable human rights violations in Sudan. Additionally, the legislation requires that we periodically follow up with identified companies to ensure they are acting responsibly with regards to Sudan.

Sudan is not only designated as a terrorist sponsoring country by the United States government, but is also been embroiled in domestic conflicts in which the Sudanese government has been charged with arming militia that have engaged in genocide which has been documented by the United Nations Commission of Inquiry on Darfur. While there has

Attachment F

Rong Fu

11/22/2017

Page 2

been improvement in the United States diplomatic relations and easing of sanctions, as shareowners, we remain concerned that companies that do business in Sudan may be perceived as furthering or condoning the egregious human rights violations currently occurring there. We believe that any association with the atrocities taking place in Sudan by your company poses a serious risk to your ability to create sustainable and responsible long-term value creation.

Currently, CalSTRS has Shanghai Electric Group Co., Ltd. in a Monitor status based on information from our independent service providers and our past communications. We are requesting an updated disclosure of your direct or indirect business activities with Sudan including purchases from and sales to Sudan as well as any risk controls Shanghai Electric Group Co., Ltd. has undertaken to prevent US sanctions. Our goal is to maintain a complete and accurate understanding of your involvement with Sudan so that we, as fiduciaries, can accurately assess the risk associated with your activities there and make informed investment decisions.

If you have any questions, please feel free to contact Philip Larrieu of the Corporate Governance staff at:

Philip Larrieu
Investments – Corporate Governance
100 Waterfront Place, MS-4
West Sacramento, CA 95605-2807
(916)414-7417
plarrieu@calstrs.com

Sincerely,



Christopher Ailman, Chief Investment Officer
California State Teachers' Retirement System



California State Teachers'
Retirement System
Investments
100 Waterfront Place, MS-04
West Sacramento, CA 95605
(916) 414-7400 FAX (916) 414-7533

November 22, 2017

Bernard Wang
Head-Investor Relations
Linde AG
Klosterhofstrasse 1
Munich, Bayern 80331
Germany

Dear Bernard Wang,

This letter is sent to you on behalf of the California State Teachers' Retirement System (CalSTRS). As you may be aware, CalSTRS is a public pension fund established for the benefit of California's public school teachers over 100 years ago. CalSTRS serves the investment and retirement interests of nearly 915,000 plan participants and their families. The CalSTRS portfolio is currently valued at approximately \$214 billion invested across both domestic and international markets. Currently, CalSTRS owns 360,898 shares of Linde AG.

The long-term nature of CalSTRS' liabilities, and its responsibilities as a fiduciary to its members, makes the fund keenly interested in governance and geopolitical issues. As a long-term investor, we are concerned with risks posed by companies in our portfolio that are operating in sensitive areas such as Iran. To address these risks from an investor prospective the CalSTRS Board has adopted a 21-point Geopolitical Risk policy, which is available in the board policy manual at our website www.calstrs.com.

In several states, legislation has been enacted or is being publicly discussed to address investments in companies doing business in or with Iran. In California, Chapter 441 of the 2011 Statutes require the California Public Employees' Retirement System and the California State Teachers' Retirement System to encourage companies in which they invest in to act responsibly and to not take actions that promote terrorism or otherwise enable the Iranian pursuit of nuclear weapons. Additionally, the legislation requires that we periodically follow up with identified companies to ensure they are acting responsibly with regards to Iran.

Currently, CalSTRS has Linde AG in a Monitor status based on information from our independent service providers and our past communications. We are requesting an updated disclosure of your direct or indirect business activities with Iran including purchases from and sales to Iran as well as any risk controls Linde AG has undertaken to prevent US sanctions. Our goal is to maintain a complete and accurate understanding of your involvement with Iran

so that we, as fiduciaries, can accurately assess the risk associated with your activities there and make informed investment decisions.

If you have any questions, please feel free to contact Philip Larrieu of the Corporate Governance staff at:

Philip Larrieu
Investments – Corporate Governance
100 Waterfront Place, MS-4
West Sacramento, CA 95605-2807
(916)414-7417
plarrieu@calstrs.com

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Ailman', written in a cursive style.

Christopher Ailman, Chief Investment Officer
California State Teachers' Retirement System

Attachment H: CalSTRS Portfolio Companies Subject to the California Public Divest from Sudan Act

10 Companies Divested and Restricted						
	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017	
1	AviChina Industry and Technology Limited (China)	AviChina was identified as possibly providing military equipment and maintenance services to Sudan.	In 2016, CalSTRS designated AviChina as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0	
2	Bharat Heavy Electricals (India)	Bharat Heavy Electricals has contracts to build power plants in Sudan.	In 2009, Bharat Heavy Electricals was designated as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0	
3	Dongfeng Motor Group and Dongfeng Automobile Company Ltd., a linked company (China)	Dongfeng Motor Group and Dongfeng Automobile Co. Ltd. have reportedly supplied military vehicles to the Sudanese government. The companies did not reply to CalSTRS requests for information.	In 2009, Dongfeng Motor Group and Dongfeng Automobile Company Ltd. were designated as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0	
4	Kunlun Energy Co. and Sinopec, a linked company (China)	While Kunlun Energy Co. has no activity in Sudan, its parent, CNPC, is the largest partner of several oil consortiums that have active oil exploration and production operations in Sudan.	In 2009, Sinopec and its related companies, including CNPC Hong Kong, were designated as "Restricted." In February 2010, CNPC Hong Kong changed its name to Kunlun Energy Co. Sinopec and all of its subsidiaries, including Kunlun Energy Co., have remained "Restricted" in 2017.	0	\$0	
5	MISC Bhd. (Malaysia)	MISC Bhd. is a Malaysian shipping company that is linked to Sudan through its parent company, Petronas, also a "Restricted" company.	In 2009, MISC Bhd. was designated as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0	
6	Oil and Natural Gas Company of India (India)	Oil and Natural Gas Company of India (ONGC) has interests in multiple Sudanese oil blocks.	In 2009, ONGC was designated as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0	

	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
7	PECD Berhad (Malaysia)	PECD Berhad has an ongoing contract to build an oil export terminal in Port Sudan.	In 2009, PECD Berhad was designated as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0
8	PetroChina and CNPC - as connected corporations to the Chinese National Oil Company (China)	PetroChina has no operations in Sudan but is linked to the country through its parent, CNPC, which has multiple interests in the country.	In 2009, CalSTRS designated PetroChina as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0
9	Petronas (Malaysia)	Petronas has interest in several oil fields in Sudan.	In 2009, CalSTRS designated Petronas as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0
10	Sudan Telecom Company (Sudatel) (Sudan)	Sudan Telecom (Sudatel) provides telecommunication services in Sudan and reportedly cut services to villages in Darfur when attacks were imminent.	In 2009, CalSTRS designated Sudan Telecom as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0

11 Companies Under Review					
	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
1	Commercial International Bank (Egypt)	Commercial International Bank was identified as potentially providing banking services in Sudan.	In 2017, CalSTRS identified Commercial International Bank as potentially having ties to Sudan and began the review process.	<u>GDR</u> 5,047,245	<u>GDR</u> \$21,930,280
2	DNB ASA (Norway)	First DNB ASA was identified as potentially providing banking services in Sudan.	In 2017, CalSTRS identified DNB ASA as potentially having ties to Sudan and began the review process.	2,404,305	\$43,998,078

	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
3	Emirates Telecommunication Group (United Arab Emirates)	Emirates Telecommunication Group was identified as possibly providing telecommunication services to Sudan.	In 2017, CalSTRS identified Emirates Telecommunications Group Co. as potentially having ties to Sudan and began the review process.	483,449	\$2,158,607
4	First Abu Dhabi Bank (United Arab Emirates)	First Abu Dhabi Bank was identified as potentially providing banking services in Sudan.	In 2017, CalSTRS identified First Abu Dhabi Bank as potentially having ties to Sudan and began the review process.	Stock 13,753,640 Bonds \$2,220,000	Stock \$37,819,702 Bonds \$2,201,209
5	Hannover Rueck (Germany)	Hannover Rueck has been identified as possibly providing insurance services in Sudan.	In 2017, CalSTRS identified Hannover Rueck as potentially having ties to Sudan and began the review process.	100,264	\$13,198,294
6	Keysight Technologies (USA)	Keysight Technologies was identified as possibly providing services in Sudan.	In 2017, CalSTRS identified Keysight Technologies as potentially having ties to Sudan and began the review process.	Stock 313,169 Bonds \$5,000,000	Stock \$13,622,852 Bonds \$5,066,149
7	LafargeHolcim Ltd. (Switzerland)	LafargeHolcim Ltd. was identified as potentially having assets and providing products in Sudan.	In 2017, CalSTRS identified LafargeHolcim Ltd. as potentially having ties to Sudan and began the review process.	Stock 719,103 Bonds \$2,400,000	Stock \$39,398,891 Bonds \$2,428,984
8	Malayan Banking Bhd. (Malaysia)	Malayan Banking Bhd. was identified as potentially providing banking services in Sudan.	In 2017, CalSTRS identified Malayan Banking Bhd. as potentially having ties to Sudan and began the review process.	27,057,603	\$61,201,327

Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
9 Nokia Corp. (Finland)	Nokia Corp. was identified as potentially providing telecommunication services in Sudan.	In 2017, CalSTRS identified Nokia Corp. as potentially having ties to Sudan and began the review process.	<u>Stock</u> 12,566,903 <u>ADR</u> 822,533 <u>Bonds</u> \$895,000	<u>Stock</u> \$63,173,157 <u>ADR</u> \$4,120,890 <u>Bonds</u> \$959,977
10 Nordea Bank (Sweden)	Nordea Bank was identified as potentially providing banking services in Sudan.	In 2017, CalSTRS identified Nordea Bank as potentially having ties to Sudan and began the review process.	<u>Stock</u> 7,928,371 <u>Bonds</u> \$106,980,000	<u>Stock</u> \$93,325,877 <u>Bonds</u> \$107,622,635
11 Ultratech Cement (India)	Ultratech Cement was identified as having a majority owned subsidiary with operation in Sudan.	In 2017, CalSTRS identified Ultratech Cement as potentially having ties to Sudan and began the review process.	71,566	\$4,665,775

9 Companies Being Monitored				
Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
1 China Railway Group (China)	China Railway Group has two supply contracts and one works contract for railway maintenance in Sudan.	In 2013, China Railway Group was identified as "Review" for potentially having ties to Sudan. In 2014, CalSTRS moved China Railway Group to "Monitor" status and maintained that status in 2017.	2,380,451	\$1,776,911

	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
2	Commercial Bank QSC (Qatar)	Commercial Bank QSC was identified as potentially providing banking services in Sudan.	In 2016, CalSTRS identified Commercial Bank QSC as potentially having ties to Sudan and began the review process. In 2017 CalSTRS determined to classify Commercial Bank QSC as "Monitor" while staff conducts further review of the company's internal controls and compliance programs.	55,157	\$407,476
3	Fuji Electric Co. Ltd. (Japan)	Fuji Electric Co. Ltd. was identified as providing heavy equipment in Sudan.	In 2015, CalSTRS identified Fuji Electric Co. Ltd. as potentially having ties to Sudan and began the review process. In 2016, CalSTRS designated Fuji Electric Co. Ltd. as "Monitor." CalSTRS has maintained the "Monitor" status in 2017.	1,075,843	\$7,614,205
4	ICICI Bank (India)	ICICI Bank was identified as potentially providing banking services in Sudan.	In 2016, CalSTRS identified ICICI Bank as potentially having ties to Sudan and began the review process. In 2017 CalSTRS determined to classify ICICI Bank as "Monitor" while staff conducts further review of the company's internal controls and compliance programs.	<u>ADR</u> 16,333,480 <u>Bonds</u> \$1,970,000	<u>ADR</u> \$77,905,735 <u>Bonds</u> \$1,976,363
5	Larsen & Tourbro Ltd. (India)	Larsen & Tourbro was identified as providing consulting services to the government of Sudan.	In 2015, CalSTRS identified Larsen & Tourbro as potentially having ties to Sudan and began the review process. In 2016, CalSTRS determined to classify Larsen & Tourbro as "Monitor" and maintained the designation in 2017.	<u>Stock</u> 841,377 <u>GDR</u> 33,189	<u>Stock</u> \$15,874,336 <u>GDR</u> \$595,743
6	M1 Ltd (Singapore)	M1 Ltd. was identified as potentially providing telecommunications services in Sudan.	In 2016, CalSTRS identified M1 Ltd. as potentially having ties to Sudan and began the review process. In 2017, CalSTRS determined to classify M1 Ltd. as "Monitor" while staff conducts further review of the company's internal controls and compliance programs.	566,103	\$756,485

	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
7	Makita Group (Japan)	Makita Group was identified as providing products and equipment to Sudan.	In 2015, CalSTRS identified Makita Group as potentially having ties to Sudan and began the review process. In 2016, CalSTRS designated Makita Group as "Monitor" and maintained the designation in 2017.	1,285,870	\$53,316,981
8	Qatar Islamic Bank (Qatar)	Qatar Islamic Bank was identified as potentially providing banking services in Sudan.	In 2016, CalSTRS identified Qatar Islamic Bank as potentially having ties to Sudan and began the review process. In 2017, CalSTRS determined to classify Qatar Islamic Bank as "Monitor" while staff conducts further review of the company's internal controls and compliance programs.	14,720	\$367,995
9	Sapura Energy Bhd. (Malaysia)	Sapura Energy Bhd. has a contract to create drilling access to an oilfield in South Sudan that has restricted entities as a partner. In 2017 SapuraKencana changed its name to Sapura Energy Bhd.	In 2014, CalSTRS identified Sapura Energy Bhd. as potentially having ties to Sudan and began the review process. In 2015, CalSTRS moved SapuraKencana Petroleum Bhd. to a "Monitor" status and maintained that status in 2017.	3,144,714	\$0

17 Companies Removed

	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
1	Andritz AG (Austria)	Andritz AG was identified as possibly providing industrial machinery in Sudan.	In 2016, CalSTRS identified Andritz AG as potentially having ties to Sudan and began the review process. In 2017, CalSTRS removed Andritz AG from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	84,301	\$4,729,794

	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
2	AON PLC (United Kingdom)	AON PLC has reported that it has direct transactions with parties domiciled in Sudan.	In 2015, CalSTRS identified AON PLC as potentially having ties to Sudan and began the review process. In 2016, CalSTRS determined to classify AON PLC as "Monitor" while staff reviewed the company's internal controls and compliance procedures. In 2017, CalSTRS removed AON PLC from the "Monitor" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 875,476 <u>Bonds</u> \$3,000,000	<u>Stock</u> \$122,759,245 <u>Bonds</u> \$3,136,050
3	Ascom AG (Switzerland)	Ascom AG has an office in Khartoum and reportedly has the state-owned Nile Cement Company as a client.	In 2016, CalSTRS identified Ascom AG as potentially having ties to Sudan and began the review process. In 2017, Ascom AG was removed after determining it no longer had ties to Sudan.	59,842	\$1,432,137
4	China Communications Construction Company Limited (China)	China Communications Construction Company Limited was involved in several infrastructure projects in Sudan.	In 2015, CalSTRS identified China Communications Construction Company Limited as potentially having ties to Sudan and began the review process. In 2016, CalSTRS determined to classify China Communications Construction Company Limited as "Monitor." while staff conducted further review of the company's compliance and control policies and procedures. In 2017, CalSTRS removed China Communications Construction Company Limited from the "Monitor" list as CalSTRS no longer holds the company's securities.	0	\$0
5	CRRC Corp (China)	CRRC Corp was identified as potentially providing locomotives to entities owned by the government of Sudan.	In 2016, CalSTRS identified CRRC Corp as potentially having ties to Sudan and began the review process. In 2017, CalSTRS removed CRRC Corp from the "Review" list as CalSTRS no longer holds the company's securities.	0	\$0

	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
6	Dubai Investments (United Arab Emirates)	Dubai Investments was identified as potentially as having investment relationships in Sudan.	In 2017, CalSTRS identified Dubai Investments as potentially having ties to Sudan. CalSTRS subsequently removed Dubai Investments from the "Review" list as CalSTRS no longer holds the company's securities.	0	\$0
7	Dubai Islamic Bank (United Arab Emirates)	Dubai Islamic Bank was identified as potentially providing banking services in Sudan.	In 2016, CalSTRS identified Dubai Islamic Bank as potentially having ties to Sudan and began the review process. In 2017, CalSTRS removed Dubai Islamic Bank from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	1,187,717	\$1,949,887
8	ENGIE SA (France)	ENGIE SA was identified as potentially providing services in Sudan.	In 2016, CalSTRS identified ENGIE SA as potentially having ties to Sudan and began the review process. In 2017, CalSTRS removed ENGIE SA from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	3,694,794	\$64,782,689
9	HC2 Holdings, Inc. (USA)	HC2 Holdings, Inc. was identified as providing telecommunication services in Sudan.	In 2015, CalSTRS identified HC2 Holdings, Inc. as potentially having ties to Sudan and began the review process. In 2016, CalSTRS designated HC2 Holdings, Inc. as "Monitor" while staff reviewed the company's internal controls and compliance programs. In 2017, CalSTRS removed the company after determining the company no longer held the Sudan-related assets.	64,029	\$349,598

	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
10	Hitachi Ltd. (Japan)	Hitachi Ltd. was identified as having a majority owned subsidiary providing construction equipment in Sudan.	In 2017, CalSTRS identified Hitachi Ltd. as potentially having ties to Sudan. CalSTRS subsequently removed Hitachi Ltd from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	15,279,738	\$113,903,377
11	Kawasaki Kisen Kaisha Ltd. (Japan)	Kawasaki Kisen Kaisha Ltd. lists Port Sudan in its service network.	In 2013, Kawasaki Kisen Kaisha Ltd. was identified as "Review" for potentially having ties to Sudan. In 2014, CalSTRS moved Kawasaki Kisen Kaisha Ltd. to "Monitor" status and maintained that status in 2016. In 2017, CalSTRS removed Kawasaki Kisen Kaisha Ltd. from the "Monitor" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	128,126	\$3,313,495
12	Legrand SA (France)	Legrand SA was identified as possibly providing services in Sudan.	In 2017, CalSTRS identified Legrand SA as potentially having ties to Sudan. CalSTRS subsequently removed Legrand SA from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	583,821	\$43,827,646
13	MTN Group Limited (South Africa)	MTN Group Limited was identified providing telecommunications services in Sudan.	In 2015, CalSTRS identified MTN Group Limited as potentially having ties to Sudan and began the review process. In 2016, CalSTRS determined to classify MTN Group Limited as "Monitor" while staff conducted further review of the company's compliance and control policies and procedures. In 2017 CalSTRS removed MTN Group Limited from the "Monitor" list as CalSTRS no longer holds the company's securities.	0	\$0

	Company Name (Domicile)	Summary of Ties to Sudan	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
14	National Bank of Abu Dhabi (United Arab Emirates)	National Bank of Abu Dhabi was identified as potentially providing banking services in Sudan.	In 2017, CalSTRS identified and subsequently removed National Bank of Abu Dhabi as potentially having ties to Sudan as the fund no longer holds the company's securities.	0	\$0
15	Old Mutual (United Kingdom)	Old Mutual was identified as potentially providing investment services in Sudan.	In 2016, CalSTRS identified Old Mutual as potentially having ties to Sudan and began the review process. In 2017, CalSTRS removed Old Mutual from the "review list after confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 5,851,790 <u>Bonds</u> \$100,000	<u>Stock</u> \$15,628,685 <u>Bonds</u> \$156,615
16	Shanghai Electric Group (China)	Shanghai Electric Group reportedly has several contracts relating to power transmission in Sudan.	In 2014, CalSTRS identified Shanghai Electric Group as potentially having ties to Sudan and began the review process. In 2015, CalSTRS moved Shanghai Electric Group to a "Monitor" status and maintained that status in 2016. In 2017, CalSTRS removed Shanghai Electric Group from the "Monitor" list as CalSTRS no longer holds the company's securities.	0	\$0
17	Volvo AB (Sweden)	Volvo AB has been identified as selling trucks and construction equipment to Sudan. The company confirmed its major customer is the state-owned sugar company, which is not a restricted entity.	In 2012, Volvo AB was identified as "Review" for potentially having ties to Sudan. In 2013, CalSTRS moved Volvo AB to "Monitor" status and maintained that status in 2016. In 2017, CalSTRS removed Volvo from the "monitor" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 2,174,687 <u>Bonds</u> \$4,571,000	<u>Stock</u> \$41,542,146 <u>Bonds</u> \$4,566,332

Attachment I: CalSTRS Portfolio Companies Identified as Possibly Having Ties to Iran

12 Companies Divested and Restricted					
Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017	
1 China Blue Chemical Ltd. (China)	China Blue Chemical Ltd. is a majority owned subsidiary of CNOOC, a restricted company.	In 2013, one of CalSTRS' external managers purchased shares of China Blue Chemical Ltd. CalSTRS initiated a review of the company and determined to add it to the "Restricted" list. CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0	
2 China Oilfield Services Limited (China)	China Oilfield Services Limited is a majority owned subsidiary of CNOOC, a restricted company. In 2014, China Oilfield Services was identified as being involved in the development of oilfields in Iran.	In 2014, China Oilfield Services Limited was identified as "Review" for potentially having ties to Iran. The company's activities in Iran were confirmed in CNOOC's 20-F Filing, which stated, "China Oilfield Services Limited (COSL), one of our non-controlled affiliates, continued to provide certain drilling and other related services in Iran in relation to subcontracting agreements entered into in 2009, as it did in 2012." In 2014, CalSTRS designated China Oilfield Services Limited as "Restricted" and maintained the "Restricted" designation in 2017.	0	\$0	

Attachment I

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
3	CNOOC (China)	<p>According to CNOOC's most recent 20-F Filing, the company cites in its risk section the potential for U.S. sanctions related to its affiliates' operations in Iran and Sudan. In particular, one of the company's non-controlled affiliates continued to provide certain drilling and other related services in Iran.</p> <p>In 2011, CalSTRS staff met with executives of the company in its offices in Beijing. The company confirmed its parent may have ties to Iran, but it does not, and will not, seek business in Iran as the company has and is looking to purchase more assets in the United States.</p>	<p>In 2009, CalSTRS designated CNOOC as "Further Review." CNOOC was being considered for divestment because of the lack of clarity between it and its parent when it was announced CNOOC was buying 33 percent of Chesapeake Energy's stake in the Eagle Ford Shale project in south Texas. CalSTRS viewed this purchase as significant because it gives CNOOC U.S.-based assets that could be subject to sanctions. In 2011, CalSTRS designated the company as "Being Monitored."</p> <p>While CNOOC does not appear to have direct ties to Iran, CalSTRS is uncomfortable with its parent company's relations to the country and determined to maintain the "Restricted" designation in 2017.</p>	0	\$0
4	Daelim Industrial Co. Ltd. (South Korea)	<p>In June 2009, Daelim Industrial Co. Ltd. won a contract to build pipelines for an LNG storage facility in Iran. CalSTRS research providers show Daelim Industrial Co. Ltd. continues to be involved in several natural gas related projects in Iran.</p>	<p>In 2009, Daelim Industrial Co. Ltd. was designated as "Restricted From Additional Purchase." In 2010, CalSTRS divested holdings of the company and designated the company as "Restricted." CalSTRS has maintained the "Restricted" designation in 2017.</p>	0	\$0
5	Doosan Corp. (South Korea)	<p>In 2014, Doosan Corp. was identified by CalSTRS service providers as being a supplier of automotive products to companies in Iran.</p>	<p>In 2014, CalSTRS identified Doosan Corp. as potentially having ties to Iran and began the review process. In 2015, CalSTRS designated Doosan Corp. and related entities as "Restricted" after the company failed to respond to requests for information and maintained the "Restricted" designation in 2017.</p>	0	\$0

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
6	Indian Oil Corp. (India)	Indian Oil Corp. has been identified as having a majority stake in a company in Iran. One of the minority partners in the company has ties to the Iranian Revolutionary Guard Corps, an entity restricted by U.S. sanctions. The U.S. Government Accountability Office (GAO) has identified Indian Oil Corp. as having commercial activity in Iran's energy sector.	In the past several years, CalSTRS has initiated the review process of Indian Oil Corp. as the company was purchased by CalSTRS external managers. However, the security was always sold before the review process could be completed. In 2015, CalSTRS determined to restrict the company because of the troubling nature of the ties and believed it would be more efficient than continually initiating the review process. CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0
7	Kunlun Energy Co. and Sinopec, a linked company (China)	Kunlun Energy Co.'s parent, Sinopec, is linked to Iran through oil exploration contracts and interests, refining and commercialization of gas processing products.	In 2009, Sinopec and its related companies, including CNPC Hong Kong, were designated as "Restricted." In February 2010, CNPC Hong Kong changed its name to Kunlun Energy Co. Sinopec, and all of its subsidiaries, including Kunlun Energy Co., remain "Restricted" in 2017.	0	\$0
8	MISC Bhd. (Malaysia)	MISC Bhd. is a Malaysian shipping company that is linked to Iran through its parent company, Petronas, a "Restricted" company.	In 2009, CalSTRS designated MISC Bhd. as "Restricted" and maintained that status in 2017.	0	\$0
9	Oil and Natural Gas Company of India (India)	Oil and Natural Gas Company of India (ONGC) holds stakes in at least one Iranian gas field and is reportedly considering others. In 2013, it was reported that the company was no longer involved in the development of oilfields in Iran. However, through a subsidiary, it remains a large purchaser of Iranian crude.	ONGC was not on the 2009 Iran list but had already been restricted for ties to Iran. In early 2010, CalSTRS also designated the company as "Restricted" for ties to Iran and maintained that status in 2017.	0	\$0

Attachment I

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
10	Oil India (India)	Oil India has been identified as having a participating interest in an offshore block in Iran. The GAO has identified Oil India as having commercial activity in Iran's energy sector.	In the past several years, CalSTRS has initiated the review process of Oil India as the company was purchased by CalSTRS external managers. However, the security was always sold before the review process could be completed. In 2015, CalSTRS determined to restrict the company as it would be more efficient than continually initiating the review process. CalSTRS has maintained the "Restricted" designation in 2017.	0	\$0
11	PetroChina and CNPC - as connected corporations to the Chinese National Oil Company (China)	PetroChina is linked to Iran through its parent, China National Petroleum Corp. (CNPC), which has interests in several Iranian oil and gas projects. Additionally, PetroChina is reportedly continuing work to develop the Azadegan Field in Iran.	In 2009, CalSTRS designated PetroChina as "Restricted" and maintained that status in 2017.	0	\$0
12	Petronas (Malaysia)	Petronas has interest in multiple gas fields in Iran that are in the production phase. Additionally, in 2010, the company reportedly ceased supplying refined products to Iran. However, the company stated it is due to Iran's lack of demand and has not pledged to cease activities in the country. In 2013, Petronas withdrew from South Pars Phase 11 and is in the cost recovery phase of Phases 2 and 3.	In 2009, CalSTRS designated Petronas as "Restricted." While the company's apparent withdrawal from Iran is promising, Petronas remains "Restricted" under Sudan sanctions. CalSTRS has maintained the company's "Restricted" designation in 2017.	0	\$0

34 Companies Under Review

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
1	ABB Ltd. (Switzerland)	ABB Ltd. has disclosed that they have reopened their Iranian office and has started to seek business in the country.	ABB Ltd. had previously been removed from the Iran related securities list. In 2017, CalSTRS identified ABB Ltd. as potentially having new ties to Iran and initiated a new review process.	Stock 5,404,944 ADR 174,400 <u>Bonds</u> \$2,168,000	Stock \$138,653,230 ADR \$4,489,056 <u>Bonds</u> \$2,168,827
2	Andritz AG (Austria)	Andritz AG was identified as potentially providing hydropower equipment in Iran.	In 2017, CalSTRS identified Andritz AG as potentially having ties to Iran and began the review process.	84,301	\$4,729,794
3	ArcelorMittal (Luxembourg)	ArcelorMittal has reported selling steel to Iran.	In 2017, CalSTRS identified ArcelorMittal as potentially having ties to Iran and began the review process.	Stock 1,050,787 <u>Bonds</u> \$1,070,000	Stock \$31,779,855 <u>Bonds</u> \$1,273,182
4	Bharat Petroleum Corporation Ltd. (India)	Bharat Petroleum Corporation Ltd. was identified as potentially purchasing Iranian crude.	In 2017, CalSTRS identified Bharat Petroleum Corporation Ltd. as potentially having ties to Iran and began the review process.	1,809,056	\$14,136,056
5	Chiyoda Corporation (Japan)	Chiyoda corporation was identified as potentially agreeing to renovate refineries in Iran.	In 2017, CalSTRS identified Chiyoda Corporation as potentially having ties to Iran and began the review process.	224,239	\$1,474,822
6	DMG Mori AG (Germany)	DMG Mori AG has been identified as selling their automation and production machinery in Iran.	In 2017, CalSTRS identified DMG Mori AG as potentially having ties to Iran and began the review process.	53,449	\$2,919,786

Attachment I

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
7	Ecolab (USA)	Ecolab has reported that a subsidiary has sold products for upstream oil and gas production and petrochemical plants in Iran.	In 2017, CalSTRS identified Ecolab as potentially having ties to Iran and began the review process.	<u>Stock</u> 568,262 <u>Bonds</u> \$7,260,000	<u>Stock</u> \$77,238,171 <u>Bonds</u> \$8,008,344
8	Enel SpA (Italy)	Enel SpA reportedly has an agreement to purchase liquefied natural gas from Iran.	In 2017, CalSTRS identified Enel SpA as potentially having ties to Iran and began the review process.	<u>Stock</u> 24,793,917 <u>Bonds</u> \$8,961,000	<u>Stock</u> \$161,266,296 <u>Bonds</u> \$8,962,726
9	Fiera Capital (Canada)	An acquisition of Fiera Capital reportedly has a fund that invests exclusively in Iranian securities.	In 2017, CalSTRS identified Fiera Capital as potentially having ties to Iran and began the review process.	65,463	\$668,705
10	FLSmith & Co. A/S (Denmark)	FLSmith and Co. A/S has reportedly opened a new office in Iran to service mineral and cement customers.	In 2017, CalSTRS identified FLSmith & Co. A/S as potentially having ties to Iran and began the review process.	55,573	\$3,064,586
11	Groupe Bruxelles Lambert (Belgium)	Groupe Bruxelles has a subsidiary that reportedly provides oil and gas testing services in Iran.	In 2017, CalSTRS identified Groupe Bruxelles Lambert as potentially having ties to Iran and began the review process.	108,871	\$11,728,543
12	Hexagon Composites (Norway)	Hexagon Composites reportedly provides lightweight composite cylinders for the storage of gases.	In 2017, CalSTRS identified Hexagon Composites as potentially having ties to Iran and began the review process.	178,923	\$571,967
13	JGC Corporation (Japan)	JGC Corporation reportedly provides engineering services for power plants and gas processing plants in Iran.	In 2017, CalSTRS identified JGC Corporation as potentially having ties to Iran and began the review process.	301,545	\$5,257,265
14	Kanemitsu Corp. (Japan)	Kanemitsu Corp. has been identified as potentially providing motor vehicles and electronic parts to Iran through their distribution service.	In 2017, CalSTRS identified Kanemitsu Corp. as potentially having ties to Iran and began the review process.	139,987	\$1,683,772

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
15	Maire Tecnimont SpA (Italy)	Maire Tecnimont SpA reportedly has an agreement to build refineries in Iran.	Maire Tecnimont SpA had previously been removed from the Iran-related securities list. In 2017, CalSTRS identified Marie Tecnimont SpA as potentially having new ties to Iran and initiated a new review process.	207,014	\$953,270
16	Mitsubishi Corp. (Japan)	Mitsubishi Corp. has reportedly renewed contracts to purchase Iranian crude.	Mitsubishi Corp. had previously been removed from the Iran-related securities list. In 2017, CalSTRS identified Mitsubishi Corp. as potentially having new ties to Iran and initiated a new review process.	2,634,651	\$66,228,258
17	Muenchener Rueck (Germany)	Muenchener Rueck has been identified as potentially providing insurance services related to Iran.	In 2017, CalSTRS identified Muenchener Rueck as potentially having ties to Iran and began the review process.	361,566	\$80,596,609
18	Orange SA (France)	Orange SA reportedly provides consulting services to Iranian government owned companies.	In 2017, CalSTRS identified Orange SA as potentially having ties to Iran and began the review process.	Stock 2,875,858 Bonds \$8,000,000	Stock \$49,652,339 Bonds \$8,842,029
19	Outotec OYJ (Finland)	Outotec OYJ reportedly provides products and expertise for copper smelting in Iran.	In 2017, CalSTRS identified Outotec OYJ as potentially having ties to Iran and began the review process.	816,066	\$6,169,050
20	PJSC Tatneft (Russia)	PJSC Tatneft has reportedly signed an agreement to develop the Deloran oilfield in Iran.	In 2017, CalSTRS identified PJSC Tatneft as potentially having ties to Iran and began the review process.	ADR 276,644	ADR \$13,016,457
21	Reliance Industries Ltd. (India)	Reliance Industries Ltd. has reportedly started purchasing Iranian crude after a six-year hiatus.	Reliance Industries Ltd. had previously been removed from the Iran related securities list. In 2017, CalSTRS identified Reliance Industries Ltd. as potentially having new ties to Iran and initiated a new review process.	5,447,045	\$77,849,323

Attachment I

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
22	Royal Dutch Shell (Netherlands)	Royal Dutch Shell has reportedly signed preliminary agreements to develop oilfields in Iran.	Royal Dutch Shell had previously been removed from the Iran related securities list. In 2017, CalSTRS identified Royal Dutch Shell as potentially having new ties to Iran and initiated a new review process.	<u>Stock (A Shares)</u> 13,321,890 <u>Stock (B Shares)</u> 5,538,191	<u>Stock (A Shares)</u> \$425,377,488 <u>Stock (B Shares)</u> \$179,060,502
23	Saipem SPA (Italy)	Saipem SpA reportedly signed a MOU to help develop the Toos Gas Field Development Project.	Saipem SpA had previously been removed from the Iran related securities list. In 2017, CalSTRS identified Saipem SpA as potentially having new ties to Iran and initiated a new review process.	890,244	\$3,579,318
24	Siemens AG (Germany)	Siemens AG reportedly will finance multiple power and transportation projects in Iran as well as providing other products and service in Iran.	Siemens AG had previously been removed from the Iran related securities list. In 2017, CalSTRS identified Siemens AG as potentially having new ties to Iran and initiated a new review process.	<u>Stock</u> 1,490,340 <u>Bonds</u> \$10,000,000	<u>Stock</u> \$202,934,168 <u>Bonds</u> \$10,296,078
25	Sika AG (Switzerland)	Sika AG reportedly provides their building products and automotive services in Iran.	In 2017, CalSTRS identified Sika AG as potentially having ties to Iran and began the review process.	7,392	\$57,211,874
26	SKF AB (Sweden)	SKF AB reportedly provides their bearing and lubrication products to Iran.	In 2017, CalSTRS identified SKF AB as potentially having ties to Iran and began the review process.	<u>Stock</u> 455,341 <u>ADR</u> 20,440	<u>Stock</u> \$10,337,297 <u>ADR</u> \$461,535
27	Sojitz (Japan)	Sojitz has reportedly signed multiple agreements to renovate steel and petrochemical plants in Iran.	In 2017, CalSTRS identified Sojitz as potentially having ties to Iran and began the review process.	1,924,647	\$5,572,455
28	Swiss Re (Switzerland)	Swiss Re reportedly provides insurance services related to Iran.	In 2017, CalSTRS identified Swiss Re as potentially having ties to Iran and began the review process.	454,529	\$42,677,910

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
29	Tata Steel (India)	Tata Steel has a subsidiary that reportedly provides steel to Iran.	In 2017, CalSTRS identified Tata Steel as potentially having ties to Iran and began the review process.	2,106,308	\$22,675,150
30	Telecom Italia (Italy)	Telecom Italia reportedly has roaming and service agreements with Iran.	In 2017, CalSTRS identified Telecom Italia as potentially having ties to Iran and began the review process.	Stock 34,614,938 Bonds \$4,994,000	Stock \$27,886,778 Bonds \$6,065,028
31	Telenor ASA (Norway)	Telenor ASA reportedly has roaming and service agreements with the Iranian state-owned Mobile Company of Iran.	In 2017, CalSTRS identified Telenor ASA as potentially having ties to Iran and began the review process.	3,584,011	\$80,588,637
32	Toyo Engineering (Japan)	Toyo Engineering reportedly signed an agreement to develop the Salman oil and Gas field in Iran.	In 2017, CalSTRS identified Toyo Engineering as potentially having ties to Iran and began the review process.	46,596	529,647
33	Toyota Tsusho Corp (Japan)	Toyota Tsusho Corp reportedly has an operational trade business in Iran which helps coordinate various types of businesses between Japanese and Iranian Companies.	In 2017, CalSTRS identified Toyota Tsusho Corp as potentially having ties to Iran and began the review process.	494,553	\$18,649,870
34	Unicredit SpA (Italy)	Unicredit SpA reportedly provides banking services to Iran.	In 2017, CalSTRS identified Unicredit SpA as potentially having ties to Iran and began the review process.	Stock 5,234,262 Bonds \$350,000	Stock \$105,474,111 Bonds \$491,719

16 Companies Being Monitored					
Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017	
1 Aker Solutions (Norway)	Aker Solutions reportedly has a subsidiary with business agreements in Iran which may include the transfer of petroleum research technology to Iran.	Aker Solutions had previously been removed from the CalSTRS Iran related securities list. However, in 2016, CalSTRS reinitiated the review process due to potentially new involvement. In 2017, CalSTRS determined to classify Aker Solutions as "Monitor" while staff conducts further review of the company's internal controls and compliance programs.	212,313	\$1,055,962	
2 China Railway Group (China)	News reports indicate China Railway Group has signed a \$2 billion investment agreement, including the construction of a 350,000 ton smelter, a 500 megawatt power station and an anode project.	In 2016, CalSTRS identified China Railway Group as potentially having ties to Iran and began the review process. In 2017, CalSTRS determined to classify China Railway group as "Monitor" while staff conducts further review of the company's internal controls and compliance programs.	2,380,451	\$1,776,911	
3 Japan Drilling Co. Ltd. (Japan)	In 2015, Japan Drilling Co. Ltd. was identified as possibly operating offshore drilling services in Iran with clients including the Iranian government.	In 2015, CalSTRS identified Japan Drilling Co. Ltd. as potentially having ties to Iran and began the review process. In 2016, CalSTRS stopped and restarted the review process based on changes in CalSTRS' holdings in the company's securities. In 2017, CalSTRS determined to classify Japan Drilling as "Monitor" while staff conducts further review of the company's internal controls and compliance programs.	6,209	\$130,444	
4 Kamigumi Co. Ltd. (Japan)	In 2014, Kamigumi Co. Ltd. was identified by CalSTRS service providers as being a supplier of logistic services in Iran including agreements with state-owned Islamic Republic of Iran Shipping Lines.	In 2014, CalSTRS identified Kamigumi Co. Ltd. as having ties to Iran. In 2015, CalSTRS determined to classify Kamigumi Co. Ltd. as "Monitor" and maintained that designation in 2017.	482,912	\$10,676,237	

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
5	LafargeHolcim Ltd. (Switzerland)	In 2014, Holcim Ltd. was identified as having equity interest in an Iranian cement company. In 2015, Holcim merged with Lafarge SA.	In 2014, CalSTRS identified Holcim Ltd. as potentially having ties to Iran and began the review process. In 2015, Holcim Ltd. merged with Lafarge SA to create LafargeHolcim Ltd. CalSTRS reinitiated the review process on the merged company to evaluate its internal controls and compliance procedures. In 2017, CalSTRS determined to maintain LafargeHolcim in a "Monitor" status.	<u>Stock</u> 719,103 <u>Bonds</u> \$2,400,000	<u>Stock</u> \$39,398,891 <u>Bonds</u> \$2,428,984
6	Larsen & Tourbro Ltd. (India)	In 2014, Larsen & Tourbro Ltd. was identified by CalSTRS service providers as providing products to Iran. Additionally, Larsen & Tourbro Ltd. reportedly holds a stake in an Iran-based joint venture, IndIran Engineering Projects and Systems.	In 2014, CalSTRS identified Larsen & Tourbro Ltd. as potentially having ties to Iran. In 2015, CalSTRS determined to classify Larsen & Tourbro Ltd. as "Monitor" and maintained that designation in 2017.	<u>Stock</u> 841,377 <u>GDR</u> 33,189	<u>Stock</u> \$15,874,336 <u>GDR</u> \$595,743
7	Lukoil OAO (Russia)	In 2009, Lukoil OAO confirmed to CalSTRS that it did not have any business in Iran. However, the company does have a 10 percent stake in the Shah Deniz Field operated by BP, which has Iran as a partner. The Shah Deniz Field operates under exemptions to the Iran sanctions. In 2016, Lukoil OAO reportedly signed an agreement for hydrocarbon exploration in Iran.	In 2014, CalSTRS determined to re-evaluate Lukoil OAO and its sanction controls and relations with the National Iranian Oil Company (NIOC) relating to the Shah Deniz Field. In 2015, CalSTRS determined to place Lukoil OAO as "Monitor" due to media speculation that Russian firms were seeking business in Iran and maintained that designation in 2017.	<u>Stock</u> 2,890,525 <u>Bonds</u> \$2,390,000	<u>Stock</u> \$161,340,091 <u>Bonds</u> \$2,491,049

Attachment I

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
8	OAO Gazprom (Russia)	<p>In July 2008, OAO Gazprom signed an MOU with the NIOC, which expired in July 2010. Additionally, Gazprom Neft, a subsidiary of OAO Gazprom, signed an MOU with the NIOC providing for joint exploration of oilfields in Iran. In 2014, the company reported that Iran had suspended cost recovery payments related to South Pars 2 and 3.</p>	<p>In 2009, CalSTRS designated OAO Gazprom as "Review." In 2010, CalSTRS designated OAO Gazprom as "Monitor" after confirming the company has no current investments in the country. In 2011, CalSTRS maintained OAO Gazprom as "Monitor" as the GAO stated it had insufficient information on the company's activities and the Russian government's reported interest in developing a deal with Iran. In 2014, due to U.S. sanctions on Gazprom Bank, an OAO Gazprom subsidiary, CalSTRS determined to minimize its exposure to the company by restricting managers from making new purchases in OAO Gazprom securities. For risk control purposes, in 2016 CalSTRS revised the restriction on purchasing shares of OAO Gazprom to allow managers underweighted in OAO Gazprom (versus their benchmark) to purchase up to benchmark weight. CalSTRS maintained the restriction on purchasing OAO Gazprom in 2017.</p>	<p><u>ADR</u> 7,684,191</p>	<p><u>ADR</u> \$34,383,969</p>
9	OMV (Austria)	<p>OMV has signed MOU with Dana Energy and NIOC to develop the Band Karkheh oilfield.</p>	<p>In 2017, CalSTRS identified OMV as potentially having new ties to Iran and initiated a new review process. CalSTRS subsequently moved OMV to the "Monitor" list after reviewing the company's business and internal controls but determined to monitor their interest in the Band Karkheh oilfield.</p>	<p>239,323</p>	<p>\$14,912,744</p>

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
10	Orient Overseas International (Hong Kong)	In 2015, Orient Overseas International was identified as providing shipping services in Iran.	In 2015, CalSTRS identified Orient Overseas International as potentially having ties to Iran and began the review process. In 2016, CalSTRS determined to classify Orient Overseas International as "Monitor" while staff conducted further review of the company's compliance and control policies and procedures. In 2017, CalSTRS determined to maintain Orient Overseas International in a "Monitor" status.	20,500	\$194,233
11	Polskie Górnictwo Naftowe i Gazownictwo (PGNiG) (Poland)	PGNiG has an MOU with NIOC to work on the Lavan Island and Soumar oilfields.	CalSTRS has initiated the review process multiple times since 2012 but liquidated the security before completing the engagement. In 2015, CalSTRS determined to classify PGNiG as "Monitor" and maintained that designation in 2017.	4,614,385	\$7,898,361
12	Raiffeisen Bank Intl. (Austria)	The Raiffeisen Bank Intl. has reportedly signed agreements to increase cooperation with Iran and has stated they plan to reopen offices in Tehran "as soon as possible."	In 2016, CalSTRS identified Raiffeisen Bank Intl. as potentially having ties to Iran and began the review process. In 2017, CalSTRS determined to classify Raiffeisen Bank Intl. as "Monitor" while staff conducts further review of the company's internal controls and compliance programs.	168,776	\$5,986,891
13	State Bank of India (India)	State Bank of India was identified by CalSTRS service providers as possibly providing financial services to Iran, including financing oil purchases.	In 2013, CalSTRS identified State Bank of India as potentially having ties to Iran and began the review process. In 2014, CalSTRS sold all holdings of State Bank of India prior to completing the review process. In 2015, CalSTRS determined to classify State Bank of India as "Monitor" because of the intermittent nature of the holdings in the company and maintained the "Monitor" status in 2017.	<u>GDR</u> 0	<u>GDR</u> \$0

Attachment I

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
14	Sulzer AG (Switzerland)	In 2015, Sulzer AG was identified as selling their pump products in Iran.	In 2015, CalSTRS identified Sulzer AG as potentially having ties to Iran and began the review process. In 2016, CalSTRS determined to classify Sulzer AG as "Monitor" while staff conducts further review of the company's internal controls and compliance programs. In 2017 CalSTRS determined to maintain Sulzer AG in a "Monitor" status.	20,426	\$2,392,169
15	Total SA (France)	In November 2016, Total SA issued a press release that the company had signed a Heads of Agreement (HoA) with the NIOC for the development of phase 11 of South Pars.	Total SA had previously been removed from the Iran review list after ceasing operations in Iran. In 2016, CalSTRS reinstated Total SA as "Monitor" maintained the "Monitor" status in 2017.	3,566,896	\$201,612,898
16	Woori Bank (South Korea)	In 2014, Woori Finance Holdings Co. was identified as providing import-export financing services to facilitate trade with Iran. In late 2014, Woori Finance Holdings Co. merged with its subsidiary Woori Bank and changed its name to Woori Bank.	In 2014, CalSTRS identified Woori Finance Holdings Co. as having ties to Iran. In 2015, CalSTRS determined to classify Woori Bank as "Monitor" and has maintained the "Monitor" status in 2017.	296,174	\$4,408,931

23 Companies Removed					
	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
1	Bilfinger SE (Germany)	Bilfinger SE reportedly signed contracts with Nargan, an Iran-based engineering, procurement and construction company, for the supply of process control technology and safety systems for the upgrade of a refinery operated by an Iran state-owned company.	In 2016, CalSTRS identified Bilfinger SE as potentially having ties to Iran and began the review process. In 2017, CalSTRS removed Bilfinger SE from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	58,058	\$2,556,150

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
2	BNP Paribas (France)	BNP Paribas has previously been identified as providing banking services to Iran. European Banks remain a heightened level of risk given the amount of interest within European industries seeking to do business with Iran.	BNP Paribas had previously been removed from the Iran-related securities list. In 2017, CalSTRS engaged BNP Paribas in relation to the financing of the Dakota Access Pipeline. While reviewing the company's involvement in the Dakota Access Pipeline, staff confirmed the company is maintaining appropriate internal controls and policies relating to Iran sanctions.	<u>Stock</u> 2,304,039 <u>Bonds</u> \$327,930,000	<u>Stock</u> \$174,668,288 <u>Bonds</u> \$329,119,140
3	BT Group (United Kingdom)	BT Group reportedly signed a contract with an Iranian state-owned telecommunications company to make and receive voice calls from the country to the UK.	In 2016, CalSTRS identified BT Group as potentially having ties to Iran and began the review process. In 2017 CalSTRS removed BT Group from the "Review" list after reviewing the company's internal controls and compliance programs.	<u>Stock</u> 22,729,110 <u>Bonds</u> \$11,250,000	<u>Stock</u> \$80,241,057 <u>Bonds</u> \$14,633,857
4	BW Offshore (Norway)	BW Offshore reportedly had a contract to manufacture a floating production, storage and offloading (FPSO) vessel for Petroleum Iran.	In 2017, CalSTRS identified and subsequently removed BW Offshore from the list of identified companies after reviewing the company's internal controls and the company confirming they have no business with Iran.	88,828	\$287,173

Attachment I

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
5	China Communications Construction Company Limited (China)	In 2015, China Communications Construction Company Limited was identified as potentially being involved in the development of a harbor in Iran.	In 2015, CalSTRS identified China Communications Construction Company Limited as potentially having ties to Iran and began the review process. In 2016, CalSTRS determined to classify China Communications Construction Company Limited as "Monitor." In 2017, CalSTRS removed China Communications Construction Company from the "Monitor" list. CalSTRS no longer holds the company's securities.	0	\$0
6	Commerzbank AG (Germany)	European banks remain a heightened level of risk given the amount of interest within European industries seeking to do business with Iran	In 2017, CalSTRS engaged Commerzbank in relation to the financing of the Dakota Access Pipeline. While reviewing the company's involvement in the Dakota Access Pipeline, staff confirmed the company is maintaining appropriate internal controls and policies relating to Iran sanctions	1,289,216	\$18,684,624
7	Credit Agricole (France)	Credit Agricole had previously been identified as providing banking services to Iran. European banks remain a heightened level of risk given the amount of interest within European industries seeking to do business with Iran.	Credit Agricole had previously been removed from the Iran-related securities list. In 2017, CalSTRS engaged Credit Agricole in relation to the financing of the Dakota Access Pipeline. While reviewing the company's involvement in the Dakota Access Pipeline, staff confirmed the company is maintaining appropriate internal controls and policies relating to Iran sanctions.	<u>Stock</u> 3,243,162 <u>Bonds</u> \$2,160,000	<u>Stock</u> \$54,737,156 <u>Bonds</u> \$2,424,370
8	Credit Suisse (Switzerland)	Credit Suisse was identified as potentially providing banking services relating to Iran.	In 2017, CalSTRS identified and subsequently removed Credit Suisse from the list of identified companies after confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 5,103,789 ADR 31,950 <u>Bonds</u> \$118,246,055	<u>Stock</u> \$86,592,112 ADR \$539,955 <u>Bonds</u> \$118,755,150

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
9	Croda International (United Kingdom)	Croda International, a chemical company, has reportedly opened an office in Iran.	In 2017, CalSTRS identified and subsequently removed Croda International from the list of identified companies after confirming the company is maintaining appropriate internal controls and compliance procedures.	462,452	\$26,748,915
10	DNO ASA (Norway)	DNO ASA reportedly has signed an agreement to assist in the development of an oilfield in Iran.	In 2017, CalSTRS identified and subsequently removed DNO ASA from the list of identified companies after confirming the company is maintaining appropriate internal controls and compliance procedures.	896,080	\$1,056,088
11	Formosa Petrochemical Corp. (Taiwan)	Formosa Petrochemical Corp. reportedly provides services for Iranian oil shipping terminals.	In 2017, CalSTRS identified and subsequently removed Formosa Petrochemical Corp. from the list of identified companies since CalSTRS no longer holds the company's securities.	0	\$0
12	Gemalto NV (Netherlands)	In 2014, Gemalto NV was identified as providing digital security products to Iran.	In 2014, CalSTRS identified Gemalto NV as potentially having ties to Iran. In 2015, CalSTRS designated Gemalto NV as "Monitor" and maintained that designation in 2016. In 2017, CalSTRS removed Gemalto NV from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	152,103	\$5,788,104

Attachment I

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
13	Hindustan Petroleum (India)	Hindustan Petroleum has reportedly entered into contracts to purchase Iranian crude oil.	In 2016, CalSTRS identified Hindustan Petroleum as potentially having ties to Iran and began the review process. In 2017, CalSTRS removed Hindustan Petroleum from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	2,325,970	\$15,031,509
14	Honeywell International (USA)	Honeywell International reportedly has wholly owned subsidiaries that have entered into contracts to sell gas meters and absorbents for end use in the Iranian petrochemical industry.	In 2016, CalSTRS placed Honeywell International on the "Review" list to confirm the company's compliance and controls. In 2017, CalSTRS removed Honeywell International from the "Review" list confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 1,590,49 <u>Bonds</u> \$35,000,000	<u>Stock</u> \$248,046,426 <u>Bonds</u> \$35,000,000
15	HSBC (United Kingdom)	HSBC was identified as potentially providing banking services relating to Iran.	In 2017, CalSTRS identified and subsequently removed HSBC from the list of identified companies after confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 28,741,259 <u>Bonds</u> \$105,686,000	<u>Stock</u> \$285,567,296 <u>Bonds</u> \$110,863,585
16	ING Groep (Netherlands)	ING Groep was identified as potentially providing banking services relating to Iran.	In 2017, CalSTRS identified and subsequently removed ING Groep from the list of identified companies after confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 9,643,062 <u>Bonds</u> \$10,471,000	<u>Stock</u> \$174,250,733 <u>Bonds</u> \$10,837,079

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
17	Linde AG (Germany)	Linde AG is reportedly making investments in multiple petrochemical projects in Iran.	In 2017, CalSTRS identified Linde AG as potentially having new ties to Iran and initiated a new review process. CalSTRS subsequently removed Linde AG from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 124,794 <u>Tender</u> 212,852	<u>Stock</u> \$27,438,372 <u>Tender</u> \$49,781,704
18	MMC Corp. (Malaysia)	MMC Corp. was identified as possibly providing consulting services on energy projects in Iran.	In 2015, CalSTRS identified MMC Corp. as potentially having ties to Iran and began the review process. In early 2016, CalSTRS stopped the review process as CalSTRS no longer had holdings in the company's securities. However, in late 2016, CalSTRS reinitiated the review process when one of CalSTRS' managers took a new position in the company. In 2017, CalSTRS removed MMC Corp. from the "Review" list as CalSTRS no longer holds the company's securities.	0	\$0
19	MTN Group (South Africa)	In 2015, MTN Group was identified as potentially operating a mobile phone network in Iran with a partner owned by the Iranian government.	In 2015, CalSTRS identified MTN Group as potentially having ties to Iran and began the review process. In 2016, CalSTRS determined to classify MTN Group as "Monitor" while staff conducted further review of the company's compliance and control policies and procedures. In 2017, CalSTRS removed MTN Group from the "Monitor" list as CalSTRS no longer holds the company's securities.	0	\$0

Attachment I

	Company Name (Domicile)	Summary of Ties to Iran	Summary of Changes From 2016	Shares Held by CalSTRS 11/30/2017	Market Value (\$) of Shares Held by CalSTRS 11/30/2017
20	RELX PLC (United Kingdom)	According to SEC filings, RELX PLC sold technical publications to clients related to the government of Iran.	In 2017, CalSTRS identified and subsequently removed RELX PLC from the list of identified companies after confirming the company is maintaining appropriate internal controls and compliance procedures.	4,116,989	\$96,300,838
21	S&P Global (USA)	S&P Global reported to the SEC that one of its divisions sold energy-related information and informational materials to 14 Iran-linked subscribers that are on U.S. government sanctions lists and are owned or controlled by the government of Iran.	In 2016, CalSTRS placed S&P Global on the "Review" list to confirm the company's compliance and controls. In 2017, CalSTRS removed S&P Global from the "Review" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 707,427 <u>Bonds</u> \$6,000,000	<u>Stock</u> \$117,065,020 <u>Bonds</u> \$6,397,590
22	Siam Cement (Thailand)	Siam Cement holds a 38 percent stake in a HDPE petrochemical plant in Iran. HDPE is a raw material used in the production of consumer products such as shopping bags.	In 2012, CalSTRS identified Siam Cement as potentially having ties to Iran. In 2013, CalSTRS designated Siam as "Monitor" and maintained the "Monitor" status through 2016. In 2017, CalSTRS removed Siam Cement from the "Monitor" list after confirming the company is maintaining appropriate internal controls and compliance procedures.	<u>Stock</u> 1,559,409	<u>Stock</u> \$22,727,455
23	UBS (Switzerland)	European banks remain a heightened level of risk given the amount of interest within European industries seeking to do business with Iran.	In 2017, CalSTRS engaged UBS in relation to the financing of the Dakota Access Pipeline. While reviewing the company's involvement in the Dakota Access Pipeline, staff confirmed the company is maintaining appropriate internal controls and policies relating to Iran sanctions.	<u>Stock</u> 5,400,080 <u>Bonds</u> \$416,023,979	<u>Stock</u> \$93,433,840 <u>Bonds</u> \$427,639,071